City of Ramsey
Agenda
Regular City Council - Revised
Tuesday, July 28, 2015
7:00 pm
Council Chambers, 7550 Sunwood Drive NW

1. Call to Order

2. Presentation

3. Citizen Input

4. Consent Agenda

1. Note the Following Boards and Commissions Meeting Minutes:
1. Park and Recreation Commission Meeting Minutes Dated May 14, 2015
2. Economic Development Authority Meeting Minutes Dated June 4, 2015
3. Planning Commission Meeting Minutes Dated June 4, 2014

2. Approve the Following Meeting Minutes:
1. City Council Work Session dated 07/14/2015
2. City Council Regular dated 07/14/2015

3. Approve Temporary Construction Easement Related to Garnet Street Reconstruction Project

4. Adopt Resolution #15-07-187 Approving Cash Disbursement Made and Authorizing Payment of Accounts Payable Invoicing Received During the Period of July 9, 2015 through July 22, 2015

5. ~~Adopt Resolution #15-07-177 Approving Multiple Agreements Related to the Previously Approved Purchase Agreement, Site Plan Approval, and Livable Communities Grant for Sunwood Village; Case of CommonBond Communities -~~ **Please Note: This item was removed from Consent and placed on the Regular Agenda as Item 7.06.**

6. Adopt Res. #15-07-179 Approving an Encroachment Agreement for a Portion of a Proposed Driveway in a Drainage and Utility Easement at 17209 Tungsten St. NW; Case of Frank and Dorothy Frederick

7. Adopt Resolution #15-07-180 Approving Partial Payment to Construction Results Corporation for IP #14-28 Parking Ramp Garage Enclosure

8. Adopt Resolution #15-07-181 Approving Partial Payment to Brennan Construction of MN, Inc. for IP #14-30 Fire Station #2

9. Adopt Resolution #15-07-184 approving Partial Payment to North Valley Inc for IP #14-27; Mississippi River Trail.

10. Adopt Resolution #15-07-185 Authorizing Partial Payment to Douglas-Kerr Underground LLC for IP 14-24; Center Street Improvements.

11. Adopt Resolution #15-07-186 approving partial payment to Kuechle Underground Inc. for IP#12-22 Riverdale Dr. Reconstruction and Extension

12. Adopt Resolution #15-07-189 Approving Name Change of Country Club Hills to Woodlands and Re-Affirming Final Plat Approval; Case of US Home Corporation, doing business as Lennar Homes

5. Approve Agenda

6. Public Hearing

7. Council Business

1. Approve Contract with The Tinklenberg Group for Work regarding Improvements to US Trunk Highway 10 and Related Rail Crossings

2. Adopt Resolutions #15-07-167 & #15-07-168 Approving a Conditional Use Permit for Auto Sales in a B-2 Highway Business District on the Property Located at 6650 Highway 10 NW; Case of Dumark's Auto Sales, LLC

3. Introduce Ordinance #15-13 Amending Ordinance #15-04 Massage Businesses and Services by Deleting the Insurance Requirements

4. Review Comparison Document of The COR Development Plan and Original Ramsey Town Center Master Plan Prepared by the Planning Commission

5. Review of Metropolitan Council's draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan

6. Adopt Resolution #15-07-177 Approving Multiple Agreements Related to the Previously Approved Purchase Agreement, Site Plan Approval, and Livable Communities Grant for Sunwood Village; Case of CommonBond Communities - **Please Note: this case was moved from Consent Number 4.06 to the Regular Agenda Item Number 7.06**

8. Mayor/Council/Staff Input
1. Verbal Update on Road Construction Projects - Bruce Westby, City Engineer

9. Adjournment

CC Regular Session **4. 1.**

Meeting Date: 07/28/2015

By: JoAnn Shaw, Community Development

Information

Title

Note the Following Boards and Commissions Meeting Minutes:

1. Park and Recreation Commission Meeting Minutes Dated May 14, 2015
2. Economic Development Authority Meeting Minutes Dated June 4, 2015
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Attachments

05.14.15 Park

06.04.15 EDA

06.04.15 Planning

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:31 PM
Form Started By: JoAnn Shaw		Started On: 07/20/2015 02:17 PM
Final Approval Date: 07/22/2015		

PARK AND RECREATION COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Park and Recreation Commission conducted a regular meeting on May 14, 2015, at Elmcrest Park, Ramsey, Minnesota.

Commission Members Present:	Chair Shane Bennett Commissioner Bridgett Barr Commissioner Richard Chubb Commissioner Andrew Fyten Commissioner Thomas Mobry Commissioner Jon Trappen Commissioner David Troy
Commission Members Absent:	None
Also Present:	Parks & Assistant Public Works Superintendent Mark Riverblood Parks Division Intern Zack Ellsworth

1. CALL TO ORDER

Chair Bennett called the Park and Recreation Commission meeting to order at 6:30 p.m.

2. CITIZEN INPUT

No one appeared to address the Commission

3. APPROVE AGENDA

Motion by Commissioner Chubb, seconded by Commissioner Barr, to approve the Park and Recreation Commission meeting agenda as presented.

Motion carried. Voting Yes: Chair Bennett, Commissioner Chubb, Barr, Fyten, Mobry, Trappen, and Troy. Voting No: None. Absent: None.

4. APPROVE MINUTES

4.01: Approve Park and Recreation Commission Meeting Minutes dated April 9, 2015

Motion by Commissioner Mobry, seconded by Commissioner Troy, to approve the following Park and Recreation Commission Regular Meeting Minutes:

1) Park and Recreation Commission Regular Meeting Minutes dated April 9, 2015.

Motion carried. Voting Yes: Chair Bennett, Commissioners Mobry, Troy, Barr, Chubb, Fyten, and Trappen. Voting No: None. Absent: None.

5. COMMISSION BUSINESS

5.01: Recommend Playground and Site Improvements for Elmcrest Park

Parks & Assistant Public Works Superintendent Riverblood reviewed in March of 2015 City Council authorized Staff and the Park and Recreation Commission to proceed with various 2015 Parks Capital Improvements, including the playground project for Elmcrest Park. A comprehensive Request for Proposal was developed for a not-to-exceed amount of $90,000 to be funded by the Lawful Gambling Improvement Fund; for the play structure elements, as well as seating, and landscape in the vicinity of the new Community Building. This RFP was sent to approximately 25 landscape architectural firms and playground purveyors, with the intention that they form a collaborative to provide a "winning" design for the proposed improvements, worth of the park and building's prominence in the community. Five proposals were received by the deadline for submission on May 6, 2015.

The purpose of this case is for the Commission to carefully examine all elements of each of the five, separate proposals – and make a recommendation to City Council on the proposal that represents the best value to the community, in relation to the many goals expressed within the RFP.

Upon careful evaluation of all the details of the five proposals, the Commission should list the attributes (in summary) of the winning design and include these within the motion recommending City Council approval. To aid in the Commission's critique and assessment, Staff will have for the meeting an evaluation form derived from the RFP.

The 2015 Parks Capital Improvement Program has scheduled $100,000 within the Lawful Gambling Improvement Fund for the playground related project, including a minor trail realignment and irrigation for the sodded areas ($10,000 for this, plus the $90,000 playground.

Staff, together with any residents attending the 6:00 p.m. Open House will assist the Commission in the playground evaluation and subsequent recommendation to the City Council.

The five vendors are:

Parkitecture
Midwest Playscape
Flagship
St. Croix
MN/WI Playgrounds

Parks and Assistant Public Works Superintendent Riverblood distributed the proposal evaluation forms to be used when reviewing each proposal.

1. Flagship – Parks and Assistant Public Works Superintendent Riverblood reviewed the proposal and indicated the different pictures are different views of the same equipment. No trees were included in the proposal. The zipline was a unique feature and the optional concrete pad. This did not meet the intent of the RFP.

2. Midwest Playscape – Parks and Assistant Public Works Superintendent Riverblood reviewed three trees were included in the proposal. Belt swings were included in their proposal.

3. Parkitecture – Responded to the farm theme. Belt swings were included in their proposal. One tree was included in the proposal. This proposal had a defined concrete curb boundary. A full size plan sheet was included in this proposal.

4. MN/WI Playgrounds – Safety surface engineered wood fiber. Responded to the farm theme.

5. St. Croix – They did respond to the request for 4 trees. The 2-5 age group play structure was included but not shown in the drawing. They included a variety of seating choices.

Commissioner Fyten left the meeting at 7:30 p.m.

Chair Bennett asked for citizen input.

Ms. Cloe Marquez 18433 Olson Street, Elk River, liked the Midwest Playscape proposal due to the variety of the equipment.

Mr. Zach Glasgow, 13429 212th Avenue NW, Elk River, MN/WI Playgrounds as it looks interesting.

Ms. Reece Hickman, 16810 Turnberry Court, Ramsey, liked MN/WI Playgrounds as it offers activities for all ages.

Mr. Shawn Williams, 6100 177th Lane Ramsey, liked MN/WI Playgrounds and he questioned the expansion of the trail. Mr. Riverblood stated some of the proposals moved the trail slightly and enlarged the playground area. He stated the equipment is needed for siblings of the soccer players.

The Commissioners were asked for their first choices:

Trappen – Midwest Playscape
Troy – Midwest Playscape
Bennett – St. Croix
Fyten – Midwest Playscape
Barr – St. Croix
Mobry – Midwest Playscape
Chubb – Midwest Playscape

Zack Ellsworth – Midwest Playscape
Mark Riverblood – Midwest Playscape

The concensus was the Top 2 proposals were from Midwest Playscape (7) and St. Croix (2).

Mr. Riverblood noted Midwest Playscape addressed the drainage issue, but did not have an outlet. St. Croix addressed all parts of RFP except the drainage issue was somewhat unclear.

Motion by Commissioner Troy, seconded by Chubb, to recommend that the City Council approve Midwest Playscapes' proposal in a not-to-exceed amount of $90,000 for the Elmcrest Park playground project.

Further discussion: Commissioner Barr asked if any 'tweaks can be made to the proposals. Mr. Riverblood stated typically the vendor is very flexible. There would need to be resolution of the drain tile. She stated she would like to see some changes to the landscape, seating, and boundaries of the play area—similar to St. Croix's proposal. Mr. Riverblood stated the motion could be modified to direct staff to work with the vendor on the items mentioned. Chair Bennett stated he agrees if slight modifications could made.

Revised motion by Commissioner Troy, seconded by Chubb, to recommend that the City Council approve Midwest Playscapes' proposal in a not-to-exceed amount of $90,000 for the Elmcrest Park playground project with modifications made to the landscape, seating and boundaries of the play area.

Revised motion carried. Voting Yes: Chairman Bennett, Commissioners Troy, Chub, Barr, Mobry, and Trappen. Voting No: None. Absent: Commissioner Fyten.

6. COMMISSION/STAFF INPUT

No commission or staff input.

7. ADJOURNMENT

Motion by Commissioner Barr, seconded by Commissioner Trappen, to adjourn the meeting.

Motion carried. Voting Yes: Chair Bennett, Commissioners Barr, Trappen, Chubb, Mobry, and Troy. Voting No: None. Absent: Commissioner Fyten.

The Park and Recreation Commission meeting adjourned at 8:00 p.m.

Respectfully submitted,

_____

Mark Riverblood
Parks & Assistant Public Works Superintendent

Drafted by Debbie Wolfe
TimeSaver Off Site Secretarial, Inc.

ECONOMIC DEVELOPMENT AUTHORITY
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The City of Ramsey Economic Development Authority (EDA) conducted a regular meeting on Thursday, June 4, 2015, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Chairperson Jim Steffen
Member Brian Burandt
Member Glen Hardin
Member Chris Riley
Member Wayne Skaff
Member Kristine Williams

Members Absent: Member Philip Brunt

Also Present: Patrick Brama, Econ. Dev. Mgr/Assistant City Administrator
Tim Gladhill, Development Services Manager
Mark Riverblood, Parks and Assistant Public Works Superintendent
Kurtis Ulrich, City Administrator

1. CALL TO ORDER

Chairperson Steffen called the Economic Development Authority meeting to order at 7:30 a.m.

2. APPROVE AGENDA

No changes made

Motion by Member Skaff, seconded by Member Riley, to approve the agenda.

Motion carried. Voting Yes: Chairperson Steffen, Members Skaff, Riley, Burandt, Hardin, and Williams. Voting No: None. Absent: Member Brunt.

3. APPROVE MINUTES

3.01: Approve Meeting Minutes Dated April 12, 2015

Motion by Member Riley, seconded by Member Skaff, to approve the April 12, 2015, minutes as presented.

Motion carried. Voting Yes: Chairperson Steffen, Members Riley, Skaff, Burandt, Hardin, and Williams. Voting No: None. Absent: Member Brunt

4. EDA BUSINESS

4.01: Consider Dominium Development & Acquisitions, LLC Letter of Intent

Econ. Dev. Mgr/Assistant City Administrator Brama presented the staff report and asked the Commission to consider the Letter of Intent from Dominium Development & Acquisitions, LLC. He noted this item could be discussed in a Closed Session if the Commission wished.

Ms. Stacie Kvilvang, Ehlers and Associates, outlined the threshold they put together regarding this item.

Econ. Dev. Mgr/Assistant City Administrator Brama stated they reviewed this document in detail with Ehlers and reviewed the LOI with Dominium and when they talk about a market comparable deal they would be looking at closer to $10,000 per unit and a total of 4-6 percent of the total project as a subsidy from the City, over 15 years of TIF. Those are the types of thresholds they want to see as a maximum in LOI or at least have Dominium approach those market averages and then bring the LOI back to the City. This is what was discussed and what staff is recommending to go back with to Dominium.

Chairperson Steffen asked if the deferred development fee was $1.9 million dollars and would they have that out of the project by the time the permitting and financing is done or is it deferred longer than that.

Ms. Kvilvang stated typically it is paid out of cash flow and depends on what the cash flow is. Sometimes it can take up to ten years to get the deferred development money back. It depends on how the project is performing.

Member Riley stated he would like to hear why Ms. Kvilvang was listed as a reference and what her relationship is with Dominium.

Ms. Kvilvang stated she was listed as a reference because she has worked with Dominium in so many cities on different projects and has looked at their projects for assistance. They know she understands the process of how tax credits are financed and also understands the public process of policy on the other end. She stated Dominium viewed her as a fair judge of their projects.

Chairperson Steffen asked what Ms. Kvilvang's experience is working with Dominium.

Ms. Kvilvang reviewed her work experience with the Commission.

Chairperson Steffen asked if the City had a counter offer in mind in terms of how they would respond to this.

Econ. Dev. Mgr/Assistant City Administrator Brama suggested staff would work with Ehlers and would discuss the 15 year maximum TIF rules and the maximums that are outlined in this document. Staff would provide feedback to Dominium that the City is looking for something

that would be within market and would work side by side with Ehlers to put that together. Staff is comfortable taking that and bringing back for consideration. That is one alternative, or the EDA and City Council can discuss a specific counter offer with specific thresholds.

Chairperson Steffen felt the PSD project was similar in size and he wondered how they can do it without a subsidy and Dominium says they are 2.6 million dollars short.

Econ. Dev. Mgr/Assistant City Administrator Brama stated there are restrictions through affordable independent senior housing projects so the rents are capped and the cash flows are capped. When cash flows are capped there is less money to work with so in order to make the project work, especially if it is going to be a high quality project, it needs to be made up somewhere. Often times it is made up through grants, tax credit programs or local assistance.

Ms. Kvilvang agreed and stated affordable housing rents are capped so they are at a dollar a square foot in rent compared to $1.60 to $2.00 a square foot. The difference is what the City is making up. If they came in and built at market they would probably need less assistance or none at all. In the metropolitan area, if the developer is not charging $1.80 to $2.00 a square foot for the quality of development people want to see, they will be providing assistance. There are very few markets where that happens.

Member Williams asked if this number of senior assisted housing is part of the Comprehensive Plan.

Development Services Manager Gladhill stated the County HRA did a senior housing study recently, which looked at senior housing needs for the area, including assisted living and senior independent. What is being proposed now is not assisted living but independent senior living with that affordability. To tie that with their Comprehensive Plan and Housing Assistance Policy, they try to rank at least the types of housing they would consider assistance for, their number one priority was senior independent.

Member Williams asked if they want it in that location because this type of residential development does not support the retail on that corner and will not drive more trips or improve the retail offerings or commercial viability of the rest of their development. Before the City even talks about whether or not assistance should be given, it should be decided if this is the right location for the senior assisted housing.

Econ. Dev. Mgr/Assistant City Administrator Brama stated, based on the feedback from Dominium, it is his understanding that there are income restrictions from the people that rent these units and many will be retired. What he has been told by Dominium is that the seniors do have disposable income and they will be putting money into the local economy.

Member Williams indicated that was not her issue; there could be luxury apartments there and she would ask the same question. She did not think it was driving additional trips or increasing the commercial offerings that are available in the COR. She stated this is a residential development, which may compliment but not in the same way that another retail offering would.

Ms. Kvilvang stated residential does drive commercial and if they do not have residential nearby, commercial businesses will not want to populate the area and it will be harder to build out.

Chairperson Steffen asked if they had a preference of senior living market rate versus senior living affordable, wouldn't they choose senior living market rate.

Member Skaff thought they had that already since there are seniors living in The Residence at the COR who can afford that rent structure and the same can be said of the PSD environment.

Chairperson Steffen stated with senior living market rate, the City would not be providing as much assistance. Staff indicated that was correct.

Chairperson Steffen stated he would be in favor of proceeding and see where this goes and agreed that they were not in the position to invest too many dollars.

Member Williams thought the Council would appreciate the thoughts of the EDA on how they feel this could fit into the subsidy policy as a whole and what this looks like in relation to other subsidies that have been offered for residential developments in the COR and thoughts around whether or not commercial is something they should debate.

Member Skaff agreed with Ms. Kvilvang that rooftops do make a difference when looking at trying to drive more retail across the street. He thought it would enhance the area and he was fine with the idea of retail across the street as planned and since they have two residences along that side already, this will fit in.

Member Riley stated he values what this group comes up with and he gets to discuss this item again at the City Council level. He stated the EDA has a slightly different process and a different angle. He thought if they could come up with a decision that makes sense from the EDA standpoint, that possibly the Planning Commission or Council may not agree with for other reasons. One other consideration is he did not think residents were excited about more apartments coming into this area. They want shopping and restaurants and residents wonder why the City is considering filling the area with more residential. If residents are not interested in more apartments, they would not be happy with the City providing subsidy to another apartment development. This is something that could be considered at the EDA level but will be discussed at a higher level also.

Chairperson Steffen stated he was struggling with the Master Plan and why it was designated to be commercial. He wondered if there was any rationale on why the Master Plan was created that way.

City Administrator Ulrich stated this is highway frontage and Highway 10 visibility is important to commercial so to a certain extent they started with the commercial corners as the most valuable pieces and the second most valuable is having the visibility and exposure to Highway 10.

Development Services Manager Gladhill stated the plan is more of a snapshot in time and meant to be flexible. It was an estimation of what it could look like.

Econ. Dev. Mgr/Assistant City Administrator Brama stated if there is a high level of interest in this project, staff plans on bringing it forward to the Planning Commission to do a full blown land use review, which would eventually make its way to the EDA and City Council. What they are proposing is if there is interest in this project, to move forward with the LOI and as soon as they receive it back they will go through a detailed review with the Planning Commission, the EDA and the City Council.

Member Riley stated he appreciated the work staff has done. He stated if the current ask was the final answer, he knew what his answer would be. If Dominium came down to a reasonable ask, then they can have a discussion. He did not want to see the developer try to find out how much the City is willing to subsidize and then have the developer figure out how little they would need to put in. He felt this was a backwards way to approach this. He wanted to figure out what is the most the developer can put into it and then if there is a real funding gap, the City would then consider this. He felt this was where the EDA could help the Council out a lot. He did not like the way Dominium went about doing this.

Chairperson Steffen did not think they were opposed to it at the concept level. He did not think they wanted to put a lot of time and effort into researching this but he thought they could go back to Dominium with a counter offer and leave it to staff and Ehlers to come up with the details and then have the Planning and Zoning Commission have a discussion.

The EDA Board Agreed.

4.02: Consider Purchase Agreement with WESTCO Properties LLC

Econ. Dev. Mgr/Assistant City Administrator Brama presented the staff report and asked the Commission to consider the Purchase Agreement with WESTCO Properties, LLC. He noted this item could be discussed in a Closed Session if the Commission wished.

Chairperson Member Steffen felt they should go into a Closed Session if they were going to discuss a counter offer.

Motion by Member Skaff, seconded by Member Hardin to move to a Closed Session.

Further discussion: Member Riley agreed there should be a discussion about a counter offer but he was not sure it should be discussed at this level because if they discuss it now it will potentially need to be discussed again at the City Council level. Chairperson Steffen asked if Council and staff are just looking for a recommendation from the EDA for the City Council to consider a counter offer. Econ. Dev. Mgr/Assistant City Administrator Brama stated that was up to the Board to decide and if the Board would like to discuss the specifics, staff would take that direction; however, if the Board is comfortable moving forward with that general direction staff would be happy to move it on to the City Council. Commissioner Skaff did not recall that the Board ever developed a counter offer in specific dollar terms.

The motion was withdrawn.

Chairperson Steffen thought the Board was unanimous a couple of months ago in thinking that this was a great project and he did not think that has changed but it stuck him that the price is now half of what it was two months ago and he did not know why they would be in agreement with that. It seems like a counter offer would make sense.

The Board directed staff to bring this item forward to the City Council for review and a possible counter offer.

4.03: Consider Recommending the City Council Authorize the City's Economic Development Manager to Complete the NDC EDFP Certification

Econ. Dev. Mgr/Assistant City Administrator Brama presented the staff report and requested the Commission consider recommending the City Council authorize him to complete the NDC EDFP Certification.

Administrator Ulrich thought this was a great certification program and a good investment. He suggested this was top notch training. He recommended they move forward and approve this.

Administrator Ulrich reviewed the tuition reimbursement plan with the Board.

Chairperson Steffen asked if Econ. Dev. Mgr/Assistant City Administrator Brama was in agreement to repay the tuition if he left the City within six months.

Administrator Ulrich stated that would be the agreement and he would suggest this be put in writing. They do not have it in their tuition policy but it would make sense to get that commitment in writing.

Member Skaff recommended the City move forward with this.

Motion by Member Skaff, seconded by Member Burandt, to recommend to City Council to authorize the City's Economic Development Manager to complete the National Development Council's (NDC) Economic Development Finance Professional (EDFP) Certification Program in 2016.

Further discussion: Member Riley thought this was a good idea; however, in one year Econ. Dev. Mgr/Assistant City Administrator Brama will be gone one month for the training. He asked if in one year, Mr. Brama's duties will able to be covered by someone else. He stated the time is not covered in the cost. Econ. Dev. Mgr/Assistant City Administrator Brama stated there are several classes offered throughout the year and because of the flexibility for scheduling the classes, the calendar, events, projects and his workload would be considered and they would adjust accordingly. He thought they should cover the workload adequately. He would also plan to work on his duties in the evenings and respond to emails for hot items going on in the City. Chairperson Steffen asked if the program needed to be done in a 12 month period. Econ. Dev.

Mgr/Assistant City Administrator Brama stated it did not. Administrator Ulrich stated there is access during the day to check emails and work on City items while taking the courses but it would be a balancing act. Maybe after taking the first course, Econ. Dev. Mgr/Assistant City Administrator Brama's schedule would need to be adjusted but he felt they could monitor that as it goes along.

Motion carried. Voting Yes: Chairperson Steffen, Members Skaff, Burandt, Hardin, Riley, and Williams. Voting No: None. Absent: Member Brunt.

4.04: Review Relationship of Parks and Trails to Economic Development and Consider Concert Sponsorship

Parks and Assistant Public Works Superintendent Riverblood presented the staff report.

Chairperson Steffen thought sponsorship arrangements were a little different this year in terms of not sponsoring specific dates.

Mr. Riverblood agreed and stated they have attempted to provide more advertising for the sponsors at each event rather than trying to align a particular sponsor with a particular week. He passed out an event sheet with sponsor list to the Members.

Member Hardin asked if the annual budget is more than $13,000 or are the performer fees $13,000.

Mr. Riverblood stated each year they count the number of heads at each concert and it has gone up thirty percent each season. With that, it has provided the City the opportunity to step up the quality of the acts and bands and he thought the incline in participation has been due to the quality of the performers and how well they are running the concerts. They did not go into this with a budget in mind but rather lined up performers they thought the community would appreciate.

Member Hardin wondered what the overall cost to the City would be.

Mr. Riverblood stated the City Council looked at the actual costs for all of the community events and he was not sure what the full cost accounting was for the concerts. He did not think it was too high. He noted his time and his assistant's time is absorbed in the Park operating budget. $13,000 will go to the performers and then some of the other organization is done by the foundation member's volunteers and the balance is handled within the parks operating budget.

Member Hardin asked what the shortfall is now for the amount they have been able to raise through sponsorship for the performers.

Mr. Riverblood stated it is under $2,000, around $1,500, which is assuming the EDA would contribute $1,500. If the EDA chooses to not provide funding for the concerts the shortfall would be more than $2,000 and closer to $3,000 of the $13,000 for the performers.

Motion by Member Steffen, seconded by Member Hardin, to approve $1,500 for the Draw Summer Event Series, and direct staff to proceed with the program of Business of the Year for 2015.

Further discussion: Member Riley stated they are utilizing this as a business of the year and to recognize a business they decide to highlight. He suggested that is what makes it appropriate for the EDA to donate to and without that he thought it would seem more appropriate for another City Department.

Chairperson Steffen thought they could look at having the business of the year incorporated into one of the nights and maybe have their logo on the banner. He stated they will work with Mr. Riverblood to make that happen.

Motion carried. Voting Yes: Chairperson Steffen, Members Hardin, Burandt, Skaff, Riley, and Williams. Voting No: None. Absent: Member Brunt.

4.05: EDA Updates

Econ. Dev. Mgr/Assistant City Administrator Brama reviewed purchase agreements and prospects along with various other items with the Commission.

5. MEMBER / STAFF UPDATE

Ms. Nicole Wenberg updated the EDA on the status of the annual golf tournament.

The EDA reviewed the Staff Update.

Member Burandt wondered why they are not sending Econ. Dev. Mgr/Assistant City Administrator Brama to the EDEM and Minnesota Marketing Environment Meetings because he felt the networking was invaluable.

Chairperson Steffen indicated they are not a member and they would need to become a member in order to have Econ. Dev. Mgr/Assistant City Administrator Brama attend these meetings.

Econ. Dev. Mgr/Assistant City Administrator Brama thought that was a good idea and would be willing to look into this to figure out what the costs would be and bring this back to the next EDA meeting for review. He thought this was something they should start pursuing.

6. ADJOURNMENT

Motion by Member Steffen, seconded by Member Hardin, to adjourn the meeting.

Motion carried. Voting Yes: Chairperson Steffen, Members Burandt, Skaff, Hardin, Riley, and Williams. Voting No: None. Absent: Member Brunt.

The regular meeting of the Economic Development Authority adjourned at 9:07 a.m.

Respectfully submitted,

_____
Kurtis G. Ulrich
City Administrator

ATTEST:

_____
Patrick Brama
Econ. Dev. Mgr/Assistant City Administrator

Draft by Sue Osbeck
TimeSaver Off Site Secretarial, Inc.

PLANNING COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Planning Commission conducted a regular meeting on Thursday, June 4, 2015, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present:	Chairperson Gary Levine Commissioner Andrew Andrusko Commissioner Randy Bauer Commissioner Ralph Brauer Commissioner Matthew Maul Commissioner Cindy Nosan Commissioner Gary VanScoy
Members Absent:	None
Also Present:	Community Development Director Timothy Gladhill City Planner Chris Anderson Planning Intern Geoff Solomonson

1. CALL TO ORDER

Chairperson Levine called the regular meeting to order at 7:00 p.m.

2. CITIZEN INPUT

None.

3. APPROVAL OF AGENDA

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to approve the agenda as amended placing Item 5.01 after 5.05.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Andrusko, Brauer, Maul, and Nosan. Voting No: None. Absent: None.

4. APPROVE PLANNING COMMISSION MINUTES

4.01: Approve the Following Planning Commission Minutes:

4.01.1: Planning Commission Meeting Minutes Dated May 7, 2015

Motion by Commissioner VanScoy, seconded by Commissioner Maul, to approve the following minutes as presented: Planning Commission Meeting Minutes dated May 7, 2015.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Maul, Andrusko, Bauer, Brauer, and Nosan. Voting No: None. Absent: None.

5. PUBLIC HEARINGS/COMMISSION BUSINESS

5.02: Discuss Concept of High Density Residential on Outlot A, Rivenwick Village; Case of Northridge Construction, Inc.

Presentation

Community Development Director Gladhill presented the staff report the purpose of this case is to provide initial feedback to a potential buyer of Outlot A, Rivenwick Village on the potential for the site to be developed as High Density Residential. This is not an official application but would require a Zoning Amendment and potentially a Comprehensive Plan Amendment. The intent is to receive public comment and provide early feedback before the potential Buyer completes a real estate transaction or develops detailed plans.

Community Development Director Gladhill indicated the site is approximately 9.34 acres in size, is guided for Mixed-Use Planned Unit Development (MU-PUD) in the Comprehensive Plan and located within the Mixed-Use Planned Unit Development (MU-PUD) District. The intent of this district is to provide a mix of uses within a defined geographic area without defining actual land use or zoning district boundaries. In this instance for Rivenwick Village, the MU-PUD specified a mix of residential and commercial-retail. The MU-PUD approval goes on further to specify a maximum number of residential units that can be constructed within the development area, which has already been reached. The remaining portion, per the previous PUD approval, is planned to be commercial-retail.

Community Development Director Gladhill indicated the request would require a Comprehensive Plan Amendment and Zoning Amendment. Based on 9.34 acres with a City Code specified range of seven (7) to fifteen (15) units per acre, the estimated number of units would range from 65 to 140. Staff reviewed the applicants request further with the Commission and comments.

Commission Business

Commissioner Andrusko questioned the zoning of the surrounding properties.

Community Development Director Gladhill reviewed the zoning of the surrounding parcels with the Commission.

Chairperson Levine understood that access to Riverdale was the only option for this parcel.

Community Development Director Gladhill commented another option would be to provide internal access off 139th.

Commissioner VanScoy thanked staff for holding Open House meetings with the neighboring residents. He asked if the entire PUD would have to be rezoned given the proposal from the developer.

Community Development Director Gladhill did not believe this to be the case. He commented that the City was focusing on the single parcel at this time and not the entire PUD.

Commissioner Nosan believed that the proposed development would serve as a great transitional property.

Commissioner Brauer provided comment on the history of this property. He inquired if the developer was willing to work with the adjacent residents to address their concerns.

Community Development Director Gladhill stated the developer appears to be willing to work through these concerns.

Commissioner Andrusko reported he spoke with neighbors in this area and these individuals were not in favor of four-story high density residential as shown on the plan. The residents would rather see retail or commercial on this property as was the promise when they moved into the area.

Commissioner Brauer noted this was a good point and encouraged the Commission to consider the Comp Plan amendment that would be required in order for this concept to move forward.

Chairperson Levine was not certain that the Commission was ready to make a decision on this plan. He asked if the Commission supported the concept and Comp Plan amendment.

Commissioner Brauer did not believe the proposed development provided a compelling reason to amend the Comp Plan. He also had misgivings about placing high density in this neighborhood.

Commissioner Nosan supported the development.

Commissioner Bauer was in favor of the developer further pursuing the high-density development plans.

Commissioner VanScoy supported further review of the concept plans.

Commissioner Maul supported the plans and encouraged the developer to include mixed use.

Commissioner Andrusko agreed with Commissioner Brauer's statements.

Chairperson Levine was in favor of the concept moving forward.

Community Development Director Gladhill thanked the Commission for their input.

Commissioner Bauer recommended that Item 5.05 be considered next.

5.05: Public Hearing: Consider Ordinance #15-12 Amending City Code Chapter 10 (Animals) and Section 117-111 (R-1 Residential District) Amending Approval Process for Certain Animals.

Public Hearing

Chairperson Levine called the public hearing to order at 7:32 p.m.

Presentation

Community Development Director Gladhill presented the staff report stating the purpose of this case is to hold a Public Hearing and provide a recommendation to the City Council for Ordinance #15-12. The intent of this Ordinance was to revise the approval process for the following requests:

1. Four (4) of more dogs
2. Horses on 1.5 to 2.99 acres
3. Beekeeping
4. Non-Traditional Domestic or Exotic Animals
5. Wild Animals

Community Development Director Gladhill commented each of these types of requests currently requires the issuance of a Conditional Use Permit (CUP). Based on a number of recent reviews with the Planning Commission and feedback from potential applicants, the following Ordinance was developed to consider reducing the timeframe and costs to processing the requests above. With the exception of the wild animal category, the Ordinance would either streamline or eliminate the process for approval. Please note that the draft Ordinance would remove the Planning Commission from the review process for the above requests, with the exception of wild animals. Staff discussed the proposed Ordinance in further detail and suggested the Commission recommend approval.

Citizen Input

Julie Schutz, 7652 158th Avenue NW, requested the Commission consider the proposed Ordinance to eliminate the Conditional Use Permit process for residents requesting horses on 1.5 to 2.99 acres.

Julia Randall, 7960 171st Lane NW, explained that the conditional use permitting process was quite expensive. She stated that her family could not continue to pay $400 a month to board her

horses. She discussed the numerous health benefits that horses have offered her. She encouraged the Commission to allow homeowners to have two horses on 1.5 to 2.99 acre lots.

Anna Schutz, 7652 158th Avenue NW, commented that the $1,000 conditional use permit fee would be much better spent going towards hay and feed for horses. She discussed the benefits of being able to tend to her horse on her own land, versus the expense of boarding. She expressed frustration that some homeowners in Ramsey already had horses on lots less than 2 acres.

Ms. Schutz explained that horses were very important to both of these girls. She indicated she had the support of her neighbors and requested the Commission allow horses on her land.

Motion by Commissioner Bauer, seconded by Commissioner Brauer, to close the public hearing.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Andrusko, Bauer, Brauer, Maul, Nosan, and VanScoy. Voting No: None. Absent: None.

Chairperson Levine closed the public hearing closed at 7:47 p.m.

Commission Business

Commissioner Bauer supported the comments made by the girls.

Commissioner Brauer understood the girls' frustration and it did appear that the rules were being applied unfairly with regard to horses.

Commissioner Bauer questioned how wild animals was defined within City Code.

Community Development Director Gladhill discussed how City Code defined wild and domestic animals.

Commissioner Brauer asked if spider and fish families should be written into City Code as wild animals.

Community Development Director Gladhill stated this determination would have to be made by the Commission.

Commissioner VanScoy inquired if land acreage was based on a gross or net calculation.

Community Development Director Gladhill commented that this would be a gross calculation.

Commissioner VanScoy supported staff's recommendation and the proposed Ordinance amendments. He questioned how staff would license non-traditional wild animals and asked if conditions could be placed on these permits.

Community Development Director Gladhill indicated a license was similar to a conditional use permit. He reported that an annual renewal would not be required by the City Council.

Commissioner VanScoy understood that the City would allow a residential lot to have up to six hives. He asked if the City would be setting any requirements on the lot sizes to support these six hives.

City Planner Anderson stated property size does not come into play for bee keeping. He noted that staff has worked closely with the Minnesota Bee Keeping Association and the requirements within City Code were recommendations from this association.

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to recommend that City Council approval of Ordinance #15-12 Amending City Code Chapter 10 (Animals) and Section 117-111 (R-1 Residential District) Amending Approval Process for Certain Animals with the following revisions:

1. The definition of wild animal is revised to replace "a mammal, large or poisonous reptile and bird" with "a large or dangerous species".
2. Any animal meeting the definition of horse in Article II shall be deleted from the text in Article I.
3. Correct a typographical error in Section 10-1 (f).

Further discussion

Commissioner Andrusko asked if the license would be tied to the land or the property owner.

Community Development Director Gladhill explained that the current Ordinance structure would run with the property owner and would not expire on a yearly basis.

Commissioner Nosan requested staff provide further information on the approval process for this Ordinance.

Community Development Director Gladhill discussed the approval timeline and noted when the Ordinance would be published. He anticipated that the Ordinance would be effective on August 17th.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Andrusko, Brauer, Maul, and Nosan. Voting No: None. Absent: None.

5.03: Review Self-Storage and Retail Concept Plan for NE Quadrant of Ramsey Boulevard and Bunker Lake; Case of N.I.K. Management, Inc.

Presentation

City Planner Anderson presented the staff report stating the purpose of this case is to review an updated concept plan provided by N.I.K. Management for the NE intersection of Ramsey Boulevard and Bunker Lake Boulevard. As the Planning Commission may recall, a similar concept had been discussed at the January meeting; however, at that time, the concept focused entirely on indoor self-storage. The potential buyer of this property has revised their concept plan to include a mix of indoor self-storage units and convenience retail.

City Planner Anderson commented as a reminder, in 2004 and 2007, the City did review a similar request on this site. In January of this year, the Planning Commission's direction to staff was to carry forward the assumptions from this previous review. Staff wanted to provide the Planning Commission an opportunity to review the revised concept plan and provide any additional feedback to the interested party.

City Planner Anderson indicated the City did host a workshop prior to the meeting this evening to gather public input/feedback on the concept plan. Staff reviewed the comments gathered from the public and requested the Commission provide staff with feedback on how to proceed.

Commission Business

Commissioner Brauer asked if the County has provided any comments on the concept plan.

City Planner Anderson stated in 2004 and 2007 the County was open to one access to the site. The developer has shifted the access to the north away from the intersection based on the County's input.

Commissioner VanScoy asked if the temporary cul-de-sac would become permanent.

City Planner Anderson commented the intent would be to make the cul-de-sac permanent. He noted a variance would be required.

Commissioner Bauer was in favor of the developer continuing to work on his plans taking into consideration the comments and concerns raised by the neighborhood.

Commissioner Brauer believed it made sense to put in a convenience store on the corner lot.

Further discussion ensued regarding access to the property and its surrounding vegetation.

Chairperson Levine questioned what the main concerns of the adjacent residents were at this time.

City Planner Anderson reviewed the concerns of the residents noting property values were the main concern.

Commissioner Nosan expressed concern with the single access point to the site.

Community Development Director Gladhill reported that if the City was supportive of the plan, staff could reach out to the County to discuss access points further. He thanked the Commission for their input and noted he would speak with the County regarding access to and from this site.

5.04: Review Concept Plan for Townhome Units at NE Quadrant of Sunfish Lake Boulevard and Riverdale Drive; Case of Bulow, Inc.

Presentation

City Planner Anderson presented the staff report stating the purpose of this case is to provide feedback to the owner of the parcel located at the NE corner of Sunfish Lake Boulevard and Riverdale Drive regarding a concept plan that has been submitted. The concept plan proposes to develop the half-acre parcel with eight (8) townhome units. Please note that at this time, there is no official application submitted; the property owner wanted to get some initial feedback on the proposal prior to expending funds on plan development. Staff noted that a public workshop was held prior to the meeting to gather comments/feedback from the public regarding this concept plan. He requested comment from the Commission on how to proceed.

Commission Business

Commissioner Nosan asked if the townhomes would be rental or owner occupied.

City Planner Anderson commented that the City did not have this information.

Chairperson Levine questioned what the feedback from the neighborhood has been regarding the townhome concept plan.

City Planner Anderson reported that the number of access points were a concern, along with the density, amount of available parking and stormwater runoff.

Planning Intern Salmonson added that the developer was willing to pursue other driveway options. He discussed the courtyard greenspace that was being proposed between the buildings.

Commissioner Bauer believed that the concerns raised by the neighbors would be raised with whatever type of development were to locate on this parcel.

Chairperson Levine did not support the proposed townhome development for the parcel.

Commissioner Andrusko asked if the proposed three-story building fit with the style and character of the neighborhood.

City Planner Anderson commented the building did appear rather tall.

Commissioner Brauer did not believe there was a reason to amend the Comp Plan for the proposed townhome development. He feared if the Comp Plan were amended for this request, the City would be setting a precedent.

Commissioner VanScoy understood that this property has been for sale for roughly nine years and the property owner has had no offers.

Commissioner Brauer stated an economic hardship was not grounds for approval of a Comp Plan amendment.

Commissioner Bauer did not believe this small parcel could support the proposed amount of residential. He recommended that the request be reconsidered.

Chairperson Andrusko did not oppose residential, but believed the proposed request was too intense for the small lot size. He suggested that additional parcels be added or considered and that the density be reduced.

Chairperson Levine agreed with these concerns.

Commissioner VanScoy was not comfortable with the request as presented.

Commissioner Maul agreed that the lot was too small for the proposed density.

Community Development Director Gladhill reported that staff understood the concerns of the Commission and noted that staff would consider another use for this site.

5.01: Public Hearing: Request for a Conditional Use Permit to Exceed Sign Size Restrictions on the Property Generally Located North of 161st Avenue NW and west of Variolite Street NW; Case of the Church of St. Katherine Drexel.

Public Hearing

Chairperson Levine called the public hearing to order at 8:56 p.m.

Commissioner Bauer explained he was a deacon at St. Katharine Drexel and he submitted the Conditional Use Permit request.

Commissioner VanScoy reported he was a parishioner at St. Katharine Drexel.

Presentation

Planning Intern Solomonson presented the staff report stating the City has received an application from the Church of St. Katharine Drexel requesting a conditional use permit (CUP) to exceed sign size restrictions for their parcel located north of 161st Avenue NW and west of Variolite Street NW. The subject property is the site of the planned future campus for St.

Katharine Drexel, not their current location of operation. Since this is not a traditional real estate sign in the sense that it is marketed for sale, nor an institutional sign identifying such a use currently occurring on the subject property, staff finds that processing a CUP ensures equitable enforcement of sign regulations for parcels located in the R-1 Residential District and removes any uncertainty on how this sign should be classified. Costs to process this application are very minimal, so a majority of the submitted escrow is anticipated to be refunded. Staff reviewed the request in further detail and recommended approval of the request for a CUP to exceed the square footage limitation for a real estate sign in a residential district.

Citizen Input

Commissioner Andrusko questioned how the City would categorize the proposed sign.

Planning Intern Solomonson reported that the sign would be viewed as a real estate sign.

City Planner Anderson discussed the sign standards in further detail for the residential zoning district. He explained that staff was supported of the proposed sign size request.

Billy Sibilski, Boy Scout Troop #90, commented that he was doing his Eagle Scout project with St. Katharine Drexel. He believed that the property currently had two 48 square foot signs and he was proposing to build one slightly larger (6' x 9') sign that could be read from all directions. He discussed his further plans for his Eagle Scout project.

Motion by Commissioner Andrusko, seconded by Commissioner Maul, to close the public hearing.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Andrusko, Maul, Brauer, and Nosan. Voting No: None. Absent: Bauer and VanScoy.

Chairperson Levine closed the public hearing closed at 9:04 p.m.

Commission Business

Commissioner Andrusko asked if the City had permanent sign requirements.

City Planner Anderson reported that future proposed signage would be reviewed by staff under the B-1 zoning district standards, and the signage would be limited to 100 square feet.

Commissioner Brauer questioned how many small signs the property could have.

City Planner Anderson indicated the site could have two 32 square foot signs.

Commissioner Brauer was in favor of clarifying the City Code with regard to the number and square footage of signs. He inquired why the City was classifying this sign as a real estate sign.

City Planner Anderson clarified that the sign was announcing the future real estate use for the site and was therefore considered a real estate sign.

Community Development Director Gladhill further discussed the differences between real estate, permanent and temporary signs in the City of Ramsey.

Chairperson Levine commented he did not believe the sign should be considered a real estate sign, but rather should be viewed as a permanent sign.

Motion by Commissioner Andrusko, seconded by Commissioner Maul, to recommend that City Council adopt Resolution #15-06-142 approving Findings of Fact #0946.

Further discussion

Commissioner Brauer recommended that the findings include a language that discusses the amount of square footage of signage that would be allowed, along with the number of signs.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Andrusko, Maul, Brauer, and Nosan. Voting No: None. Absent: Bauer and VanScoy.

Motion by Commissioner Andrusko, seconded by Commissioner Maul, to recommend that City Council adopt Resolution #15-06-143 relating to the Church of St. Katharine Drexel's request for a conditional use permit to exceed sign size restrictions established by City Code in the R-1 Residential Zoning District.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Andrusko, Maul, Brauer, and Nosan. Voting No: None. Absent: Bauer and VanScoy.

6. COMMISSION / STAFF INPUT

6.01: Staff Update

A Staff Update was provided.

6.02: Zoning Bulletins

Zoning Bulletins were noted.

7. ADJOURNMENT

Motion by Commissioner VanScoy, seconded by Commissioner Bauer, to adjourn the meeting.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Bauer, Andrusko, Brauer, Maul, and Nosan. Voting No: None. Absent: None.

The regular meeting of the Planning Commission adjourned at 9:25 p.m.

Respectfully submitted,

_____
Tim Gladhill
Community Development Director

ATTEST:

_____
JoAnn Shaw
Community Development Assistant

Drafted by Heidi Guenther
TimeSaver Off Site Secretarial, Inc.

CC Regular Session **4. 2.**

Meeting Date: 07/28/2015

By: Jo Thieling, Administrative Services

Information

Title

Approve the Following Meeting Minutes:

1. City Council Work Session dated 07/14/2015
2. City Council Regular dated 07/14/2015

Purpose/Background:

Purpose: The purpose of this case is for Council review and approval of meeting minutes.

Background: Attached are the meeting minutes referenced above.

Action:

Motion to approve the following Council meeting minutes:

1. City Council Work Session dated 07/14/2015
2. City Council Regular dated 07/14/2015

Attachments

071415 CCWS Mts

071415 CC Reg Mts

Form Review

Form Started By: Jo Thieling Started On: 07/22/2015 12:51 PM

Final Approval Date: 07/22/2015

CITY COUNCIL WORK SESSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey City Council conducted a City Council Work Session on Tuesday, July 14, 2015, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present:	Mayor Sarah Strommen Councilmember Jill Johns Councilmember Mark Kuzma Councilmember John LeTourneau (arrived at 5:37 p.m.) Councilmember Chris Riley Councilmember Melody Shryock
Members Absent:	Councilmember Kristine Williams
Also Present:	City Administrator Kurtis Ulrich Finance Director Diana Lund Fire Chief Dean Kapler Police Chief Jeff Katers Public Works Superintendent Grant Riemer Human Resources Manager Colleen Lasher Community Development Director Timothy Gladhill City Engineer Bruce Westby Asst. City Administrator/Economic Development Manager Patrick Brama

1. CALL TO ORDER

Mayor Strommen called the City Council Work Session to order at 5:35 p.m.

2. TOPICS FOR DISCUSSION

2.01: 2016 Preliminary Budget/Levy Review

City Administrator Ulrich reviewed the staff report.

Councilmember LeTourneau arrived at 5:37 p.m.

City Administrator Ulrich provided budget and levy comparison information for the years 2007 through 2016.

Finance Director Lund reviewed the preliminary budget information attached to the staff report. She reviewed the preliminary proposed levies and the proposed increases under personnel. She reviewed the preliminary budget numbers highlighting added items and increases and/or decreases for specific line items. She reviewed the proposed tax capacity rate and preliminary

levy. She stated that the final budget document will include additional items as previously discussed including the Strategic Plan and CIP. She reviewed the proposed 2016 general fund budget noting that the strategic planning items are included as well.

City Administrator Ulrich stated that this was something new this year in attempt to link the budget to the Strategic Plan.

Finance Director Lund briefly highlighted the preliminary EDA budget and the capital equipment requests which were composed by staff. She stated that the purpose of tonight's meeting is to determine if the Council is comfortable with a levy rate of 44 percent. She stated that perhaps additional discussion may be needed in the areas of personnel and charitable gambling.

Mayor Strommen stated that it would be hard to determine the comfort level of the tax rate without knowing specifically what that would mean to the specific budget items.

Councilmember LeTourneau stated that the City has made a commitment to road reconstruction and the message has been made clear that the item will affect taxes. He suggested that perhaps the issue of roads be pulled aside so the Council is better able to see the impact that item has alone.

Finance Director Lund stated that the sealcoat item has remained constant and noted that Garnet Street is the only additional item with a cost of $40,606 in 2016. She noted that there will be additional roadway costs in 2017.

Mayor Strommen stated that the personnel changes that may occur in 2016 would continue to have an impact in 2017 when the additional road costs come into play.

Councilmember Kuzma asked for additional information regarding the personnel change proposed for the budget.

Police Chief Katers provided the job description for the position of records technician. He stated that the department is in the process of hiring a lead records technician which would be a part-time position as well as the approved position. He noted that the department is short 1.5 FTE this year which will assist in offsetting some of the personnel changes.

Councilmember Riley stated that the City had decreased staffing during the recession and it appears that the majority of the increase for 2016 is staffing. He stressed that the City should not aim to rehire all of the previous staff positions.

Mayor Strommen stated that she would like to see the five year staffing plan. She noted that the structuring of staff had also changed and believed it would be beneficial to see an updated organizational chart.

Councilmember Kuzma stated that although he has concerns regarding growth of staff, he also recognized that there has been a population growth as well. He stated that the City has already grown the staff and would not want to see a large increase to the staff.

Councilmember LeTourneau stated that he would also like to determine an appropriate staffing increase comparative to the 12 percent increase in population.

Councilmember Riley stated that there has been a 12 percent increase to the population while the staffing would have grown by 22 percent.

City Administrator Ulrich stated that staff can bring additional information to provide comparison between the staff and population increases in order for the Council to make an informed decision.

Finance Director Lund stated that she will also present a five year proposed budget for the Council to review further along in the budget process.

Councilmember Kuzma referenced the area of roads and questioned if there would be a way to make a partial increase in 2016 that could be reserved for roads so the increase would not be so high in 2017.

Finance Director Lund stated that could be done and simply requires a bit more bookkeeping.

Mayor Strommen referenced the preliminary EDA budget and levy and noted that the budget is largely staffing, as the purpose of the EDA has shifted. She questioned if there is a benefit to placing some of those staffing costs under the EDA levy rather than placing all of the staffing costs in the general fund.

Finance Director Lund stated that there is no difference and noted that she can place the salaries in the general fund.

Councilmember Johns stated that she likes the idea of placing the staffing costs in the general fund rather than splitting the item into two places.

Councilmember LeTourneau stated that perhaps the EDA should have further discussion regarding the challenges and changes.

Human Resources Manager Lasher reviewed the staffing levels before the recession and when the staffing cuts had been made, noting that there is no desire to go back to the bare bones approach as there was significant staff burnout. She stated that if you compare the staffing levels 11 years ago to what is proposed in 2016 that would only be an increase of 1.19 and noted all of the increased services the City provides.

Mayor Strommen recognized the initial reaction of the Council in regard to the staffing chart and stated that is why the additional context is needed regarding the staff levels in order to ensure that the staffing level is sustainable in regard to workload and financially.

City Administrator Ulrich stated that staff will bring back the additional information at the next meeting which will also show the correlation between staff positions and Strategic Plan items.

Councilmember Kuzma referenced the area of donations and stated that he would like to link together the Draw Park Summer Series in with Happy Days. He stated that additional funds could be designated to the Happy Days item but believed that perhaps the Happy Days Committee could gain sponsors for the summer series events.

Mayor Strommen stated that perhaps the events the City sponsors should be reviewed as well to determine if the events are worthwhile and whether the desired outcome is being gained.

Councilmember LeTourneau stated that he would amicable to talking about the issue from different perspectives as he believes that the Draw Park Summer Series is a valuable event for the community. He stated that at first glance he does not see a problem with the proposed tax rate level, noting that it is a great place to start as the Council can now review more in depth information with staff.

City Administrator Ulrich questioned if the Council would like to see a flat tax rate scenario as an additional exercise as that would show the impact that would have on staffing and function.

Mayor Strommen stated that perhaps it would be enough to simply see the additional information on personnel and a prioritization of the positions. She stated that her biggest concern is not 2016 but what will happen in 2017 and 2018 with the increased debt and road costs. She stated that she would like to see how the impact in 2017 could be lessened.

Finance Director Lund referenced a $30,000 line item relating to the public works building.

City Administrator Ulrich stated that the initial Feasibility Study has not been completed and, therefore, that item was left in order to gain additional information.

Finance Director Lund stated that staff will prepare a preliminary five year budget which will come before the Council at a future meeting before the September adoption.

Mayor Strommen stated that she would find it helpful to have two additional discussions prior to the adoption.

Councilmember Riley stated that he appreciated the early start for the budget process which allowed a larger scale discussion before decisions need to be made.

Mayor Strommen agreed that this is a better format for the budget discussions.

3. TOPICS FOR FUTURE DISCUSSION

3.01: Review Future Topics/Calendar:

Mayor Strommen stated that the legislative strategy will come before the Council in August along with some other items.

City Administrator Ulrich stated that the noise issue along Armstrong Boulevard is slated for the Work Session agenda on July 28th.

Mayor Strommen referenced a review of The COR and the vision and questioned where that will fall on the schedule.

Community Development Director Gladhill stated that the Planning Commission held a discussion recently and noted that once the notes are formalized that item could come before the Council as a joint meeting with the Planning Commission in August.

City Administrator Ulrich stated that joint meetings with Commissions and neighboring communities were not included on the schedule and noted that, if desired, those meetings could be scheduled.

Councilmember LeTourneau stated that it could be beneficial to have a joint meeting with Elk River and the Council agreed. He stated that he received a phone call from another Councilmember today regarding activity on Facebook. He suggested that a discussion should occur regarding the social media strategy of the City, specifically how/if negative comments should be addressed.

Councilmember Shryock stated sometimes she receives calls from residents on the rivers and suggested that some background on the waterways, regulations and the City's role could be provided.

City Administrator Ulrich asked, and received confirmation, that the Council would be interested in a tour which features and provides information on certain items and aspects of the City.

4. MAYOR / COUNCIL / STAFF INPUT

Councilmember Kuzma stated that he spoke with Police Chief Katers regarding a safe zone created in St. Paul for exchanges on Craigslist.

Police Chief Katers stated that the department has an informal item which suggests that transactions occur in a public place. He noted that the lobby of the Police Department can be used during daytime hours and the parking lot could be used as well, although noted that the lot is not currently under camera surveillance. He stated that something more formal could be developed.

City Administrator Ulrich stated that staff spoke with the owner of the Game Fair property regarding puppy sales outside of the fences. He stated that notice will be listed on the licensing for vendors and advised of other activity which will occur including inspection of the animal sale areas. He stated that Game Fair also has a veterinarian onsite and has their own regulations.

5. ADJOURNMENT

The Work Session of the City Council was adjourned at 6:56 p.m.

Respectfully submitted,

_____
Kurtis G. Ulrich
City Administrator

ATTEST:

_____
Jo Ann M. Thieling
City Clerk

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

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CITY COUNCIL
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey City Council conducted a regular meeting on Tuesday, July 14, 2015, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Mayor Sarah Strommen
Councilmember Jill Johns
Councilmember Mark Kuzma
Councilmember John LeTourneau
Councilmember Chris Riley
Councilmember Melody Shryock

Members Absent: Councilmember Kristine Williams

Also Present: City Administrator Kurtis Ulrich
Fire Chief Dean Kapler
Police Chief Jeff Katers
Public Works Superintendent Grant Riemer
Community Development Director Timothy Gladhill
City Engineer Bruce Westby
Asst. City Administrator/Economic Development Manager Patrick Brama
City Attorney Joe Langel

1. CALL TO ORDER

Mayor Strommen called the regular meeting of the Ramsey City Council to order at 7:03 p.m., followed by the Pledge of Allegiance led by Mayor Strommen.

2. PRESENTATION

2.01: Recognized Ramsey as a Heart Safe Community

Tim Hoffman stated that he approached the City last September with the idea of becoming a Heart Safe Community, which was embraced by the City Council. He stated that a Committee was put together and with the amount of help and support that the City and staff have given, the City was able to accomplish the goal of becoming a Heart Safe Community.

Kim Harkins, University of Minnesota Consortium, provided additional information on Heart Rescue and Heart Safe Communities. She stated that this is an exciting adventure as the more cities that come on board, the more lives will be saved.

Brian Herman stated that he met Tim Hoffman about two years ago when he went into cardiac arrest and his coworker was able to provide the assistance needed to save his life. He stated that Mr. Hoffman has done so much with his second chance and commended him for his efforts. He stated that Ramsey is the 45th city in Minnesota and second city in Anoka County to receive this designation and commended the City for that effort. He stated that the support of the Council and the community is what makes this program successful. He noted that it is not a matter of if, but when, the program will save lives. He presented the certificate to Mayor Strommen and presented two street signs the City can display. He also recognized Officer Nick Stolp for his efforts on this program.

Mayor Strommen thanked those present tonight and all who have participated in earning this designation for Ramsey.

2.02: Night to Unite

Police Chief Katers reported that Night to Unite occurs annually on the first Tuesday in August, and advised that Ramsey began participation in 1998, noting that the event had previously been called National Night Out. He stated that this year the event is held on Tuesday, August 4th and reviewed the purpose of the event which encourages the building of neighborhood bonds and strengthening community bonds and connection with public safety. He encouraged all members of the community to participate, whether the parties are formal or informal. He recognized members of the department which have contributed to the program.

Mayor Strommen stated that it is always a fun evening and noted that the Council enjoys getting out and meeting residents.

3. CITIZEN INPUT

None.

4. CONSENT AGENDA

Motion by Councilmember LeTourneau, seconded by Councilmember Johns, to approve the following items on the Consent Agenda:

4.01: Receive Cash and Investments for Period Ending June 30, 2015
4.02: Receive May 2015 Financial Reports – General Fund and Enterprise Funds
4.03: Approve Licenses:

<u>City of Ramsey for Happy Days</u>
Nichole or Oksana/7550 Sunwood Drive NW

4.04: Approve the following Meeting Minutes:
1) City Council Work Session dated June 23, 2015
2) City Council Regular dated June 23, 2015

4.05: Approve Application from the Anoka Women of Today to Conduct Bingo at Ramsey Happy Days on September 12, 2015

4.06: Approve Exemption for a Gambling License for Madelia Area Chamber of Commerce and Visitors Bureau

4.07: Approve Temporary Easement By and Between the City of Ramsey and GS Land, LLC for Lot 25, Harvest Estates Located at 15153 Nowthen Boulevard NW; Case of GS Land, LLC

4.08: Consider Request from Lennar Homes to Stockpile Topsoil Supply On Site

4.09: Adopt Resolution #15-07-176: Approving Cash Disbursements Made and Authorizing Payment of Accounts Payable Invoicing Received During the Period of June 18, 2015 through July 8, 2015

4.10: Report from the Public Works Committee Meeting dated June 16, 2015:

1) Consider Drainage Options for 173rd Avenue and Gibbon Street Area: *Ratify the recommendation of the Public Works Committee to recommend that the City Council consider ordering a feasibility study that will include an analysis, determination of specific costs and how this works with policy, for Gibbon Street – 173rd Avenue drainage concerns*
2) Consider Recommendation for Zeolite Street Storm Sewer Extension to Lake Ramsey
3) Consider Street Width Recommendation for Andrie Street and 164th Lane Reconstruction Project
4) Recommendation Revising Street Names from (East) Town Center Drive to Center Street and from East/West Ramsey Parkway to Ramsey Parkway: *Ratify the recommendation of the Public Works Committee that the City Council rename (East) Town Center Drive to Center Street, and renaming East/West Ramsey Parkway to Ramsey Parkway.*

Committee/Staff Input:

1) Minnesota Department of Health Variance on Fluoride Concentration in Drinking Water

Motion carried. Voting Yes: Mayor Strommen, Councilmembers LeTourneau, Johns, Kuzma, Riley, and Shryock. Voting No: None. Absent: Councilmember Williams.

5. APPROVE AGENDA

City Administrator advised that Item 7.08: Consider Adopting Resolution #15-07-182 Appointing City Administrator as Deputy City Clerk in Addition to the City Administrator's Existing Duties per Minnesota Statute 412.151 in the Event of the Absence of the City Clerk had been added to the online agenda.

Motion by Councilmember Riley, seconded by Councilmember Kuzma, to approve the agenda as revised above.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers Riley, Kuzma, Johns, LeTourneau, and Shryock. Voting No: None. Absent: Councilmember Williams.

6. PUBLIC HEARING

None.

7. COUNCIL BUSINESS

7.01: Consider Adopting Resolution #15-07-175 Ordering Feasibility Report for 2016 Street Maintenance Program Division C, Andrie Street and 164th Lane Reconstruction; Improvement Project #16-00

City Engineer Westby reviewed the staff report and recommendation to adopt Resolution #15-07-175 ordering a Feasibility Report for the Division C improvements of the 2016 Street Maintenance Program, Improvement Project #16-00, which involves reconstructing Andrie Street and 164th Lane between Alpine Drive and Jarvis Street.

Mayor Strommen appreciated the public input and noted that there is a resident from the project area in attendance tonight.

Councilmember Kuzma asked for additional information regarding the item on the Consent Agenda relating to bonding.

City Engineer Westby stated that it had previously been thought that the bonds could not be used to widen the roadway but staff discovered that the bonds could be used for that purpose, therefore, no action was necessary on that item.

Councilmember Riley stated that the City had completed a Feasibility Study in the past and questioned if there would be a cost savings from completing the study again.

City Engineer Westby stated that he was able to glean some of the information from that study but noted that the roadway conditions have changed and, therefore, an updated study would be needed.

William Kingston, 15760 Andrie Street NW, stated that he has lived at his address since September 1993 and his home office overlooks the roadway so he is quite familiar with the road condition and traffic. He stated that he was also involved in the previous discussion regarding whether an overlay or reconstruction should be done. He stated that he is active in the community and association. He stated that he has seen near collisions and near pedestrian hits and, therefore, he supports the issue of safety and would be in favor of a pedestrian bike lane. He stated that from a safety standpoint, the 30 miles per hour speed limit is an issue as travelers are often driving at 45 miles per hour rather than the posted speed. He referenced parking and stated that perhaps something similar to Armstrong could be done which alternates between on-street parking and no parking. He noted that there is very rarely an issue with on-street parking as most of the homes have long driveways that accommodate their guests and would like to see the roadway remain narrower. He referenced MSA and stated that although the roadway has been designated as an MSA roadway, the roadway does not meet the standards. He was not sure what the benefit of the designation is if there is no funding available. He referenced funding and noted that there are no MSA funds available and, therefore, special assessments will be needed. He stated that he would like to see an attempt to minimize the project in order to minimize the assessment cost. He offered his time and assistance if needed.

Councilmember Kuzma stated there are MSA funds available and explained that previous Councils spent those funds on other projects and, therefore, the Council does not have access to MSA funds until approximately 2019. He stated that the Council is attempting to design to the minimum standards.

City Engineer Westby provided additional information regarding MSA designation and stated that up to 20 percent of the roadway mileage can be placed on the network. He explained that the City then receives some financial assistance to maintain those roadways. He noted that the City will once again have available MSA funds in 2019 and 2021, when older projects are paid in full. He stated that he will continue to involve the public throughout this process in order to develop the best fitting project.

Councilmember Shryock stated that the Council will try to make the adjustments as minimal as possible. She stated that the Public Works Committee would be in favor of having the bike lane continuous and allowing flexibility in on-street parking.

Councilmember Riley stated that this plan was developed as a compromise by the Public Works Committee providing the example that some supported a sidewalk while others did not. He noted that the bike lane was proposed as a compromise.

Motion by Councilmember Riley, seconded by Councilmember Kuzma, to Adopt Resolution #15-07-175 Ordering Preparation of Feasibility Report for Reconstructing Andrie Street and 164th Lane.

Further discussion: Councilmember Kuzma stated that public input would be welcome and noted that these plans are not yet final. Councilmember LeTourneau stated that he would like to see at least one meeting where public input is gathered face-to-face during this process.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers Riley, Kuzma, Johns, LeTourneau, and Shryock. Voting No: None. Absent: Councilmember Williams.

7.02: Consider Adopting Resolution #15-07-173 Accepting Bids and Awarding a Contract for 2015 Street Maintenance Program Division A, Sealcoat Improvements; Improvement Project #15-00

City Engineer Westby reviewed the staff report and recommendation to adopt Resolution #15-07-173 accepting bids and awarding a contract for 2015 Street Maintenance Program Division A, Sealcoat Improvements, Improvement Project #15-00 to Pearson Brothers, Inc.

Councilmember Riley referenced a cost savings and asked for additional information.

City Engineer Westby stated that there are additional items which could be completed using that funding and noted that those funds could also possibly be rolled over into the next year.

Councilmember Riley stated that the funds have been budgeted and believed that the funds should be used in the best manner in order to complete as much work as possible.

Mayor Strommen agreed that if there is work that can be done this year, such as patching, that should be done with available funds rather than rolling the funds over and delaying work.

Councilmember LeTourneau thanked City Engineer Westby for his efforts to investigate alternate materials and additional cost saving aspects.

Motion by Councilmember Kuzma, seconded by Councilmember Johns, to adopt Resolution #15-07-173 Accepting Bids and Awarding a Contract for 2015 Street Maintenance Program Division A, Sealcoat Improvements; Improvement Project #15-00.

Further discussion: Councilmember Kuzma referenced the patching process and stated that it really works much better than the previous method.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers Kuzma, Johns, Kuzma, LeTourneau, Riley, and Shryock. Voting No: None. Absent: Councilmember Williams.

7.03: Consider Adopting Resolution #15-07-174 Accepting Bids and Awarding a Contract for 2015 Street Maintenance Program Division B, Overlay Improvements; Improvement Project #15-00

City Engineer Westby reviewed the staff report and recommendation to adopt Resolution #15-07-174 accepting bids and awarding a contract for 2015 Street Maintenance Program Division B, Overlay Improvements; Improvement Project #15-00 to Hardrives, Inc.

William Kingston, 15760 Andrie Street NW, commented on the issue of special assessments. He stated that after this was voted on and agreed to, he has talked to the Council regarding special assessments to parcels within the PUD, specifically the green space parcels. He stated that he obtained legal counsel and received input that if a parcel has a value of zero, which the green space parcels do, there can be no added value. Therefore the green space parcels need to be removed from the assessment.

City Engineer Westby stated that staff will be reviewing the green space parcels in addition to a few other parcels.

Motion by Councilmember Riley, seconded by Councilmember Kuzma, to adopt Resolution #15-07-174 Accepting Bids and Awarding a Contract for 2015 Street Maintenance Program Division B, Overlay Improvements; Improvement Project #15-00.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers Riley, Kuzma, Johns, LeTourneau, and Shryock. Voting No: None. Absent: Councilmember Williams.

7.04: Request for a Conditional Use Permit to Exceed Sign Size Restrictions at 6228 Highway 10 NW; Case of Country Side Services of Minnesota, Inc.

Community Development Director Gladhill reviewed the staff report and recommendation to adopt Resolutions #15-07-169 and #15-07-170 approving a Conditional Use Permit for a 28 square foot dynamic display added to an existing 105 square foot sign.

Councilmember Kuzma referenced the construction on Highway 10 and questioned if the sign would be affected by the wall.

Community Development Director Gladhill stated that any retaining wall, if there would be a retaining wall in this area, would be lower than the dynamic sign and therefore the sign should be visible. He stated that the Highway 10 plans are not complete and could be changed and noted that the applicant has been very proactive and involved during the process and is aware of the plans.

Motion by Councilmember LeTourneau, seconded by Councilmember Kuzma, to adopt Resolution #15-07-169 Adopting Findings of Face #0951 Relating to a Request from Country Side Services for a Conditional Use Permit to Exceed Sign Size Restrictions to be Located at 6228 Highway 10 NW and Resolution #15-07-170 Approving the Issuance of a Conditional Use Permit to Countryside Services of Minnesota, Inc. Based on the Findings of Fact #0951 and Declaring Terms of Permit to Exceed Sign Regulations Established in City Code.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers LeTourneau, Kuzma, Johns, Riley, and Shryock. Voting No: None. Absent: Councilmember Williams.

7.05: Consider Adopting Ordinance #15-12 Amending City Code Chapter 10 (Animals) and Section 117-11 (R-1 Residential District) Amending Approval Process for Certain Animals

Community Development Director Gladhill reviewed the staff report and recommendation to adopt Ordinance #15-12 amending City Code Chapter 10 and Section 117-11 amending the approval process for certain animals as recommended by the Planning Commission.

Councilmember LeTourneau stated that there was a great discussion regarding streamlining the process which was desired by residents and recommended by the Planning Commission.

Motion by Councilmember LeTourneau, seconded by Councilmember Johns, to waive the City Charter requirement to read the ordinance aloud and adopt Ordinance #15-12 Amending Chapter 10 (Animals) and Chapter 117 (Zoning and Subdivisions) of the Ramsey City Code Amending the Procedure for Approval for Certain Animals and Number of Animals.

A roll call vote was performed by the Recording Secretary:

Councilmember Johns aye

Councilmember Riley	aye
Councilmember Shryock	aye
Councilmember Kuzma	aye
Councilmember LeTourneau	aye
Mayor Strommen	aye
Councilmember Williams	absent

Motion carried.

7.06: Review Recent Feedback Concerning Buildable Area on Parcels with Floodplains and Wetlands

Community Development Director Gladhill reviewed the staff report and recommendation to direct staff to work with the Environmental Policy Board (EPB) and Planning Commission to develop ideas to resolve, or at least reduce, issues some homeowners are encountering as a result of the proximity of the principle structure to a wetland, floodplain, and/or storm sewer pipe.

Mayor Strommen stated that she does not view this as an issue of wetland protection versus allowing people to fill but rather there are lots that meet the minimum standards but are not allowed to build decks because of the wetland location. She provided the example of a homeowner that has a sliding door 1.5 stories up which is meant to have a deck but he had to go through a difficult process to build the necessary deck. She noted that a solution was found in that individual case but noted that there are other cases like this out there where a home was built on the lot in a position which prevents them from building items that may be necessary.

The Council consensus was to direct staff to work with the Environmental Policy Board and Planning Commission to develop ideas to resolve, or at least reduce, issues some homeowners are encountering as a result of the proximity of the principle structure to a wetland, floodplain, and/or storm sewer pipe.

7.07: Continue Discussion Related to Dominium Development and Acquisitions, LLC's Potential Purchase of City Owned Property (portions may be closed to the public)

Asst. City Administrator/Economic Development Manager Brama reviewed the staff report noting that this is a continuation of a discussion which began on June 9th. He provided background information on Dominium and specifically the ranges for the potential Ramsey project. He highlighted the proposal before the Council tonight, highlighting changes from the original proposal. He identified the members from Dominium and CBRE in attendance tonight and noted that the discussion can move into closed session.

Nick Anderson, Dominium, provided background information on Dominium and stated that mixed use is out of the realm of their expertise. He suggested that rather than incorporating retail within the building, perhaps a retail element could be built on the western portion of the site. He stated that Dominium would like to stay on the original parcel identified but contained on half of the site with the ability to construct retail on the other side of the site. He stated that they can work within the framework given by the City, noting that they can make the financing work

within the 15 year TIF period as the smaller project will be more financially feasible. He stated that this would be 130 to 140 units of senior independent living which would include one, two, and three bedroom units. He reviewed some of the amenities and advised that Dominium would own and operate the project for at least 15 years and focuses on building a quality project.

Councilmember Riley asked for and received clarification that commercial/retail could be built on the other portion of the site and Dominium would not be building that commercial/retail aspect.

Mr. Anderson confirmed that Dominium has expertise in housing and would not be interested in building the commercial/retail aspect and, therefore, would subdivide the property with the ability for commercial/retail to be built on the other portion of the site.

Councilmember LeTourneau appreciated the input from Dominium and the ability to have commercial on the other portion of the site but stated that he is struggling with the location and would rather have the building on the site across the street from this location which better fits in terms of zoning.

Councilmember Shryock asked and received confirmation that Dominium would only purchase part of the parcel which would leave the other portion available for purchase.

Mayor Strommen stated that there has been discussion regarding the vision and trying to stay true to the vision, noting that this parcel does not fit with that vision. She asked for input on the market and how the City can achieve balance between housing and commercial/retail.

Brian Pankratz, CBRE, stated that there is a City well on the property and that portion of the parcel cannot be developed.

Community Development Director Gladhill noted that the easement is 125 feet by 125 feet and advised that there are some elements that can occur, such as above grade parking, but confirmed that there are limitations.

Mr. Pankratz stated that typically multi-family residential developers do not want to incorporate retail, noting that there is a large amount of retail turnover in those mixed use buildings and it is difficult to obtain funding.

Councilmember LeTourneau stated that he would like to see this project, but would prefer another location.

Mr. Pankratz stated that this is not the only retail piece of property within The COR and identified a number of parcels available for retail development. He noted that in all likelihood, this parcel would be one of the last retail parcels to develop for many reasons.

Councilmember Shryock stated that she would support working towards what has been started, continuing the compromises which staff and the developer have been able to reach.

Mr. Pankratz stated that the high density proposed for this building would fit with the location near the railroad tracks.

Councilmember Riley asked for a comparison of how housing would play into drawing commercial and retail opportunities.

Mr. Pankratz stated that demographics is what draws in commercial and retail uses, noting that increased population attracts retail opportunity.

Councilmember Kuzma stated that he likes that this project is designed for seniors and is close to the train, grocery store, and park space.

Mayor Strommen stated that she is still struggling with how this would fit the vision. She stated that if mixed use, retail on the bottom and residential on the top, will not work, the Council should then revisit the vision. She stated that perhaps the Council has additional work to do before the vision can be changed.

Councilmember Riley stated that residents are not asking for more apartments and seem to be disappointed in that. He did not think the City should be subsidizing something that residents are not asking for.

Councilmember LeTourneau stated that perhaps this is not an issue of subsidy but instead an issue of demand. He recognized that there is a need for housing and stressed that housing attracts retail, but did not think this is the best location under the vision.

Mr. Pankratz stated that the market changes and there are a number of parcels which can handle a number of different developments throughout Ramsey.

Mayor Strommen stated that a few years ago there was a push to move ahead and there were public discussions about potential commercial/retail which did not come to fruition and believed that is what is causing the public frustration. She believed that discussions should be realistic in terms of what is possible.

Mr. Anderson stated that Dominium is proposing independent living seniors, noting that there is a huge need in the marketplace for this type of housing.

Asst. City Administrator/Economic Development Manager Brama advised under Minnesota Statutes, Section 13D.05, Subd.3, the meeting can move into Closed Session to discuss Dominium Development and Acquisition LLC's potential purchase of City owned property.

Motion by Councilmember Shryock, seconded by Councilmember Johns, to move to Closed Session to discuss acquisition negotiations.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers Shryock, Johns, Kuzma, LeTourneau, and Riley. Voting No: None. Absent: Councilmember Williams.

The City Council meeting moved into a Closed Session at 8:58 p.m.

The City Council reconvened in Open Session at 9:50 p.m.

Asst. City Administrator/Economic Development Manager Brama stated the Council discussed zoning and the fit of the proposed use within The COR on the subject property and also regarding the deal points which staff and the developer have negotiated. The direction of the Council is to complete a discussion which recently began in the Planning Commission, specifically in regard to zoning and the zoning of the specific parcel before a deal can be finalized with Dominium.

7.08: Consider Adopting Resolution #15-07-182 Appointing City Administrator as Deputy City Clerk in Addition to the City Administrator's Existing Duties per Minnesota Statute 412.151 in the Event of the Absence of the City Clerk

City Administrator Ulrich reviewed the staff report and the recommendation to adopt Resolution #15-07-182 that the City Council hereby consents to the appointment of the City Administrator to serve as the Deputy City Clerk and carry out the duties and powers afforded to the City Clerk per Minnesota Statute.

Motion by Councilmember Kuzma, seconded by Councilmember Johns, to adopt Resolution #15-07-182 Appointing City Administrator as Deputy City Clerk in Addition to the City Administrator's Existing Duties per Minnesota Statute 412.151 in the Event of the Absence of the City Clerk.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers Kuzma, Johns, LeTourneau, Riley, and Shryock. Voting No: None. Absent: Councilmember Williams.

8. MAYOR, COUNCIL AND STAFF INPUT

City Administrator Ulrich announced upcoming meetings and events.

9. ADJOURNMENT

Motion by Councilmember Shryock, seconded by Councilmember Johns, to adjourn the meeting.

Motion carried.

The regular meeting of the City Council adjourned at 9:55 p.m.

Respectfully submitted,

_____
Kurtis G. Ulrich
City Administrator

ATTEST:

_____
Jo Ann M. Thieling
City Clerk

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

CC Regular Session **4. 3.**

Meeting Date: 07/28/2015

Submitted For: Patrick Brama, Administrative Services

By: Patrick Brama, Administrative Services

Information

Title

Approve Temporary Construction Easement Related to Garnet Street Reconstruction Project

Purpose/Background:

Purpose: Approve Temporary Construction Easement Related to Garnet Street Reconstruction Project

Background: In summary, this temporary easement allows the general contractor for the Garnet Street Reconstruction project (Kuechle Underground) to utilize a nearby City owned property for storage of fill (sand). This easement runs with the term of the overarching contract awarded to Kuechle Underground for the Garnet Street project.

This agreement has been reviewed by our Engineering Department and the City Attorney.

Notification:

NA

Observations/Alternatives:

NA

Funding Source:

NA

Recommendation:

Approve the attached Temporary Construction Easement Related to Garnet Street Reconstruction Project; subject to final review and changes by the City Attorney.

Action:

Approve the attached Temporary Construction Easement Related to Garnet Street Reconstruction Project; subject to final review and changes by the City Attorney.

Attachments

TEMPORARY CONSTRUCTION EASEMENT (purpose of case)

REF MAP

Original Contract (Garnet Street Reconstruction)

Form Review

Inbox	Reviewed By	Date
Bruce Westby	Bruce Westby	07/22/2015 04:20 PM
Kurt Ulrich	Kurt Ulrich	07/23/2015 08:55 AM
Form Started By: Patrick Brama		Started On: 07/22/2015 09:30 AM

Final Approval Date: 07/23/2015

TEMPORARY CONSTRUCTION EASEMENT

This indenture is made and entered into this _____ day of _____, 2015, by **City of Ramsey**, a Minnesota municipal corporation ("Grantor"), and **Kuechle Underground, Inc.**, a Minnesota corporation ("Grantee").

Recitals

1. Grantor owns a parcel of land, PID 10-32-25-34-0016, bounded by Jaspar St. N.W. and 167 Ave. N.W., as shown in the attached Exhibit A ("the Property").

2. Grantee is reconstructing a portion of Garnet Street and 168th Avenue pursuant to the Construction Contract between Grantor and Grantee dated July 2, 2015 (the "Project").

3. In order to complete the Project in an efficient manner, Grantee desires a temporary easement over a portion of the Property within which to stockpile sand and fill materials.

4. Grantor desires to grant to Grantee a temporary easement relating to the construction of the Project in accordance with the terms and conditions set forth below.

Temporary Easement

1. The entire Property is subject to the temporary easement granted below, except for the 20' wide strip adjacent to the existing pedestrian trail and except for the 50'

sight triangle at the corner of 167th Avenue and Jaspar St. N.W., all as shown on Exhibit A ("Easement Area").

2. For good and valuable consideration, receipt of which is acknowledged by Grantor, Grantor grants and conveys to Grantee a temporary construction easement over and across the Easement Area for the purpose of stockpiling sand and fill materials used in the Project.

    a. The Easement Area shall not be used for storage of construction equipment or hazardous materials.

    b. The height of the stock piles shall not exceed _____ feet.

    c. Grantee shall not access the Easement Area from 167th Avenue N.W. and shall not drive across or upon the existing pedestrian trail along 167th Avenue N.W.

    d. Upon completion of construction, all fill materials shall be removed and the Easement Area graded consistent with its original topography.

    e. Grantee is solely responsible for any and all damage to the pedestrian trail, curbs and streets caused by its use of the Easement Area and shall repair such damage in a timely manner.

3. This Easement expires upon final completion of the Project and Grantor's acceptance of the Work.

4. This Easement may not be modified without written consent of both Grantor and Grantee.

5. This Agreement may be executed in any number of counterparts, all of which shall constitute a single agreement, any one of which bearing signatures of all parties shall be deemed an original.

GRANTOR:

CITY OF RAMSEY, MINNESOTA

By: _____
Sarah Strommen, Mayor

By: _____
Kurt Ulrich, City Administrator

STATE OF MINNESOTA)
)ss.
COUNTY OF ANOKA)

On this ____ day of _____, 2015, before me, a notary public, personally appeared Sarah Strommen and Kurt Ulrich, the Mayor and City Administrator, respectively, of the City of Ramsey, Minnesota, named in the foregoing instrument and acknowledged said instrument on behalf of the City.

_____
Notary Public

GRANTEE:

KUECHLE UNDERGROUND, INC.

By: _____

_____
[print name]

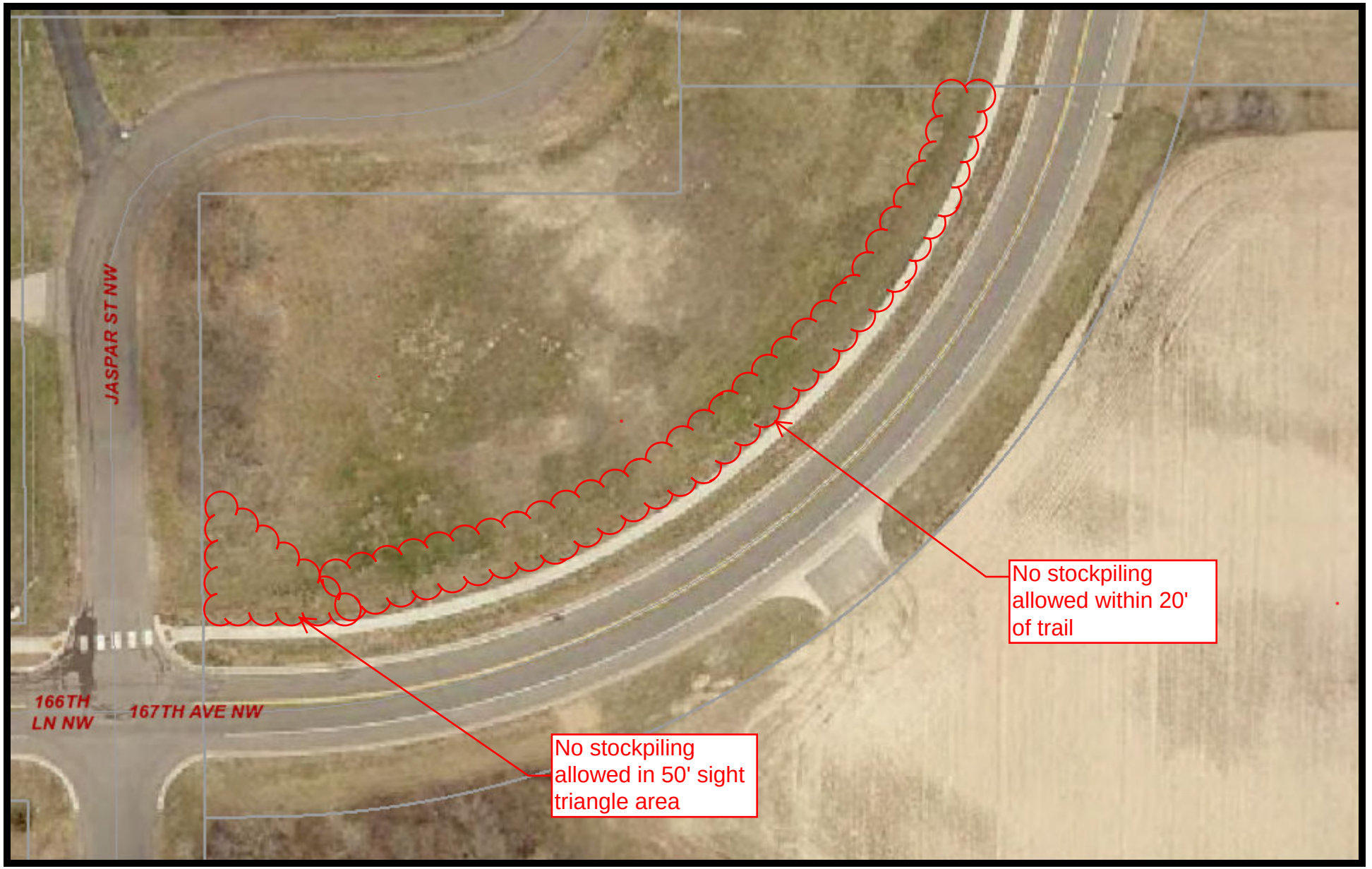
Its: President

STATE OF MINNESOTA)
)ss.
COUNTY OF _____)

On this ____ day of _____, 2015, before me, a notary public, personally appeared _____, the President of Kuechle Underground, Inc., Grantee in the foregoing instrument, and acknowledged said instrument on behalf of the Grantee.

_____
Notary Public

Kuechle's sand stockpile request



Print Date: July 15, 2015

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CONSTRUCTION CONTRACT

THIS AGREEMENT (the "Agreement") is made and entered into this 2nd day of July, 2015, by and between Kuechle Underground Inc., a Minnesota Corporation (the"Contractor") and the City of Ramsey, a Minnesota Municipal Corporation, 7550 Sunwood Drive NW, Ramsey, Minnesota 55303 (the "Owner").

WITNESSETH

WHEREAS, the City of Ramsey proposes to reconstruct 0.39 miles of municipal streets including 0.26 miles of Garnet Street north of 167th Avenue, and 0.13 miles of 168th Avenue west of Garnet Street, with City Improvement Project No. 13-10 (the "Project"); and

WHEREAS, the plans and specifications necessary for construction of the Project are defined in the Contract Documents and Technicial Specifications dated May 5, 2015 (the "Contract Documents"); and

WHEREAS, the work required to complete the Project is defined in the Contract Documents (the "Work"); and

WHEREAS, the Contractor has made a written proposal and bid to the Owner to furnish the material, equipment, labor and everything necessary for the completion of the Work for the price and within the time schedule required by the Contract Documents; and

WHEREAS, the Contractor, as the lowest responsible bidder, has been awarded the contract for the Work by the City; and

WHEREAS, Contractor, in consideration of the payments hereinafter provided, for itself and its successors, as the case may be, hereby covenants and agrees to and with the Owner to perform the Work and furnish the material, under the supervision of the City Engineer; and

WHEREAS, Contractor acknowledges:

1. That it understands the Contract Documents;

2. That it has the equipment, technical ability, personnel and facilities to construct the Project in accordance with the Contract Documents and that it is licensed by all applicable agencies and governmental entities;

3. That the Contract Documents are, in its opinion, appropriate and adequate for the complete construction of the Project in a sound and suitable manner.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, it is agreed and understood as follows:

1. Work Performance. Contractor shall perform the Work as described in the Contract Documents which are incorporated herein by reference. Contractor agrees to comply

with all federal, state, and local laws and ordinances applicable to the services to be performed under this Agreement, including all safety standards. The Contractor shall be solely and completely responsible for conditions of the job site, including the safety of all persons and property during the performance of the services.

2. Commencement of Work. The Contractor shall commence work on the Project within ten (10) days of the date of the Notice to Proceed given by the City Engineer and shall have the Work substantially complete within the period specified in the Contract Documents. Failure to complete the work within this period will be cause for the Contractor to forfeit the amount as required by the Special Provisions terms of the Contract Documents.

3. Contractor Compensation. The Owner shall compensate Contractor for the Work in the amount of $823,126.51 based upon the Contractor's accepted bid subject to any additions or deductions provided therein, payment shall be made pursuant to the payment provisions outlined in the Contract Documents.

4. Independent Contractor Relationship. It is expressly understood that the Contractor is an "independent contractor" and not an employee of the City. The Contractor shall have control over the manner in which the services are performed under this Agreement. The Contractor shall supply, at its own expense, all materials, supplies, equipment and tools required to accomplish the work contemplated by this Agreement. The Contractor shall not be entitled to any benefits from the City, including, without limitation, insurance benefits, sick and vacation leave, workers' compensation benefits, unemployment compensation, disability, severance pay, or retirement benefits.

5. Insurance Requirements.

   A. Liability. The Contractor agrees to maintain commercial general liability insurance in a minimum amount of $1,500,000 per occurrence; $2,000,000 annual aggregate. The policy shall cover liability arising from premises, operations, products-completed operations, personal injury, advertising injury, and contractually assumed liability. The City shall be named as an additional insured.
   B. Automobile Liability. If the Contractor operates a motor vehicle in performing the services under this Agreement, the Contractor shall maintain commercial automobile liability insurance, including owned, hired, and non-owned automobiles, with a minimum liability limit of $1,000,000, combined single limit.
   C. Workers' Compensation. The Contractor agrees to comply with all applicable workers' compensation laws in Minnesota.
   D. Certificate of Insurance. The Contractor shall, prior to commencing services, deliver to the City a Certificate of Insurance as evidence that the above coverage's are in full force and effect.

6. Indemnification. To the fullest extent permitted by law, the Contractor agrees to defend, indemnify and hold harmless the City, and its employees, officials, volunteers and agents from and against all claims, actions, damages, losses and expenses, including attorney fees, arising out of the Contractor's negligence or the Contractor's performance or failure to perform its obligations under this Agreement. The Contractor's indemnification obligation shall apply to the Contractor's subcontractor(s), or anyone directly or indirectly employed or hired by the Contractor, or anyone for whose acts the Contractor

may be liable. The Contractor agrees this indemnity obligation shall survive the completion or termination of this Agreement.

7. Dispute Resolution. The Parties shall cooperate and use their best efforts to ensure that the various provisions of the Agreement are fulfilled. The Parties agree to act in good faith to undertake resolution of disputes, in an equitable and timely manner and in accordance with the provisions of this Agreement. If disputes cannot be resolved informally by the Parties, the following procedures shall be used:

A. Whenever there is a failure between the Parties to resolve a dispute on their own, the Parties shall first attempt to mediate the dispute. The parties shall agree upon a mediator, or if they cannot agree, shall obtain a list of court-approved mediators from the Anoka County District Court Administrator and select a mediator by alternately striking names until one remains. The City shall strike the first name followed by the Contractor, and shall continue in that order until one name remains.
B. Litigation. If the dispute is not resolved within thirty (30) days after the end of mediation proceedings, the Parties may litigate the matter.

8. General Provisions.

A. Entire Agreement. This Agreement supersedes any prior or contemporaneous representations or agreements, whether written or oral, between the Parties and contains the entire agreement.

B. Assignment. The Contractor may not assign this Agreement to any other person unless written consent is obtained from the City.

C. Amendments. Any modification or amendment to this Agreement shall require a written agreement signed by both Parties.

D. Nondiscrimination. In the hiring of employees to perform work under this Agreement, the Contractor shall not discriminate against any person by reason of any characteristic protected by state or federal law.

E. Force Majeure. Except for payment of sums due, neither party shall be liable to the other or deemed in default under this Agreement, if and to the extent that such party's performance is prevented by reason of Force Majeure, as determined by the City.

F. Notices. All notices and other communications under this Agreement must be in writing and must be given by registered or certified mail, postage prepaid, or delivered by hand at the addresses set forth below:

Notice to City: City of Ramsey
Attention: City Engineer
7550 Sunwood Drive NW
Ramsey, MN 55303

Notice to Contractor: KUECHLE UNDERGROUND, INC.
10998 STATE HWY 55, PO BOX 509
KIMBALL, MN 55353

G. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of Minnesota. All proceedings related to this Agreement shall be venued in the State of Minnesota.

H. Waivers. The waiver by either party of any breach or failure to comply with any provision of this Agreement by the other party shall not be construed as, or constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this Agreement.

I. Ownership of Documents. All reports, plans, specifications, data, maps, and other documents produced by the Contractor in the performance of services under this Agreement shall be the property of the City.

J. Government Data. The Contractor agrees to maintain all data received from the City in the same manner as the City as required under the Minnesota Government Data Practices Act, Minnesota Statutes, Chapter 13.

K. Counterparts. This Agreement may be signed in counterparts, each of which shall be deemed an original, and which taken together shall be deemed to be one and the same document.

L. Savings Clause. If any court finds any portion of this Agreement to be contrary to law, invalid, or unenforceable, the remainder of the Agreement will remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in triplicate counterparts the day and year first above written.

CONTRACTOR:

Kuechle Underground Inc.

By: _____

Its: President

OWNER:

CITY OF RAMSEY

By: _____
Sarah Strommen, Its Mayor

ATTEST:

By: _____
Kurt Ulrich, Its City Administrator

CC Regular Session **4. 4.**

Meeting Date: 07/28/2015

By: Jackie Lipski, Finance

Information

Title

Adopt Resolution #15-07-187 Approving Cash Disbursement Made and Authorizing Payment of Accounts Payable Invoicing Received During the Period of July 9, 2015 through July 22, 2015

Action:

Motion to Adopt Resolution #15-07-187 Approving Cash Disbursement Made and Authorizing Payment of Accounts Payable Invoicing Received During the Period of July 9, 2015 through July 22, 2015.

Attachments

Bills List 7/28/2015

Resolution 07/28/2015

Form Review

Inbox	Reviewed By	Date
Diana Lund	Diana Lund	07/22/2015 02:00 PM
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:32 PM
Form Started By: Jackie Lipski		Started On: 07/22/2015 01:51 PM
Final Approval Date: 07/22/2015		

CITY OF RAMSEY - FINANCE OFFICE Printed 7/22/2015

RAMSEY CITY COUNCIL MEETING

7/28/2015

BILLS LIST

DISBURSEMENTS TO BE APPROVED THIS MEETING:

DISBURSEMENT TYPE:	SUBMITTED FOR APPROVAL
Purchase Journal:	
Prepaids 7/9/15-7/22/15	279,933.61
Accounts Payable 7/9/15-7/22/15	250,280.66
Payroll 7/17/15	155,932.16
Pay Estimates- Projects	649,717.32
Debt Service	52,292.50
TOTAL SUBMITTED FOR APPROVAL THIS MEETING	**$ 1,388,156.25**

DISBURSEMENTS PREVIOUSLY APPROVED AND PAID:	APPROVED PREV. MTG	2015 Y.T.D.
NET PAYROLL TOTAL	$ 286,120.79	$ 1,923,358.12
- CORRECTION TO PAYROLL		
PREPAIDS	320,745.19	2,893,773.94
- PREPAID ADJUSTMENTS		
WIRE TRANSFERS FOR DEBT SERVICE		898,403.89
- CORRECTION TO D.S.		
ACCOUNTS PAYABLE INVOICING - PREVIOUS MEETING:		
- BILLS LIST SUBMITTED	601,896.15	3,075,388.07
ADD (DELETE) BILLS LIST SUBMITTED		
PAY ESTIMATE(S)		882,014.07
- CHECKS VOIDED	0.00	0.00
TOTAL CASH DISBURSEMENTS PREVIOUSLY APPROVED	**$ 1,208,762.13**	**$ 9,672,938.09**

CITY OF RAMSEY

Council Check Register by GL

Council Check Register and Summary

7/9/2015 -- 12/31/2015

Check #	Date	Amount	Supplier / Explanation	PO #	Doc No	Inv No	Account No	Subledger	Account Description
97453	**7/9/2015**		**100033 ANOKA COUNTY ATTORNEY**						
		196.00	ALCOHOL FORFEITURE 13-009760		77421	070815	0230.6249		MISCELLANEOUS OPERA
		196.00							
97454	**7/9/2015**		**100033 ANOKA COUNTY ATTORNEY**						
		917.00	DRUG FORTEITURE 14-072706		77422	070815A	0223.6389		TOWING SERVICES
		917.00							
97455	**7/9/2015**		**110734 CITY OF RAMSEY**						
		311.48	CASH UTILITY PAYMENT 5637371		77414	070915	9601.4651		WATER REVENUE
		311.48							
97456	**7/9/2015**		**114791 OVERTURE HOMES INC**						
		1,500.00	REFUND ERO ESC 8876 178TH AVE		77415	070915	9804.6433	00114202	REFUNDS
		2,100.00	REFUND LAND ESC 8876 178TH AVE		77416	070915A	9252.1155.1		MANUAL-ACCOUNTS RE(
		3,600.00							
97457	**7/9/2015**		**106398 S W WOLD CONSTRUCTION INC**						
		1,500.00	REFUND ERO ESC 16205 SAPPHIRE		77417	070915	9804.6433	00114434	REFUNDS
		5,000.00	REFUND ESC 16205 SAPPHIRE ST		77418	070915A	9252.1155.1		MANUAL-ACCOUNTS RE(
		2,000.00	REFUND ESC 16205 SAPPHIRE ST		77418	070915A	9252.1155.1		MANUAL-ACCOUNTS RE(
		8,500.00							
97458	**7/9/2015**		**113273 STATE OF MINNESOTA**						
		98.00	ALCOHOL FORFEITURE 13-009760		77419	070815	0230.6249		MISCELLANEOUS OPERA
		98.00							
97459	**7/9/2015**		**113273 STATE OF MINNESOTA**						
		459.00	DRUG FORFEITURE 14-072706		77420	070815A	0223.6389		TOWING SERVICES
		459.00							
97460	**7/14/2015**		**106670 CENTRAL POWER DISTRIBUTORS INC**						
		78.57	BLADE/BELT/FILTER		77443	907882	0452.6382		MACHINERY & EQUIPMEI
		78.57							
97461	**7/14/2015**		**100404 CENTURYLINK**						
		65.35	JUNE-JULY 2015 SERVICES		77435	763-422-1452079 5 JUNE 15	0452.6321		TELEPHONE
		65.35							
97462	**7/14/2015**		**112272 CUSTOM REMOLDELERS INC**						
		77.00	CANCELLED PERMIT 17021 HELIUM		77436	071315	9101.4205		BUILDING PERMIT
		5.00	CANCELLED PERMIT 17021 HELIUM		77436	071315	9101.2081		SURCHARGES-PERMITS
		82.00							
97463	**7/14/2015**		**114741 HEINEN HOMES INC**						
		5,000.00	REFUND LAND ESC 8850 162ND LN		77437	071415	9252.1155.1		MANUAL-ACCOUNTS RE(
		1,500.00	REFUND ERO ESC 8850 162ND LN		77438	071415A	9804.6433	00114377	REFUNDS
		6,500.00							
97464	**7/14/2015**		**100291 MET COUNCIL SAC**						
		12,425.00	JUNE 2015 SAC CHARGES		77439	070915	9602.2083		SAC CHARGES
		124.25-	JUNE 2015 SAC CHARGES		77439	070915	9602.4356		SEWER AVAILABILITY CH
		12,300.75							
97465	**7/14/2015**		**114793 TITLE ONE INC**						

Check #	Date	Amount	Supplier / Explanation	PO #	Doc No	Inv No	Account No	Subledger	Account Description
97465	7/14/2015		114793 TITLE ONE INC						Continued.
		680.23	CLOSING MEADOW CREEK BUILDERS		77440	071315	9412.6315		MISCELLANEOUS PROFE
		680.23							
97466	7/14/2015		114793 TITLE ONE INC						
		565.65	CLOSING- MEADOW CREEK BUILDERS		77441	071315A	9412.6315		MISCELLANEOUS PROFE
		565.65							
97467	7/14/2015		113148 WILSON, MARK						
		100.00	REFUND DAMAGE DEP-CENTRAL PRK		77442	071315	9804.1160		KEY & DAMAGE DEPOSIT
		100.00							
97568	7/16/2015		113905 CENTERPOINT ENERGY HSP						
		26.00	CANCEL PERMIT RA030562		77447	071415	9101.4208		HEATING PERMIT
		1.00	CANCEL PERMIT RA030562		77447	071415	9101.2081		SURCHARGES-PERMITS
		27.00							
97569	7/16/2015		100413 RANDALL, GOODRICH AND HAAG, P L .C.						
		2,887.40	JUNE 2015 PROSECUTION		77448	071515	0161.6304		LEGAL FEES
		2,887.40							
97570	7/16/2015		114796 WAHL, MICHAEL						
		100.00	REFUND DAMAGE/KEY DEPOSIT		77449	071315	9804.1160		KEY & DAMAGE DEPOSIT
		55.00	REFUND DAMAGE/KEY DEPOSIT		77449	071315	9804.1160		KEY & DAMAGE DEPOSIT
		155.00							
97571	7/17/2015		100257 LAW ENFORCEMENT LABOR SRV INC						
		470.00			77255	0630151405135	9101.2177		UNION DUES
		470.00			77458	071615905545	9101.2177		UNION DUES
		940.00							
97572	7/17/2015		100298 MN AFSCME COUNCIL 5						
		626.66			77256	0630151405136	9101.2177		UNION DUES
		626.44			77459	071615905546	9101.2177		UNION DUES
		1,253.10							
97573	7/21/2015		100012 ACE SOLID WASTE INC						
		27.19	FIRE STATION- ARMSTRONG BLVD		77538	930537	0220.6374		REFUSE/RECYCLING
		348.60	RECYCLE DAYS- SPRING 2015		77539	930538	9604.6249		MISCELLANEOUS OPERA
		24,555.80	CITY CONTRACT RECY JULY 15		77540	930522	9604.6489		OTHER CONTRACTED SE
		169.41	MISC CITY ACCOUNTS		77541	930539	0194.6374		REFUSE/RECYCLING
		31.27	MISC CITY ACCOUNTS		77541	930539	0220.6374		REFUSE/RECYCLING
		105.59	MISC CITY ACCOUNTS		77541	930539	0311.6374		REFUSE/RECYCLING
		250.50	MISC CITY ACCOUNTS		77541	930539	0452.6374		REFUSE/RECYCLING
		35.20	MISC CITY ACCOUNTS		77541	930539	9601.6374		REFUSE/RECYCLING
		35.20	MISC CITY ACCOUNTS		77541	930539	9602.6374		REFUSE/RECYCLING
		105.00	MISC CITY ACCOUNTS		77541	930539	9604.6249		MISCELLANEOUS OPERA
		35.18	MISC CITY ACCOUNTS		77541	930539	9605.6374		REFUSE/RECYCLING
		25,698.94							
97574	7/21/2015		111377 ANOKA MUNICIPAL UTILITY						
		37.88	BUNKER LK BLVD/DYSPOSIUM		77542	22-612000-01JUN E 15	0260.6371		ELECTRIC UTILITIES
		42.23	14034 DYSPROSIUM ST		77543	22-610280-00 JUNE 15	9603.6371		ELECTRIC UTILITIES
		56.80	RAMSEY STREET LIGHTS		77544	22-990005-01	9603.6371		ELECTRIC UTILITIES

Check #	Date	Amount	Supplier / Explanation	PO #	Doc No	Inv No	Account No	Subledger	Account Description
97574	7/21/2015		111377 ANOKA MUNICIPAL UTILITY						Continued.
						JUNE 15			
		130.26	CTY RD 116/ HWY 47 SIGNAL		77545	22-613120-01 JUNE 15	0260.6371		ELECTRIC UTILITIES
		267.17							
97575	7/21/2015		106564 BLUE CROSS BLUE SHIELD						
		38,468.11	MEDICAL COVERAGE AUGUST 15		77546	LOG41-E1-5 AUG 15	9101.2176		LIFE/HEALTH-EMPLOYEE
		38,468.11							
97576	7/21/2015		100619 BRAUN INTERTEC CORPORATION						
		1,696.75	RAMP ENCLOSURE PROJECT		77547	B028220	9412.6520	00201428	BUILDINGS & STRUCTUR
		1,696.75							
97577	7/21/2015		112663 CAPSTONE HOMES INC						
		1,500.00	REFUND ERO ESC 14627 SODIUM ST		77548	072115	9804.6433	00114688	REFUNDS
		1,500.00	REFUND ERO ESC 16872 LIMONITE		77549	072115A	9804.6433	00114623	REFUNDS
		3,000.00							
97578	7/21/2015		114802 CITIES DIGITAL INC						
		6,673.00	LASERFICHE SUPPORT/UPDATES		77550	36247	0192.6405		OFFICE & DATA PROCES:
		6,673.00							
97579	7/21/2015		106583 DELTA DENTAL PLAN OF MINNESOTA						
		2,392.30	DENTAL INS AUG 2015		77551	6099240	9101.2170		DENTAL/DISABILITY/LIFE
		2,392.30							
97580	7/21/2015		100160 EH RENNER AND SONS INC						
		9,986.95	WELL 5 REPAIR		77552	000143510000	9601.6315		MISCELLANEOUS PROFE
		3,906.03	WELL 5 REPAIR		77553	000144030000	9601.6315		MISCELLANEOUS PROFE
		13,892.98							
97581	7/21/2015		114807 FISHER, CANDACE AND NORMAN						
		100.00	REFUND DAMAGE DEPOSIT		77561	072115	9804.1160		KEY & DAMAGE DEPOSIT
		100.00							
97582	7/21/2015		100617 MN CRIME PREVENTION ASSOCIATION						
		120.00	DUES SCHANTZEN/MOLDENHAUER		77555	072015	0280.6451		MEMBERSHIP DUES
		120.00							
97583	7/21/2015		107244 NORTHLAND TRUST SERVICES INC						
		46,992.50	BONDS 2011A		77556	060815	9345.6611		BOND INTEREST
		5,300.00	BONDS OF 2004		77557	060815A	9338.6611		BOND INTEREST
		52,292.50							
97584	7/21/2015		100678 PETTY CASH						
		22.00	VEHICLE TABS		77558	071715	0211.6249		MISCELLANEOUS OPERA
		12.71	GAS		77558	071715	0211.6223		GASOLINE
		4.27	SYMPATHY CARD FOR STAFF		77558	071715	0130.6249		MISCELLANEOUS OPERA
		16.06	PD TRAINING LUNCHES		77558	071715	0211.6335		TRAINING
		16.00	PLATES CITY VEHICLES		77558	071715	0311.6249		MISCELLANEOUS OPERA
		71.04							
97585	7/21/2015		100453 SRF CONSULTING GROUP INC						
		2,057.70	RAMP ENCLOSURE PROJECT		77559	08873.00-1	9412.6520	00201428	BUILDINGS & STRUCTUR

Check #	Date	Amount	Supplier / Explanation	PO #	Doc No	Inv No	Account No	Subledger	Account Description
97585	7/21/2015		100453 SRF CONSULTING GROUP INC						Continued.
		2,057.70							
97586	7/21/2015		114151 TASC (FEES)						
		159.10	VEBA/REBA FEES JUNE 2015		77562	IN579981	9101.2176		LIFE/HEALTH-EMPLOYEE
		220.15	VEBA/REBA FEES JUNE 2015		77562	IN579981	0130.6315		MISCELLANEOUS PROFE
		379.25							
97587	7/21/2015		114333 ZBIKOWSKI, TIM						
		175.00	HAPPY DAYS CERT 5K		77560	071715	0296.6249		MISCELLANEOUS OPERA
		175.00							
90337870	7/17/2015		100398 PUBLIC EMPLOYEES RETIREMENT ASSN						
		75.00			77428	0710151140024	9101.2174		PERA-EMPLOYEE
		75.00			77429	0710151140025	9101.2183		PERA-EMPLOYER
		15,714.73			77460	071615905547	9101.2174		PERA-EMPLOYEE
		20,881.65			77461	071615905548	9101.2183		PERA-EMPLOYER
		36,746.38							
93009567	7/17/2015		100113 BANK OF THE WEST						
		361.66			77425	0710151140021	9101.2171		FEDERAL WITHHOLDING
		324.17			77426	0710151140022	9101.2173		FICA & MEDICARE-EMPL(
		324.17			77427	0710151140023	9101.2182		FICA & MEDICARE-EMPL(
		303.89			77431	0713151613081	9101.2171		FEDERAL WITHHOLDING
		1,069.65			77432	0713151613082	9101.2173		FICA & MEDICARE-EMPL(
		1,069.65			77433	0713151613083	9101.2182		FICA & MEDICARE-EMPL(
		23,247.91			77450	071615905541	9101.2171		FEDERAL WITHHOLDING
		11,432.34			77455	071615905542	9101.2173		FICA & MEDICARE-EMPL(
		11,432.34			77456	071615905543	9101.2182		FICA & MEDICARE-EMPL(
		49,565.78							
95396736	7/17/2015		100601 MN DEPT OF REV WH						
		83.00			77430	0710151140026	9101.2172		STATE WITHHOLDING
		145.23			77434	0713151613084	9101.2172		STATE WITHHOLDING
		9,331.56			77462	071615905549	9101.2172		STATE WITHHOLDING
		9,559.79							
99008942	7/17/2015		100223 ICMA RETIREMENT TRUST 457						
		3,382.12			77457	071615905544	9101.2175		DEFERRED COMPENSAT
		3,382.12							
99063015	7/17/2015		100219 HOME DEPOT COMMERCIAL ACCT PROGRAM						
		53.57	JUNE 2015 PURCHASES		77463	06302015	0311.6269		LANDSCAPE MATERIALS
		53.57							
99071015	7/10/2015		107885 DEPARTMENT OF LABOR AND INDUSTRY						
		8,456.57	Q2-2015 SURCHARGE		77424	Q2-2015 SURCHARGE	9101.2081		SURCHARGES-PERMITS
		338.26-	Q2-2015 SURCHARGE		77424	Q2-2015 SURCHARGE	9101.4604		SURCHARGES
		8,118.31							
99071515	7/15/2015		108768 COMDATA NETWORK INC						
		50.00	SENSIBLE LAND USE COAL , ANDER		77444	JUNE15 COMDATA PCARD	0461.6335		TRAINING
		16.99	AMAZON MKTPLACE PMTS , BLUML		77444	JUNE15 COMDATA	0211.6249		MISCELLANEOUS OPERA

Check #	Date	Amount	Supplier / Explanation	PO #	Doc No	Inv No	Account No	Subledger	Account Description
99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						PCARD			
		6.74	AMAZON MKTPLACE PMTS , BLUML		77444	JUNE15 COMDATA PCARD	0211.6249		MISCELLANEOUS OPERA
		96.97	DADDY O'S CAFE INC , BLUML		77444	JUNE15 COMDATA PCARD	0211.6331		TRAVEL & LODGING
		1,633.00	FIRST PRIORITY/MOTORMA , BLUML		77444	JUNE15 COMDATA PCARD	0211.6281		SMALL TOOLS & MINOR E
		130.00	MINNESOTA CHIEFS OF PO , BLUML		77444	JUNE15 COMDATA PCARD	0211.6451		MEMBERSHIP DUES
		168.00	ULINE *SHIP SUPPLIES , BLUML		77444	JUNE15 COMDATA PCARD	0211.6237		CRIME SCENE KIT MATEI
		67.50	ULINE *SHIP SUPPLIES , BLUML		77444	JUNE15 COMDATA PCARD	0211.6237		CRIME SCENE KIT MATEI
		22.75	ULINE *SHIP SUPPLIES , BLUML		77444	JUNE15 COMDATA PCARD	0211.6237		CRIME SCENE KIT MATEI
		52.50	ULINE *SHIP SUPPLIES , BLUML		77444	JUNE15 COMDATA PCARD	0211.6237		CRIME SCENE KIT MATEI
		23.30	ULINE *SHIP SUPPLIES , BLUML		77444	JUNE15 COMDATA PCARD	0211.6237		CRIME SCENE KIT MATEI
		28.17	ULINE *SHIP SUPPLIES , BLUML		77444	JUNE15 COMDATA PCARD	0211.6237		CRIME SCENE KIT MATEI
		66.32	WM SUPERCENTER , BLUML		77444	JUNE15 COMDATA PCARD	0211.6249		MISCELLANEOUS OPERA
		88.68	AMAZON MKTPLACE PMTS , BRAY		77444	JUNE15 COMDATA PCARD	0194.6382		MACHINERY & EQUIPMEI
		8.50	AMAZON MKTPLACE PMTS , BRAY		77444	JUNE15 COMDATA PCARD	0194.6382		MACHINERY & EQUIPMEI
		68.39	WM SUPERCENTER , BRAY		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		25.45	HOPES CHINESE RESTAURA , FRANK		77444	JUNE15 COMDATA PCARD	0211.6331		TRAVEL & LODGING
		540.00	MINNESOTA CHIEFS OF PO , FRANK		77444	JUNE15 COMDATA PCARD	0211.6335		TRAINING
		14.43	WM SUPERCENTER , FRANKFURTH		77444	JUNE15 COMDATA PCARD	0211.6207		TRAINING SUPPLIES
		2,092.74	DLT SOLUTIONS , FREDRICKSON		77444	JUNE15 COMDATA PCARD	0192.6405		OFFICE & DATA PROCES:
		1,046.37	DLT SOLUTIONS , FREDRICKSON		77444	JUNE15 COMDATA PCARD	0192.6405		OFFICE & DATA PROCES:
		44.94	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0192.6281		SMALL TOOLS & MINOR E
		24.15	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0192.6281		SMALL TOOLS & MINOR E
		.49	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0192.6281		SMALL TOOLS & MINOR E
		55.26	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0192.6249		MISCELLANEOUS OPERA
		39.99	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0192.6249		MISCELLANEOUS OPERA
		1,092.91	WWW.NEWEGGBUSINESS.COMFREDRICK		77444	JUNE15 COMDATA PCARD	0211.6405		OFFICE & DATA PROCES:
		22.90	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0191.6249		MISCELLANEOUS OPERA
		55.99	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA	0280.6241		COMMUNITY POLICING S

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						PCARD			
		55.99	WWW.NEWEGGBUSINESS.COM , FREDR		77444	JUNE15 COMDATA PCARD	0280.6241		COMMUNITY POLICING S
		29.00	FINANCE AND COMMERCE I , GLADH		77444	JUNE15 COMDATA PCARD	0191.6452		SUBSCRIPTIONS
		618.75	ACTIVE911 INC , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		38.76	BILL'S SUPERETTE , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		17.97	MENARDS ELK RIVER , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		44.99	MENARDS ELK RIVER , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		44.97	MENARDS ELK RIVER , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		17.76	MENARDS ELK RIVER , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		15.98	MENARDS ELK RIVER , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		9.74	MENARDS ELK RIVER , KAPLER		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		352.10	BLUE VELVET , KATERS		77444	JUNE15 COMDATA PCARD	0211.6249		MISCELLANEOUS OPERA
		98.72	CHANTICLEAR PIZZA , LASHER		77444	JUNE15 COMDATA PCARD	0130.6249		MISCELLANEOUS OPERA
		20.98	COBORN'S SUPERSTORE , LASHER		77444	JUNE15 COMDATA PCARD	0130.6249		MISCELLANEOUS OPERA
		435.00	GOVERNMENT FINANCE , LUND		77444	JUNE15 COMDATA PCARD	0153.6352		GENERAL NOTICE & PUB
		24.30	JEFF STEIN SNAPON , RIEMER		77444	JUNE15 COMDATA PCARD	0311.6281		SMALL TOOLS & MINOR E
		43.32	COBORN'S SUPERSTORE , RIVERBLO		77444	JUNE15 COMDATA PCARD	0452.6249		MISCELLANEOUS OPERA
		120.56	BATTERIES PLUS , SCHIFERLI		77444	JUNE15 COMDATA PCARD	0220.6249		MISCELLANEOUS OPERA
		50.00	ICMA INTERNET , THIELING		77444	JUNE15 COMDATA PCARD	0130.6335		TRAINING
		49.50	ICMA INTERNET , THIELING		77444	JUNE15 COMDATA PCARD	0211.6335		TRAINING
		49.50	ICMA INTERNET , THIELING		77444	JUNE15 COMDATA PCARD	0220.6335		TRAINING
		24.32	ACAPULCO MEXICAN RESTA , ULRIC		77444	JUNE15 COMDATA PCARD	0130.6249		MISCELLANEOUS OPERA
		62.80	CENTER CAFE , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		14.87	DC VIP CAB , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		7.95	HART SUNDRY , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		760.00	ICMA INTERNET , ULRICH		77444	JUNE15 COMDATA PCARD	0130.6331		TRAVEL & LODGING
		471.42	INN LAKE SUPERIOR , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		330.24	INN LAKE SUPERIOR , ULRICH		77444	JUNE15 COMDATA	0111.6331		TRAVEL & LODGING

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						PCARD			
		330.24	INN LAKE SUPERIOR , ULRICH		77444	JUNE15 COMDATA PCARD	0130.6331		TRAVEL & LODGING
		420.18	INN LAKE SUPERIOR , ULRICH		77444	JUNE15 COMDATA PCARD	0130.6331		TRAVEL & LODGING
		89.94	LITTLE ANGIE'S CANTINA , ULRIC		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		44.00	MSP AIRPORT PARKING , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		18.87	NRG #216 HARDEES , ULRICH		77444	JUNE15 COMDATA PCARD	0130.6249		MISCELLANEOUS OPERA
		40.87	PAUL BAKERY , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		176.30	PRIMI PIATTI , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		29.66	SQ *ABDULESHAQ , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		17.71	TAXICHARG WASHINGTONDC , ULRIC		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		19.31	TAXICHARG WASHINGTONDC , ULRIC		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		29.20	THE OCCIDENTAL GRILL , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		97.93	TYCOONS EATERY AND ALE , ULRIC		77444	JUNE15 COMDATA PCARD	0111.6249		MISCELLANEOUS OPERA
		40.00	WASH METRORAIL , ULRICH		77444	JUNE15 COMDATA PCARD	0111.6331		TRAVEL & LODGING
		11.11	KEYS CAFE SPRING LAKE , WIEMAN		77444	JUNE15 COMDATA PCARD	0211.6331		TRAVEL & LODGING
		13.25	KEYS CAFE SPRING LAKE , WIEMAN		77444	JUNE15 COMDATA PCARD	0211.6331		TRAVEL & LODGING
		222.21	NORTHWOODS BAR AND GRI , BLUML		77444	JUNE15 COMDATA PCARD	0237.6249		MISCELLANEOUS OPERA
		289.57	MAMA DE LUCAS PIZZERIA , WIEMA		77444	JUNE15 COMDATA PCARD	0237.6249		MISCELLANEOUS OPERA
		5.49	TARGET , WIEMANN

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						PCARD			
		5.49	TARGET , WIEMANN		77444	JUNE15 COMDATA PCARD	0237.6249		MISCELLANEOUS OPERA
		5.49	TARGET , WIEMANN		77444	JUNE15 COMDATA PCARD	0237.6249		MISCELLANEOUS OPERA
		4.69	TARGET , WIEMANN		77444	JUNE15 COMDATA PCARD	0237.6249		MISCELLANEOUS OPERA
		400.00	POLLUTION CONTROL AGEN , WESTB		77444	JUNE15 COMDATA PCARD	9435.6530	00201310	IMPROVEMENTS OTHER
		14.99	MENARDS ELK RIVER , NELSON		77444	JUNE15 COMDATA PCARD	9601.6249		MISCELLANEOUS OPERA
		73.98	MENARDS ELK RIVER , NELSON		77444	JUNE15 COMDATA PCARD	9601.6249		MISCELLANEOUS OPERA
		5.97	MENARDS ELK RIVER , NELSON		77444	JUNE15 COMDATA PCARD	9601.6249		MISCELLANEOUS OPERA
		25.98	MENARDS ELK RIVER , NELSON		77444	JUNE15 COMDATA PCARD	9601.6249		MISCELLANEOUS OPERA
		29.96	MENARDS ELK RIVER , NELSON		77444	JUNE15 COMDATA PCARD	9601.6249		MISCELLANEOUS OPERA
		75.20	BILL'S SUPERETTE , FUEL, NELS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		32.28	BILL'S SUPERETTE , FUEL, GLAD		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		44.85	BILL'S SUPERETTE , FUEL, MADS		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		74.28	BILL'S SUPERETTE , FUEL, BYRO		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		69.26	BILL'S SUPERETTE , FUEL, BYRO		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		17.95	BILL'S SUPERETTE , FUEL, MARAS		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		56.32	BILL"S SUPERETTE , FUEL, MADSE		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		53.64	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		38.00	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		18.11	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		55.94	BILL'S SUPERETTE , FUEL, MCDO		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		41.00	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		39.44	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		45.71	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		.05	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		33.92	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		21.94	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		60.53	BILL'S SUPERETTE , FUEL, FLEE		77446	JUNE 15 COMDATA	0220.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						FUEL			
		78.82	BILL'S SUPERETTE , FUEL, FLEE		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		40.79	BILL'S SUPERETTE , FUEL, FIRE		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		50.84	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		76.98	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		108.75	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		64.37	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		93.84	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		88.58	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		97.82	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		38.27	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		54.13	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		45.96	BILL'S SUPERETTE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		61.33	BILL'S SUPERETTE , FUEL, NIEL		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		42.32	BILL'S SUPERETTE , FUEL, NIEL		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		49.00	BILL'S SUPERETTE , FUEL, TURN		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		104.80	BILL'S SUPERETTE , FUEL, TURN		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		37.01	BILL'S SUPERETTE , FUEL, TURN		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		63.00	BILL'S SUPERETTE , FUEL, FLEE		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		81.06	CASEYS GEN STORE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		95.00	CASEYS GEN STORE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		34.46	HOLIDAY STNSTORE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		49.48	HOLIDAY STNSTORE , FUEL, KAPL		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		64.83	HOLIDAY STNSTORE , FUEL, BERG		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		57.29	HOLIDAY STNSTORE , FUEL, BERG		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		44.11	HOLIDAY STNSTORE , FUEL, MCDO		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		61.29	HOLIDAY STNSTORE , FUEL, MADS		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		46.62	HOLIDAY STNSTORE , FUEL, MCDO		77446	JUNE 15 COMDATA	0311.6223		GASOLINE

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						FUEL			
		42.99	HOLIDAY STNSTORE , FUEL, MCDO		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		57.96	HOLIDAY STNSTORE , FUEL, SEAS		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		32.13	LITTLE DUKES RAMSEY , FUEL, JA		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		32.25	LITTLE DUKES RAMSEY , FUEL, GL		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		33.78	LITTLE DUKES RAMSEY , FUEL, 1		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		59.77	LITTLE DUKES RAMSEY , FUEL, BY		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		41.75	LITTLE DUKES RAMSEY , FUEL, RI		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		65.18	LITTLE DUKES RAMSEY , FUEL, SE		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		66.88	LITTLE DUKES RAMSEY , FUEL, BY		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		38.36	LITTLE DUKES RAMSEY , FUEL, JA		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		33.61	LITTLE DUKES RAMSEY , FUEL, ST		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		34.95	LITTLE DUKES RAMSEY , FUEL, 1		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		34.36	LITTLE DUKES RAMSEY , FUEL, JA		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		37.07	LITTLE DUKES RAMSEY , FUEL, JA		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		38.95	LITTLE DUKES RAMSEY , FUEL, JA		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		36.94	LITTLE DUKES RAMSEY , FUEL, 1		77446	JUNE 15 COMDATA FUEL	0240.6223		GASOLINE
		39.11	LITTLE DUKES RAMSEY , FUEL, GL		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		38.91	LITTLE DUKES RAMSEY , FUEL, GL		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		43.21	LITTLE DUKES RAMSEY , FUEL, BR		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		54.57	LITTLE DUKES RAMSEY , FUEL, ST		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		68.97	LITTLE DUKES RAMSEY , FUEL, BR		77446	JUNE 15 COMDATA FUEL	0194.6223		GASOLINE
		61.51	LITTLE DUKES RAMSEY , FUEL, MC		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		50.72	LITTLE DUKES RAMSEY , FUEL, MC		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		33.62	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		39.34	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		47.93	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		27.68	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA	0220.6223		GASOLINE

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						FUEL			
		21.64	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		38.27	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		54.15	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		54.98	LITTLE DUKES RAMSEY , FUEL, KA		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		51.47	LITTLE DUKES RAMSEY , FUEL, KA		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		38.14	LITTLE DUKES RAMSEY , FUEL, KA		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		63.83	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		69.92	LITTLE DUKES RAMSEY , FUEL, FI		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		74.07	LITTLE DUKES RAMSEY , FUEL, BE		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		49.46	LITTLE DUKES RAMSEY , FUEL, RI		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		49.44	LITTLE DUKES RAMSEY , FUEL, RI		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		115.01	LITTLE DUKES RAMSEY , FUEL, SE		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		85.57	LITTLE DUKES RAMSEY , FUEL, SE		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		90.00	LITTLE DUKES RAMSEY , FUEL, LO		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		91.99	LITTLE DUKES RAMSEY , FUEL, SE		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		48.60	SUPERAMERICA , FUEL, MARAS		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		66.77	SUPERAMERICA , FUEL, MARAS		77446	JUNE 15 COMDATA FUEL	0311.6223		GASOLINE
		60.51	SUPERAMERICA , FUEL, MADSEN		77446	JUNE 15 COMDATA FUEL	0301.6223		GASOLINE
		44.59	SUPERAMERICA , FUEL, FIREFIGH		77446	JUNE 15 COMDATA FUEL	0220.6223		GASOLINE
		30.36	SUPERAMERICA , FUEL, FIREFIGH		77446	JUNE 15 COMDATA FUEL	0220.6225		DIESEL FUEL
		57.07	SUPERAMERICA , FUEL, SEASONAL		77446	JUNE 15 COMDATA FUEL	0452.6223		GASOLINE
		17.57	BILL'S SUPERETTE , FUEL, LUEC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.38	BILL'S SUPERETTE , FUEL, UNKN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		34.47	BILL'S SUPERETTE , FUEL, WEBB		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		35.45	CASEYS GEN STORE , FUEL, DAHL		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		32.51	CASEYS GEN STORE , FUEL, DAHL		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		39.34	CASEYS GEN STORE , FUEL, HESS		77446	JUNE 15 COMDATA	0211.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						FUEL			
		24.02	CASEYS GEN STORE , FUEL, GARD		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.60	CASEYS GEN STORE , FUEL, MOLD		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		28.99	HOLIDAY STNSTORE , FUEL, CAMA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.54	HOLIDAY STNSTORE , FUEL, DAHL		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.98	HOLIDAY STNSTORE , FUEL, HASS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.99	HOLIDAY STNSTORE , FUEL, BAGN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		13.07	HOLIDAY STNSTORE , FUEL, LUEC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.58	HOLIDAY STNSTORE , FUEL, LUEC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.25	HOLIDAY STNSTORE , FUEL, BAGN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		35.43	HOLIDAY STNSTORE , FUEL, BAGN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.03	HOLIDAY STNSTORE , FUEL, BAGN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		24.19	HOLIDAY STNSTORE , FUEL, BAGN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.48	HOLIDAY STNSTORE , FUEL, BAGN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		40.83	HOLIDAY STNSTORE , FUEL, DIXO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		22.03	HOLIDAY STNSTORE , FUEL, DAHL		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		39.60	HOLIDAY STNSTORE , FUEL, DAHL		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		27.00	HOLIDAY STNSTORE , FUEL, FRAN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		34.60	HOLIDAY STNSTORE , FUEL, HESS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.59	HOLIDAY STNSTORE , FUEL, HINN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		3.56	HOLIDAY STNSTORE , FUEL, HINN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.29	HOLIDAY STNSTORE , FUEL, HINN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.78	HOLIDAY STNSTORE , FUEL, HINN		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		40.95	HOLIDAY STNSTORE , FUEL, HESS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		39.27	HOLIDAY STNSTORE , FUEL, HESS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		42.21	HOLIDAY STNSTORE , FUEL, HESS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		51.86	HOLIDAY STNSTORE , FUEL, HASS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.82	HOLIDAY STNSTORE , FUEL, HASS		77446	JUNE 15 COMDATA	0211.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
		15.16	HOLIDAY STNSTORE , FUEL, LUEC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.60	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		44.70	LITTLE DUKES RAMSEY , FUEL, RO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		29.97	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.81	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.65	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		38.12	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.25	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		38.81	LITTLE DUKES RAMSEY , FUEL, BL		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.57	LITTLE DUKES RAMSEY , FUEL, RE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		32.14	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.37	LITTLE DUKES RAMSEY , FUEL, RE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.73	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		35.15	LITTLE DUKES RAMSEY , FUEL, BE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		13.27	LITTLE DUKES RAMSEY , FUEL, BE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		31.41	LITTLE DUKES RAMSEY , FUEL, CA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		34.26	LITTLE DUKES RAMSEY , FUEL, BA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		22.48	LITTLE DUKES RAMSEY , FUEL, CA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.43	LITTLE DUKES RAMSEY , FUEL, BE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		36.74	LITTLE DUKES RAMSEY , FUEL, CA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		36.87	LITTLE DUKES RAMSEY , FUEL, BA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.56	LITTLE DUKES RAMSEY , FUEL, CA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.79	LITTLE DUKES RAMSEY , FUEL, CA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		25.10	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		28.90	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		31.87	LITTLE DUKES RAMSEY , FUEL, BA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		24.01	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA	0211.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						FUEL			
		8.93	LITTLE DUKES RAMSEY , FUEL, RE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.76	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		31.68	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		16.64	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		53.52	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		54.11	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		19.51	LITTLE DUKES RAMSEY , FUEL, LU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		16.36	LITTLE DUKES RAMSEY , FUEL, LU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		16.81	LITTLE DUKES RAMSEY , FUEL, LU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		36.90	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		39.01	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.31	LITTLE DUKES RAMSEY , FUEL, LU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		21.72	LITTLE DUKES RAMSEY , FUEL, LU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		49.94	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		24.75	LITTLE DUKES RAMSEY , FUEL, VO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		31.48	LITTLE DUKES RAMSEY , FUEL, MO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		35.87	LITTLE DUKES RAMSEY , FUEL, MO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.19	LITTLE DUKES RAMSEY , FUEL, BA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.31	LITTLE DUKES RAMSEY , FUEL, BA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		36.43	LITTLE DUKES RAMSEY , FUEL, MO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		35.30	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.55	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		29.20	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		10.86	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		32.33	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.52	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		19.08	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA	0211.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
		35.55	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.88	LITTLE DUKES RAMSEY , FUEL, SC		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		36.42	LITTLE DUKES RAMSEY , FUEL, DA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.75	LITTLE DUKES RAMSEY , FUEL, BA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.86	LITTLE DUKES RAMSEY , FUEL, DA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		38.56	LITTLE DUKES RAMSEY , FUEL, DA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.33	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		24.77	LITTLE DUKES RAMSEY , FUEL, DA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		34.38	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		12.11	LITTLE DUKES RAMSEY , FUEL, RE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		40.37	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		30.51	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		28.51	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.85	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.76	LITTLE DUKES RAMSEY , FUEL, WE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		17.02	LITTLE DUKES RAMSEY , FUEL, WE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		41.20	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		22.06	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		24.84	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		39.24	LITTLE DUKES RAMSEY , FUEL, WE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.59	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		28.73	LITTLE DUKES RAMSEY , FUEL, ST		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		60.12	LITTLE DUKES RAMSEY , FUEL, BO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		42.62	LITTLE DUKES RAMSEY , FUEL, BO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.76	LITTLE DUKES RAMSEY , FUEL, BO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		41.49	LITTLE DUKES RAMSEY , FUEL, ST		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		47.48	LITTLE DUKES RAMSEY , FUEL, BO		77446	JUNE 15 COMDATA	0211.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						FUEL			
		27.98	LITTLE DUKES RAMSEY , FUEL, BO		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		58.82	LITTLE DUKES RAMSEY , FUEL, ST		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		60.55	LITTLE DUKES RAMSEY , FUEL, ST		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		25.72	LITTLE DUKES RAMSEY , FUEL, FR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		33.12	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		22.53	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		27.69	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.01	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		27.99	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		24.75	LITTLE DUKES RAMSEY , FUEL, HI		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.85	LITTLE DUKES RAMSEY , FUEL, HI		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		39.27	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.69	LITTLE DUKES RAMSEY , FUEL, HI		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		25.87	LITTLE DUKES RAMSEY , FUEL, HI		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		19.02	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		25.88	LITTLE DUKES RAMSEY , FUEL, HI		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		27.94	LITTLE DUKES RAMSEY , FUEL, KR		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		25.83	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		28.85	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		25.59	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		38.72	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		15.73	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		32.51	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.21	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		21.25	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		10.43	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		18.03	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA	0211.6223		GASOLINE

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99071515	7/15/2015		108768 COMDATA NETWORK INC						Continued.
						FUEL			
		20.88	LITTLE DUKES RAMSEY , FUEL, HE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		48.56	LITTLE DUKES RAMSEY , FUEL, HA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		48.75	LITTLE DUKES RAMSEY , FUEL, HA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		29.21	LITTLE DUKES RAMSEY , FUEL, GA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		44.04	LITTLE DUKES RAMSEY , FUEL, HA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		38.80	LITTLE DUKES RAMSEY , FUEL, HA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		43.05	LITTLE DUKES RAMSEY , FUEL, CU		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		41.00	SUPERAMERICA , FUEL, BLUML		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		34.56	SUPERAMERICA , FUEL, SCHLENDE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		37.43	SUPERAMERICA , FUEL, DIXON		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		63.70	SUPERAMERICA , FUEL, BONINE		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		36.81	SUPERAMERICA , FUEL, HINNENKA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		21.98	SUPERAMERICA , FUEL, HINNENKA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		17.74	SUPERAMERICA , FUEL, HINNENKA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.87	SUPERAMERICA , FUEL, HINNENKA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		26.57	SUPERAMERICA , FUEL, HINNENKA		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		29.98	SUPERAMERICA , FUEL, GARDNER		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		31.55	SUPERAMERICA , FUEL, GARDNER		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		44.15	SUPERAMERICA , FUEL, KATERS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		41.85	SUPERAMERICA , FUEL, KATERS		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		23.83	SUPERAMERICA , FUEL, BLUML		77446	JUNE 15 COMDATA FUEL	0211.6223		GASOLINE
		38.88	LITTLE DUKES RAMSEY , FUEL, ER		77446	JUNE 15 COMDATA FUEL	9601.6223		GASOLINE
		36.53	LITTLE DUKES RAMSEY , FUEL, ER		77446	JUNE 15 COMDATA FUEL	9601.6223		GASOLINE
		66.44	LITTLE DUKES RAMSEY , FUEL, ER		77446	JUNE 15 COMDATA FUEL	9601.6223		GASOLINE
		55.09	LITTLE DUKES RAMSEY , FUEL, ER		77446	JUNE 15 COMDATA FUEL	9601.6223		GASOLINE
		71.90	CASEYS GEN STORE , FUEL, GRAF		77446	JUNE 15 COMDATA FUEL	9602.6223		GASOLINE
		71.60	CASEYS GEN STORE , FUEL, GRAF		77446	JUNE 15 COMDATA	9602.6223		GASOLINE

Check #	Date	Amount	Supplier / Explanation	PO #	Doc No	Inv No	Account No	Subledger	Account Description
									Continued.
99071515	7/15/2015		108768 COMDATA NETWORK INC						
						FUEL			
		82.65	HOLIDAY STNSTORE , FUEL, GRAF		77446	JUNE 15 COMDATA	9602.6223		GASOLINE
						FUEL			
		88.29	HOLIDAY STNSTORE , FUEL, GRAF		77446	JUNE 15 COMDATA	9602.6223		GASOLINE
						FUEL			
		45.98	LITTLE DUKES RAMSEY , FUEL, GR		77446	JUNE 15 COMDATA	9602.6223		GASOLINE
						FUEL			
		24,428.54							
99071517	7/17/2015		107962 TASC						
		2,501.33			77451	0716159055410	9101.2176		LIFE/HEALTH-EMPLOYEE
		2,501.33							
99071551	7/17/2015		114486 SUN LIFE ASSURANCE COMPANY OF CANADA						
		684.89			77251	06301514051313	9101.2176		LIFE/HEALTH-EMPLOYEE
		684.76			77454	0716159055413	9101.2176		LIFE/HEALTH-EMPLOYEE
		37.60	Paplham COBRA		77454	0716159055413	9101.2176		LIFE/HEALTH-EMPLOYEE
		1,407.25							
99071715	7/17/2015		100629 MN DEPT OF REV SALES TX						
		13.41	JUN15 SALES TAX		77423	JUN15 SALES TAX	9101.2082		SALES/USE TAX PAYABLE
		54.86	JUN15 SALES TAX		77423	JUN15 SALES TAX	9101.4305		RENTAL FEES
		14.13	JUN15 SALES TAX		77423	JUN15 SALES TAX	9101.4328		ACCIDENT REPORTS
		23.71	JUN15 SALES TAX		77423	JUN15 SALES TAX	9101.4308		SALES OF MAPS & PUBLI
		.06-	JUN15 SALES TAX		77423	JUN15 SALES TAX	9101.4609		OTHER MISCELLANEOUS
		97.95	JUN15 SALES TAX		77423	JUN15 SALES TAX	9601.2082		SALES/USE TAX PAYABLE
		204.00							
99951804	7/17/2015		114790 GREAT WEST LIFE AND ANNUITY INS CO						
		3,484.00			77452	0716159055411	9101.2175		DEFERRED COMPENSAT
		3,484.00							
99954492	7/17/2015		114790 GREAT WEST LIFE AND ANNUITY INS CO						
		1,152.50			77453	0716159055412	9101.2176		LIFE/HEALTH-EMPLOYEE
		1,152.50							
99969049	7/10/2015		114790 GREAT WEST LIFE AND ANNUITY INS CO						
		4,621.27			77413	0630151405	9101.2176		LIFE/HEALTH-EMPLOYEE
		4,621.27							
		332,226.11	Grand Total						

Payment Instrument Totals

Checks	196,259.04
EFT Payments	135,967.07
Total Payments	332,226.11

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Payment Instrument		Check Payment
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Payee Number	Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
111610	A DYNAMIC DOOR CO. INC.	REPAIR AT PW	PV	77563	001	09101	7/13/2015	21506263	564.25
	A DYNAMIC DOOR CO. INC.	REPAIR AT PW	PV	77563	002	09101	7/13/2015	21506263	170.92
	4588 194TH AVENUE NE EAST BETHEL MN 55092				Summary Total				735.17
					Payment Amount				735.17
110402	ADVANCE AUTO PARTS	JUNE 2015 BILLING	PV	77471	001	09101	6/30/2015	063015	70.22
	ADVANCE AUTO PARTS	JUNE 2015 BILLING	PV	77471	002	09101	6/30/2015	063015	10.77
	AAP FINANCIAL SERVICES P O BOX 742063 ATLANTA GA 30374-2063				Summary Total				80.99
					Payment Amount				80.99
100013	ADVANCE CONSULTING GROUP INC	RE: ED PROGRAM	PV	77470	001	09230	7/1/2015	15004	2,100.00
	ADVANCE CONSULTING GROUP INC 3970 114TH LANE NW SUITE 100 COON RAPIDS MN 55433				Summary Total				2,100.00
					Payment Amount				2,100.00
100017	AIRGAS USA, LLC	MISC GASES	PV	77472	001	09101	6/30/2015	9928442350	25.70
	AIRGAS USA LLC P O BOX 802576 CHICAGO IL 60680-2576				Summary Total				25.70
					Payment Amount				25.70
106641	AMERICAN PRESSURE INC	GORILLA WASH	PV	77564	001	09101	7/16/2015	86480	128.15
	AMERICAN PRESSURE INC	GORILLA WASH	PV	77564	002	09101	7/16/2015	86480	128.15
	3810 W BROADWAY	GORILLA WASH	PV	77564	003	09101	7/16/2015	86480	128.15
	ROBBINSDALE MN 55422				Summary Total				384.45
					Payment Amount				384.45
102953	AMERIGAS OF ANOKA	PROPANE	PV	77473	001	09101	7/8/2015	71075583	87.85
	AMERIGAS OF ANOKA P O BOX 371473 PITTSBURGH PA 15250-7473				Summary Total				87.85
					Payment Amount				87.85

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Payee Number	Payee Name / Mailing Address	Stub Message	Document Ty	Number	Itm	Co	Due Date	Invoice Number	Payment Amount
100948	ANOKA COUNTY LICENSE CENTER	VEHICLE TRANSFER	PV	77565	001	09290	7/15/2015	071515	23.75
	ANOKA COUNTY LICENSE CENTER						Summary Total		23.75
							Payment Amount		23.75
		SPEED TRAILER REG.	PV	77566	001	09101	7/15/2015	071515A	35.25
							Summary Total		35.25
							Payment Amount		35.25
100043	ANOKA COUNTY PROPERTY RECORDS TAXATION	JUNE 2015	PV	77567	001	09804	7/1/2015	534 JULY 2015	46.00
	ANOKA COUNTY PROPERTY RECORDS TAXATION	JUNE 2015	PV	77567	002	09804	7/1/2015	534 JULY 2015	46.00
	2100 - 3RD AVENUE	JUNE 2015	PV	77567	003	09804	7/1/2015	534 JULY 2015	92.00
	ANOKA MN 55303	JUNE 2015	PV	77567	004	09804	7/1/2015	534 JULY 2015	46.00
							Summary Total		230.00
							Payment Amount		230.00
100046	ANOKA COUNTY SHERIFF'S OFFICE	TRAIN-ROSSUM/CURTIS	PV	77475	001	09101	7/7/2015	070715	20.00
	ANOKA COUNTY SHERIFF'S OFFICE 13301 HANSON BLVD NW ANDOVER MN 55304						Summary Total		20.00
							Payment Amount		20.00
107587	ANOKA COUNTY TREASURY DEPARTMENT	AUGUST 2015 BROADBAND	PV	77474	001	09101	7/7/2015	B150707O	604.50
	ANOKA COUNTY TREASURY DEPARTMENT 2100 THIRD AVENUE ANOKA MN 55303						Summary Total		604.50
							Payment Amount		604.50
100056	ANOKA, CITY OF	RE: MISS RIVER TRAIL	PV	77476	001	09805	7/9/2015	201507093618	694.43
	CITY OF ANOKA						Summary Total		694.43
	2015 - 1ST AVENUE NORTH	RE: MISS RIVER TRAIL	PV	77477	001	09805	7/9/2015	201507093620	108,894.05
	ANOKA MN 55303						Summary Total		108,894.05
							Payment Amount		

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Payment Instrument		Check Payment
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Payee Number	Payee Name / Mailing Address	Stub Message	Document Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
									109,588.48
101152	BKV GROUP INC	RE: FIRE STAT 2 MISC	PV	77478	001	09436	6/25/2015	40456	23,209.96
	BKV GROUP INC 222 NORTH 2ND STREET MINNEAPOLIS MN 55401			Summary Total					23,209.96
				Payment Amount					23,209.96
100647	BOLTON AND MENK, INC	EDA FUTURE BUSINESS PRK	PV	77479	001	09201	6/30/2015	0179690	6,176.50
	BOLTON AND MENK, INC			Summary Total					6,176.50
	1960 PREMIER DRIVE	RE: MISS RIVER TRAIL	PV	77480	001	09805	6/25/2015	0179397	5,685.00
	MANKATO MN 56001-5900			Summary Total					5,685.00
				Payment Amount					11,861.50
103641	BOYER TRUCKS ROGERS	RADIATOR 632	PV	77481	001	09101	7/9/2015	973979	856.13
	BOYER TRUCKS 2601 NE BROADWAY MINNEAPOLIS MN 55413			Summary Total					856.13
				Payment Amount					856.13
107672	BRIN NORTHWESTERN GLASS CO INC	REPLACEMENT OF GLASS CH	PV	77482	001	09702	6/30/2015	528817S	2,849.00
	BRIN NORTHWESTERN GLASS CO INC 144 GLENWOOD AVENUE N MINNEAPOLIS MN 55428			Summary Total					2,849.00
				Payment Amount					2,849.00
110536	CBIZ FINANCIAL SOLUTIONS INC	REBA FEES 2ND QTR	PV	77568	001	09101	7/17/2015	C19954-2Q15	36.51
	CBIZ FINANCIAL SOLUTIONS INC P O BOX 643792 CINCINNATI OH 45264-3792			Summary Total					36.51
				Payment Amount					36.51
112019	CENTRAL HYDRAULICS INC	MISC PARTS	PV	77611	001	09101	7/21/2015	0037467	149.48
	CENTRAL HYDRAULICS INC 21877 INDUSTRIAL COURT			Summary Total					149.48

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Payment Instrument		Check Payment
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Payee Number	Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	ROGERS MN 55374								
				Payment Amount					149.48
111496	CENTRAL TURF AND IRRIGATION SUPPLY	MISC SUPPLIES	PV	77483	001	09101	7/7/2015	6044671-00	617.50
	CENTRAL TURF AND IRRIGATION SUPPLY			Summary Total					617.50
	8 WILLIAMS STREET	MISC PARTS	PV	77569	001	09101	7/17/2015	6044671-01	120.60
	ELMSFORD NY 10523			Summary Total					120.60
				Payment Amount					738.10
107791	CERTIFIED APPRAISAL SERVICES	RE: CENTRAL PARK LAND	PV	77570	001	09101	7/14/2015	15JUL10D	450.00
	CERTIFIED APPRAISAL SERVICES INC			Summary Total					450.00
	13016 OWATONNA STREET NE								
	BLAINE MN 55449								
				Payment Amount					450.00
110483	CITY OF ST PAUL	ASPHALT	PV	77610	001	09101	7/9/2015	IN00009939	786.12
	CITY OF ST PAUL			Summary Total					786.12
	OFFICE OF FINANCIAL SERVICES								
	15 W KELLOGG BLVD SUITE 700								
	ST PAUL MN 55102								
				Payment Amount					786.12
100111	COMMERCIAL ASPHALT COMPANY	ASPHALT	PV	77484	001	09101	6/30/2015	150630	202.07
	COMMERCIAL ASPHALT COMPANY	ASPHALT	PV	77484	002	09101	6/30/2015	150630	160.00
	P O BOX 1480			Summary Total					362.07
	MAPLE GROVE MN 55311-6480								
				Payment Amount					362.07
100125	COUNTRYSIDE PRINTING INC	BUS CARDS- A. MADSEN	PV	77485	001	09101	6/24/2015	33344	59.00
	COUNTRYSIDE PRINTING			Summary Total					59.00
	6250 BUNKER LAKE BLVD NW	ADMIN NOTE CARDS/ENVELOPES	PV	77486	001	09101	6/23/2015	33343	200.00
	SUITE 113			Summary Total					200.00
	RAMSEY MN 55303	OPEN TO BUS-INFO MAILER	PV	77487	001	09230	7/13/2015	33379	499.29

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Payment Instrument		Check Payment
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Payee Number	Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
				Summary Total					499.29
		BUSINESS CARDS- K. HAUAN	PV	77488	001	09101	7/10/2015	33372	59.00
				Summary Total					59.00
				Payment Amount					817.29
100144	DEHN OIL COMPANY	EZI-ACTION PUMP	PV	77601	001	09101	7/14/2015	25068343	54.95
	DEHN OIL COMPANY			Summary Total					54.95
	6735 141ST AVENUE NW	DIESEL FUEL	PV	77602	001	09101	7/15/2015	36557	1,034.00
	RAMSEY MN 55303			Summary Total					1,034.00
				Payment Amount					1,088.95
107691	DEPT EMPLOYMENT AND ECONOMIC DEVELOPMENT	2ND QTR 2015	PV	77490	001	09702	7/8/2015	070815	1,619.47
	DEPT EMPLOYMENT AND ECONOMIC DEVELOPMENT 332 MINNESOTA STREET SAINT PAUL MN 55101-1351			Summary Total					1,619.47
				Payment Amount					1,619.47
101185	DO ALL PRINTING COM INC	BANNER-BIZ OF THE YEAR	PV	77491	001	09230	7/16/2015	28706	90.00
	DO ALL PRINTING COM INC			Summary Total					90.00
	6360 HIGHWAY 10 NW	OVR CHRG HAPPY DAYS FLYER	PD	77571	001	09297	7/16/2015	28700	30.00-
	RAMSEY MN 55303			Summary Total					30.00-
				Payment Amount					60.00
114617	DR MICHAEL KELLER PHD	JUNE 2015 SERVICES	PV	77489	001	09101	6/30/2015	063015	375.00
	DR MICHAEL KELLER PHD 121 ADAMS STREET CAMBRIDGE MN 55008			Summary Total					375.00
				Payment Amount					375.00
100158	ECM PUBLISHERS INC	FINANCIAL STATEMENT DEC 2014	PV	77492	001	09101	7/3/2015	234137	596.63
	ECM PUBLISHERS INC			Summary Total					596.63
	4095 COON RAPIDS BLVD	AD- FIRE AND PD TECHS	PV	77493	001	09101	7/5/2015	234698	390.00

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Payee Number	Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	COON RAPIDS MN 55433					Summary Total			390.00
		SEAL COATING BIDS 2015	PV	77572	001	09101	6/26/2015	232031	258.00
						Summary Total			258.00
		OVERLAY BIDS 2015	PV	77573	001	09435	6/26/2015	232032	258.00
						Summary Total			258.00
						Payment Amount			1,502.63
106624	EHLERS AND ASSOCIATES, INC	GENERAL TIF	PV	77494	001	09230	7/10/2015	68021	2,205.00
	EHLERS & ASSOCIATES, INC					Summary Total			2,205.00
	3060 CENTRE POINTE DRIVE	RE: COR TIF	PV	77495	001	09230	7/10/2015	68020	157.50
	ROSEVILLE MN 55113-1105					Summary Total			157.50
						Payment Amount			2,362.50
100164	ELECTRIC SYSTEMS OF ANOKA INC	SIREN REPAIR 15	PV	77574	001	09101	7/15/2015	6045	184.00
	ELECTRIC SYSTEMS OF ANOKA INC	SIREN REPAIR 15	PV	77574	002	09101	7/15/2015	6045	163.90
	6314 HIGHWAY 10 NW					Summary Total			347.90
	ANOKA MN 55303					Payment Amount			347.90
104267	ELITE SANITATION	PARK TOILET RENTALS	PV	77496	001	09101	6/30/2015	22546	585.00
	ELITE SANITATION					Summary Total			585.00
	PO BOX 526								
	ELK RIVER MN 55330					Payment Amount			585.00
108737	EMERGENCY AUTOMOTIVE TECHNOLOGY INC	MISC PARTS	PV	77575	001	09101	7/8/2015	AW070815-4	98.80
	EMERGENCY AUTOMOTIVE TECHNOLOGY INC					Summary Total			98.80
	2755 GENEVA AVE N								
	OAKDALE MN 55128					Payment Amount			98.80
113991	EMERGENCY RESPONSE SOLUTIONS	MISC PARTS	PV	77576	001	09101	6/26/2015	4402	2,042.95

CITY OF RAMSEY
Create Payment Control Groups

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Payee Number	Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	EMERGENCY RESPONSE SOLUTIONS				Summary Total				2,042.95
	21371 HEIDELBERG STREET NE	MISC SUPPLIES	PV	77577	001	09101	7/9/2015	4451	3,414.09
	WYOMING MN 55092				Summary Total				3,414.09
					Payment Amount				5,457.04
113321	FACTORY MOTOR PARTS CO	AIR FILTER/BELT 563	PV	77498	001	09101	7/9/2015	6-1411424	163.87
	FACTORY MOTOR PARTS CO				Summary Total				163.87
	BIN 139107	MISC SUPPLIES	PV	77499	001	09101	7/10/2015	6-1411522	21.12
	P O BOX 9107	MISC SUPPLIES	PV	77499	002	09101	7/10/2015	6-1411522	8.19
	MINNEAPOLIS MN 55480-9107	MISC SUPPLIES	PV	77499	003	09101	7/10/2015	6-1411522	25.98
					Summary Total				55.29
		OIL FILTERS	PV	77500	001	09101	7/15/2015	6-1412082	23.88
					Summary Total				23.88
					Payment Amount				243.04
107099	FASTENAL	MISC PARTS	PV	77497	001	09601	7/9/2015	MNTC8129992	16.23
	FASTENAL COMPANY				Summary Total				16.23
	P O BOX 978	MISC PARTS	PV	77501	001	09101	7/7/2015	MNTC8129877	3.95
	WINONA MN 55987				Summary Total				3.95
		MISC PARTS	PV	77603	001	09101	7/13/2015	MNTC8130078	3.54
					Summary Total				3.54
		MISC PARTS	PV	77604	001	09101	7/15/2015	MNTC8130183	7.10
					Summary Total				7.10
					Payment Amount				30.82
100143	FERGUSON WATERWORKS # 2516	MISC METERS	PV	77502	001	09601	7/2/2015	0147820	10,644.85
	FERGUSON WATERWORKS 2516 P O BOX 802817 CHICAGO IL 60680-2817				Summary Total				10,644.85
					Payment Amount				10,644.85
107737	FINANCE AND COMMERCE INC	CONSTRUCTION BIDS	PV	77578	001	09804	6/15/2015	742232598	202.02
	FINANCE AND COMMERCE INC SDS 12-2619				Summary Total				202.02

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Payment Instrument Check Payment
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Payee Number	Name / Mailing Address	Stub Message	Document Ty	Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	P O BOX 86 MINNEAPOLIS MN 55486-2619								
				Payment Amount					202.02
112421	FIRST SCRIBE	ROWAY WEB APP JULY 2015	PV	77537	001	09101	7/1/2015	2466520	200.00
	FIRST SCRIBE 110 CHESHIRE LANE SUITE 105 MINNETONKA MN 55305								
				Summary Total					200.00
				Payment Amount					200.00
100189	G AND K SERVICES INC	UNIFORM CLEANING	PV	77504	001	09101	7/8/2015	1006187774	90.00
	G AND K SERVICES INC	UNIFORM CLEANING	PV	77504	002	09101	7/8/2015	1006187774	125.84
	P O BOX 842385	UNIFORM CLEANING	PV	77504	003	09101	7/8/2015	1006187774	10.00
	BOSTON MA 02284-2385	UNIFORM CLEANING	PV	77504	004	09101	7/8/2015	1006187774	125.84
				Summary Total					351.68
		FD MATS	PV	77579	001	09101	7/8/2015	1006187772	148.96
				Summary Total					148.96
		UNIFORM CLEANING	PV	77605	001	09101	7/15/2015	1006199149	90.00
		UNIFORM CLEANING	PV	77605	002	09101	7/15/2015	1006199149	10.00
		UNIFORM CLEANING	PV	77605	003	09101	7/15/2015	1006199149	92.24
		UNIFORM CLEANING	PV	77605	004	09101	7/15/2015	1006199149	92.24
				Summary Total					284.48
				Payment Amount					785.12
110568	GREEN VALLEY GREENHOUSE	PERENNIALS- PARKS	PV	77505	001	09101	6/25/2015	263661	113.70
	GREEN VALLEY GREENHOUSE 6530 GREEN VALLEY ROAD RAMSEY MN 55303								
				Summary Total					113.70
				Payment Amount					113.70
100814	HACH COMPANY	CHLORINE ACCUVAC PKGS.	PV	77506	001	09601	7/1/2015	9453465	659.82
	HACH COMPANY 2207 COLLECTIONS CENTER DR CHICAGO IL 60693								
				Summary Total					659.82
				Payment Amount					659.82
100211	HAWKINS INC	CHEMICALS	PV	77507	001	09601	6/29/2015	3746362	4,490.63

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Payment Instrument		Check Payment
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Payee Number	Payee Name / Mailing Address	Stub Message	Document Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	HAWKINS INC P O BOX 860263 MINNEAPOLIS MN 55486-0263			Summary Total					4,490.63
				Payment Amount					4,490.63
110386	HEALTH PARTNERS	RE: FIELD/GORDON	PV	77508	001	09101	7/1/2015	900025052	110.00
	HEALTH PARTNERS P O BOX 77026 MINNEAPOLIS MN 55480-7726			Summary Total					110.00
				Payment Amount					110.00
104027	INK WIZARDS INC	EMBROIDERY- SHIRTS	PV	77582	001	09101	6/24/2015	69629	119.00
	INK WIZARDS INC 9958 HIGHWAY 10 NW ELK RIVER MN 55330			Summary Total					119.00
				Payment Amount					119.00
112475	INNOVATIVE OFFICE SOLUTIONS	OFFICE SUPPLIES	PV	77580	001	09101	7/1/2015	IN0830476	124.34
	INNOVATIVE OFFICE SOLUTIONS	OFFICE SUPPLIES	PV	77580	002	09101	7/1/2015	IN0830476	252.55
	P O BOX 270107			Summary Total					376.89
	MINNEAPOLIS MN 55427-0107	OFFICE SUPPLIES	PV	77581	001	09101	6/25/2015	IN0825446	54.47
				Summary Total					54.47
				Payment Amount					431.36
100256	LANO EQUIPMENT INC	CATCHER BAG	PV	77509	001	09101	7/9/2015	02-295930	36.64
	LANO EQUIPMENT INC			Summary Total					36.64
	6140 HIGHWAY 10 NW	STIHL SHREDDER	PV	77510	001	09101	6/29/2015	02-284272	221.00
	ANOKA MN 55303			Summary Total					221.00
				Payment Amount					257.64
100259	LEAGUE OF MN CITIES INS TRUST	ERICKSON/HESSE/GARDNER	PV	77511	001	09702	6/30/2015	063015	1,270.00
	LEAGUE OF MN CITIES INS TRUST C/O BERKLEY RISK SERVICES INC P O BOX 581517 MINNEAPOLIS MN 55458-1517			Summary Total					1,270.00
				Payment Amount					

Bank Account	00002224 CASH IN BANK
Version	LOGIS003V
Originator	JLIPSKI
Payment Instrument	Check Payment
Pay Through Date	12/31/2015

Payee Number	Payee Name / Mailing Address	Stub Message	Document Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
									1,270.00
100266	LOGIS	NETWORK	PV	77583	001	09101	6/30/2015	40433	551.25
	LOGIS			Summary Total					551.25
	5750 DULUTH STREET	JUNE 2015 SERVICES	PV	77584	001	09101	6/30/2015	40369	10,355.00
	GOLDEN VALLEY MN 55422-4036			Summary Total					10,355.00
				Payment Amount					10,906.25
100273	MALLOY MONTAGUE KARNOWSKI RADOSEVIC	FINAL STATEMENTS 2014 AUDIT	PV	77585	001	09101	7/16/2015	38180	350.00
	MALLOY MONTAGUE KARNOWSKI RADOSEVIC			Summary Total					350.00
	410 PARK NATIONAL BANK BLDG	FINAL AUDIT 2014 SERVICES	PV	77586	001	09101	7/16/2015	38178	3,450.00
	5353 WAYZATA BLVD MINNEAPOLIS MN 55416			Summary Total					3,450.00
				Payment Amount					3,800.00
100284	MENARDS ELK RIVER	MISC SUPPLIES	PV	77512	001	09601	7/9/2015	82684	71.05
	MENARDS ELK RIVER 19521 EVANS STREET NW ELK RIVER MN 55330-1077			Summary Total					71.05
				Payment Amount					71.05
100289	METRO SALES INC	CONTRACT MARCH-JUNE 2015	PV	77513	001	09101	6/25/2015	292328	1,109.37
	METRO SALES INC	CONTRACT MARCH-JUNE 2015	PV	77513	002	09101	6/25/2015	292328	331.37
	1620 EAST 78TH STEET MINNEAPOLIS MN 55423			Summary Total					1,440.74
				Payment Amount					1,440.74
103915	MICHAEL BASICH INC.	ELMCREST-PLAYGRD EQUIP	PV	77587	001	09270	7/21/2015	38	14,000.00
	MICHAEL BASICH INC. 1761 THIRD STREET WHITE BEAR LAKE MN 55110			Summary Total					14,000.00
				Payment Amount					14,000.00
100435	MINNESOTA EQUIPMENT	MISC PARTS	PV	77606	001	09101	7/21/2015	P83683	431.77

Bank Account	00002224 CASH IN BANK
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Originator	JLIPSKI
Payment Instrument	Check Payment
Pay Through Date	12/31/2015

Payee Number	Payee Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	MINNESOTA EQUIPMENT				Summary Total				431.77
	13725 MAIN STREET	MISC PARTS	PV	77607	001	09101	7/15/2015	P83026	271.59
	ROGERS MN 55374				Summary Total				271.59
		RETURN- WRONG PARTS	PD	77608	001	09101	7/21/2015	P83684	170.30-
					Summary Total				170.30-
					Payment Amount				533.06
100345	NAPA AUTO PARTS ELK RIVER	AIR FILTERS	PV	77514	001	09101	7/13/2015	808253	149.51
	NAPA AUTO PARTS ELK RIVER 17137 YALE STREET NW P O BOX 1041 ELK RIVER MN 55330				Summary Total				149.51
					Payment Amount				149.51
114239	NORTH AMERICAN SAFETY	SHIRTS	PV	77515	001	09101	7/2/2015	12825	180.00
	NORTH AMERICAN SAFETY				Summary Total				180.00
	149 N MERIDIAN STREET	VESTS	PV	77516	001	09101	7/2/2015	12824	60.00
	BELLE PLAINE MN 56011				Summary Total				60.00
					Payment Amount				240.00
100363	NORTHERN SANITARY SUPPLY CO	RAMP- CONTAINER/DOME TOP	PV	77517	001	09240	7/9/2015	175589	442.67
	NORTHERN SANITARY SUPPLY CO				Summary Total				442.67
	341 COON RAPIDS BLVD	MISC SUPPLIES	PV	77588	001	09101	7/15/2015	175696	248.74
	MINNEAPOLIS MN 55433				Summary Total				248.74
					Payment Amount				691.41
103461	NORTHERN TECHNOLOGIES INC	MISS RIVER TRAIL MAY/JUNE 15	PV	77589	001	09805	6/27/2015	14878	1,762.50
	NORTHERN TECHNOLOGIES INC				Summary Total				1,762.50
	1408 NORTHLAND DRIVE SUITE 107	CENTER STREET TESTING MAY/JUNE	PV	77590	001	09433	6/27/2015	14937	663.75
	MENDOTA HEIGHTS MN 55120				Summary Total				663.75
		FIRE STAT 2 MAY/JUNE 15	PV	77591	001	09412	6/27/2015	14927	2,173.00
					Summary Total				2,173.00
					Payment Amount				4,599.25

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CITY OF RAMSEY
Create Payment Control Groups

Bank Account	00002224	CASH IN BANK
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Originator	JLIPSKI	
Payment Instrument		Check Payment
Pay Through Date	12/31/2015	

Payee Number	Payee Name / Mailing Address	Stub Message	Document Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
100368	OFFICE DEPOT	FOLDERS	PV	77518	001	09297	6/25/2015	777588652001	48.60
	OFFICE DEPOT				Summary Total				48.60
	P O BOX 70049	MISC OFFICE SUPPLIES	PV	77519	001	09297	6/25/2015	777589073001	203.44
	LOS ANGELES CA 90074-0049				Summary Total				203.44
					Payment Amount				252.04
110480	OPUS 21 MANAGEMENT SOLUTIONS	JUNE 2015 SERVICES	PV	77520	001	09601	7/2/2015	150611	36.88
	OPUS 21 MANAGEMENT SOLUTIONS	JUNE 2015 SERVICES	PV	77520	002	09601	7/2/2015	150611	29.50
	680 COMMERCE DRIVE SUITE 160	JUNE 2015 SERVICES	PV	77520	003	09601	7/2/2015	150611	29.50
	WOODBURY MN 55125	JUNE 2015 SERVICES	PV	77520	004	09601	7/2/2015	150611	22.13
		JUNE 2015 SERVICES	PV	77520	005	09601	7/2/2015	150611	29.50
					Summary Total				147.51
					Payment Amount				147.51
114792	PIPE DREAM PLUMBING INC	WORK FIRE STAT 1	PV	77521	001	09101	6/30/2015	3040	709.00
	PIPE DREAM PLUMBING INC 4914 COLFAX AVENUE S MINNEAPOLIS MN 55419				Summary Total				709.00
					Payment Amount				709.00
100384	PLAISTED COMPANIES INC	DIRT	PV	77522	001	09101	6/30/2015	59726	480.00
	PLAISTED COMPANIES INC PO BOX 332 11555 - 205TH AVENUE NW ELK RIVER MN 55330				Summary Total				480.00
					Payment Amount				480.00
111488	POPP.COM INC	JUNE 2015 SERVICES	PV	77523	001	09101	6/30/2015	992273190	108.13
	POPP.COM INC	JUNE 2015 SERVICES	PV	77523	002	09101	6/30/2015	992273190	37.84
	620 MENDELSSOHN AVENUE NORTH SUITE 101	JUNE 2015 SERVICES	PV	77523	003	09101	6/30/2015	992273190	32.44
	GOLDEN VALLEY MN 55427	JUNE 2015 SERVICES	PV	77523	004	09101	6/30/2015	992273190	183.82
		JUNE 2015 SERVICES	PV	77523	005	09101	6/30/2015	992273190	32.44
		JUNE 2015 SERVICES	PV	77523	006	09101	6/30/2015	992273190	91.91
		JUNE 2015 SERVICES	PV	77523	007	09101	6/30/2015	992273190	37.84

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Payment Instrument		Check Payment
Pay Through Date	12/31/2015	

Payee Number	Name / Mailing Address	Stub Message	Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
		JUNE 2015 SERVICES	PV	77523	008	09101	6/30/2015	992273190	80.23
		JUNE 2015 SERVICES	PV	77523	009	09101	6/30/2015	992273190	84.75
		JUNE 2015 SERVICES	PV	77523	010	09101	6/30/2015	992273190	103.96
		JUNE 2015 SERVICES	PV	77523	011	09101	6/30/2015	992273190	61.92
						Summary Total			855.28
						Payment Amount			855.28
100393	PRAIRIE RESTORATIONS INC	DRAW- MISC WORK	PV	77524	001	09605	7/2/2015	0035313	406.84
	PRAIRIE RESTORATIONS INC 31646 128TH STREET PRINCETON MN 55371					Summary Total			406.84
						Payment Amount			406.84
112959	PREMIUM WATERS INC	FD WATER	PV	77592	001	09101	6/30/2015	621331-06-15	48.98
	PREMIUM WATERS INC					Summary Total			48.98
	P O BOX 9128	FD WATER	PV	77593	001	09101	6/30/2015	621332-06-15	51.99
	MINNEAPOLIS MN 55480-9128					Summary Total			51.99
						Payment Amount			100.97
113737	RATWIK,ROSZAK AND MALONEY, PA	RETAINER/MISC JUNE 2015	PV	77596	001	09101	7/1/2015	57002	3,840.00
	RATWIK,ROSZAK AND MALONEY, PA	RETAINER/MISC JUNE 2015	PV	77596	002	09101	7/1/2015	57002	120.00
	300 U.S. TRUST BUILDING	RETAINER/MISC JUNE 2015	PV	77596	003	09101	7/1/2015	57002	40.00
	730 SECOND AVENUE SOUTH					Summary Total			4,000.00
	MINNEAPOLIS MN 55402	JUNE 2015 MISC	PV	77597	001	09101	6/30/2015	57001	145.00
		JUNE 2015 MISC	PV	77597	002	09101	6/30/2015	57001	188.50
		JUNE 2015 MISC	PV	77597	003	09101	6/30/2015	57001	55.50
		JUNE 2015 MISC	PV	77597	004	09101	6/30/2015	57001	174.00
		JUNE 2015 MISC	PV	77597	005	09101	6/30/2015	57001	703.00
		JUNE 2015 MISC	PV	77597	006	09101	6/30/2015	57001	74.00
		JUNE 2015 MISC	PV	77597	007	09101	6/30/2015	57001	37.00
		JUNE 2015 MISC	PV	77597	008	09101	6/30/2015	57001	37.00
		JUNE 2015 MISC	PV	77597	009	09101	6/30/2015	57001	333.00
						Summary Total			1,747.00
						Payment Amount			5,747.00
114535	RED LEAF INC	SITE SIGNS-COR & CBRE	PV	77525	001	09230	7/14/2015	3979	220.00

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Payment Instrument		Check Payment
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Payee Number	Name / Mailing Address	Stub Message	Document Ty	Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	RED LEAF INC 3957 YOSEMITE AVENUE S MINNEAPOLIS MN 55416			Summary Total					220.00
				Payment Amount					220.00
110330	RESHETAR SYSTEM INC	RE: 8141 153RD LANE NW	PV	77594	001	09101	7/16/2015	15-18711	780.00
	RESHETAR SYSTEM INC 730 BUNKER LAKE BLVD ANOKA MN 55303	14760 BOWERS DR		Summary Total					780.00
			PV	77595	001	09101	7/16/2015	15-18691	2,250.00
				Summary Total					2,250.00
				Payment Amount					3,030.00
103462	RUFFRIDGE JOHNSON	REPAIR HYDRUALIC LEAK	PV	77526	001	09101	7/9/2015	WA00157	476.41
	RUFFRIDGE JOHNSON 3024 FOURTH STREET SE MPLS MN 55414			Summary Total					476.41
				Payment Amount					476.41
100431	SAFETY KLEEN CORPORATION	RECYCLE OIL	PV	77527	001	09101	6/30/2015	CON0080877	104.69
	SAFETY KLEEN CORPORATION PO BOX 382066 PITTSBURGH PA 15250-8066			Summary Total					104.69
				Payment Amount					104.69
114269	SPEEDCUTTERS OUTDOOR MAINTENANCE LLC	MOW JUNE 2015	PV	77528	001	09101	7/6/2015	M1779	3,894.00
	SPEEDCUTTERS OUTDOOR MAINTENANCE LLC 18523 OLSON STREET NW ELK RIVER MN 55330			Summary Total					3,894.00
				Payment Amount					3,894.00
100453	SRF CONSULTING GROUP INC	RE: PARK RAMP RENOV JUNE 2015	PV	77598	001	09412	6/30/2015	008873.00-2	3,750.58
	SRF CONSULTING GROUP INC ONE CARLSON PARKWAY NORTH SUITE 150 MINNEAPOLIS MN 55447-4443			Summary Total					3,750.58
				Payment Amount					3,750.58

Bank Account	00002224	CASH IN BANK
Version	LOGIS003V	
Originator	JLIPSKI	
Payment Instrument		Check Payment
Pay Through Date	12/31/2015	

Payee Number	Name / Mailing Address	Stub Message	Document Ty	Number	Itm	Co	Due Date	Invoice Number	Payment Amount
100456	ST CROIX RECREATION FUN PLAYGROUNDS	SANIMATIC KIT	PV	77530	001	09101	7/2/2015	18545	650.50
	ST CROIX RECREATION FUN PLAYGROUNDS INC 225 NORTH SECOND STREET STILLWATER MN 55082				Summary Total				650.50
					Payment Amount				650.50
110313	SUMMIT FIRE PROTECTION	MISC SUPPLIES	PV	77599	001	09101	6/30/2015	1071118	56.50
	SUMMIT FIRE PROTECTION 1965 MOMENTUM PLACE CHICAGO IL 60689-5319				Summary Total				56.50
					Payment Amount				56.50
100474	SUPERIOR STRIPING INC	RHINESTONE/RAMSEY PRKWY	PV	77531	001	09101	7/8/2015	37662	220.00
	SUPERIOR STRIPING INC				Summary Total				220.00
	14021 BASALT STREET NW	RHINESTONE ST BIKE LANE	PV	77532	001	09101	7/8/2015	37663	295.00
	RAMSEY MN 55303				Summary Total				295.00
					Payment Amount				515.00
100485	TIMESAVER OFF SITE SECRETARIAL INC	JULY 9, 15 MEETINGS	PV	77600	001	09101	7/14/2015	M21472	279.00
	TIMESAVER OFF SITE SECRETARIAL INC 5291 RIVER OAK DRIVE SAVAGE MN 55378				Summary Total				279.00
					Payment Amount				279.00
112688	TITAN MACHINERY	MISC PARTS	PV	77533	001	09101	7/10/2015	6232412	77.50
	TITAN MACHINERY 14375 JAMES ROAD ROGERS MN 55374				Summary Total				77.50
					Payment Amount				77.50
112079	TOKLE INSPECTIONS INC	JUNE 2015 SERVICES	PV	77534	001	09101	7/10/2015	071015	2,757.75
	TOKLE INSPECTIONS INC				Summary Total				2,757.75

CITY OF RAMSEY
Create Payment Control Groups

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Payee Number	Payee Name / Mailing Address	Stub Message	Document Ty	Document Number	Itm	Co	Due Date	Invoice Number	Payment Amount
	1748 123RD AVENUE NW COON RAPIDS MN 55448								
				Payment Amount					2,757.75
111742	TWIN CITY WATER CLINIC INC	JUNE 15 WATER SAMPLES	PV	77535	001	09601	7/1/2015	6615	170.00
	TWIN CITY WATER CLINIC INC 617 13TH AVENUE SOUTH HOPKINS MN 55343								
				Summary Total					170.00
				Payment Amount					170.00
105628	WELLS CATERING SERVICE	CC MEAL 7/14/2015	PV	77536	001	09101	7/14/2015	40252	81.23
	WELLS CATERING SERVICE 7533 SUNWOOD DRIVE SUITE 108 RAMSEY MN 55303								
				Summary Total					81.23
				Payment Amount					81.23
				Total Amount to be Processed					250,280.66
				Total Number of Payments to be Processed					79

R04570

CITY OF RAMSEY

Create Payment Control Groups

Bank Account	00002224	CASH IN BANK
Version	LOGIS003V	
Originator	JLIPSKI	
Payment Instrument		Check Payment
Pay Through Date	12/31/2015	

Payee Number	Name / Mailing Address	Stub Message	Document Ty	Number	Itm	Co	Due Date	Invoice Number	Payment Amount
114754	BRENNAN CONSTRUCTION OF MN INC	PAY EST 2 FIRE STAT MATERIAL	PV	77465	001	09436	7/8/2015	070815	106,875.00
	BRENNAN CONSTRUCTION OF MN INC				Summary Total				106,875.00
	124 E. WALNUT STREET SUITE 20	PAY EST 2 FIRE STAT LABOR	PV	77466	001	09436	7/8/2015	070815A	84,423.65
	MANKATO MN 56001				Summary Total				84,423.65
					Payment Amount				191,298.65
114712	CONSTRUCTION RESULTS CORPORATION	PAY EST 3 RAMP ENCLOSURE	PV	77464	001	09412	7/14/2015	071415	70,300.00
	CONSTRUCTION RESULTS CORPORATION 14170 23RD AVENUE NORTH PLYMOUTH MN 55447				Summary Total				70,300.00
					Payment Amount				70,300.00
111093	DOUGLAS KERR UNDERGROUND LLC	PAY EST 3 CENTER STREET	PV	77469	001	09433	7/9/2015	070915	12,112.03
	DOUGLAS KERR UNDERGROUND LLC P O BOX 85 MORA MN 55051				Summary Total				12,112.03
					Payment Amount				12,112.03
101172	KUECHLE UNDERGROUND INC	PAY EST 6 RIVERDALE DRIVE	PV	77467	001	09497	7/9/2015	070915	329,064.99
	KUECHLE UNDERGROUND INC 10998 STATE HWY 55 PO BOX 509 KIMBALL MN 55353				Summary Total				329,064.99
					Payment Amount				329,064.99
101234	NORTH VALLEY, INC	PAY EST 3 MISS RIVER TRAIL	PV	77468	001	09805	7/9/2015	070915	46,941.65
	NORTH VALLEY, INC 20015 IGUANA STREET NW NOWTHEN MN 55330				Summary Total				46,941.65
					Payment Amount				46,941.65
					Total Amount to be Processed				649,717.32
					Total Number of Payments to be Processed				5

NORTHLAND TRUST SERVICES

45 South 7th Street Ste 2000
Minneapolis, MN 55402
Phone: 612-851-4931
Fax: 612-851-4933

INVOICE

9315,661
46992 50
461

CITY OF RAMSEY
ATTN: FINANCE OFFICER
7550 SUNWOOD DRIVE NW
RAMSEY MN 55303-5137

06/08/2015
RAMS11A

RE: CITY OF RAMSEY, MINNESOTA
$4,365,000 GENERAL OBLIGATION BONDS,
SERIES 2011A

Debt Service: 08/01/2015

RECEIVED
JUN 22 2015

Principal:	0.00
Interest:	46,992.50
Total Principal & Interest:	46,992.50
Less Cash on Hand (Escrow Funds)	(0.00)
Paying Agent Annual Fee	0.00

Total Amount Due: 46,992.50

CHECK PAYMENTS due: 7-27-15

Make Checks payable to:
NORTHLAND TRUST SERVICES INC.

WIRE PAYMENTS due: 7-29-15

Wells Fargo Bank, San Francisco, CA
ABA: 121-000-248
ACCT: 143-6412710 Northland Trust Services
REF: Issuer name & series number

***MN SCHOOL DISTRICTS should wire funds 3 days prior to debt service date according to State Credit Enhancement requirements.**

Thank you for your business!

If you have questions please contact:

Rhonda Magee
PH:612-851-4931
rmagee@northlandtrust.com

Lori Giampaolo
PH:612-851-4932
lgiampaolo@northlandtrust.com

Scott Miles
PH: 612-851-5914
smiles@northlandtrust.com

NORTHLAND TRUST SERVICES

45 South 7th Street Ste 2000
Minneapolis, MN 55402
Phone: 612-851-4931
Fax: 612-851-4933

INVOICE

9338.66 (1
5300

CITY OF RAMSEY
ATTN: FINANCE OFFICER
7550 SUNWOOD DRIVE NW
RAMSEY MN 55303-5137

06/08/2015
RAMS04

RE: CITY OF RAMSEY, MINNESOTA
$1,480,000 GO CAPITAL IMPROVEMENT
REFUNDING BONDS OF 2004

RECEIVED
JUN 22 2015

Debt Service: 08/01/2015

Principal:	0.00
Interest:	5,300.00
Total Principal & Interest:	5,300.00
Less Cash on Hand (Escrow Funds)	(0.00)
Paying Agent Annual Fee	0.00

Total Amount Due: 5,300.00

CHECK PAYMENTS due: 7-27-15

Make Checks payable to:
NORTHLAND TRUST SERVICES INC.

WIRE PAYMENTS due: 7-29-15

Wells Fargo Bank, San Francisco, CA
ABA: 121-000-248
ACCT: 143-6412710 Northland Trust Services
REF: Issuer name & series number

***MN SCHOOL DISTRICTS should wire funds 3 days prior to debt service date according to State Credit Enhancement requirements.**

Thank you for your business!

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Scott Miles
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smiles@northlandtrust.com

Councilmember Riley introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-187

RESOLUTION APPROVING CASH DISBURSEMENTS MADE AND AUTHORIZING PAYMENT OF ACCOUNTS PAYABLE INVOICING RECEIVED DURING THE PERIOD OF JULY 9, 2015 THROUGH JULY 22, 2015.

WHEREAS, the City of Ramsey Finance Department has made cash disbursements and received accounts payable invoicing during the period of July 9, 2015, through July 22, 2015, in the amount of $ 1,388,156.25 and

WHEREAS, the City Council of the City of Ramsey is required to authorize payment for all disbursement transactions.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA, as follows:

1) That the Ramsey City Council hereby approves the cash disbursements made and authorizes payment of the accounts payable invoices as detailed in the attached Bills List for the period July 9, 2015, through July 22, 2015, in the amount of $1,388,156.25.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember Tossey, and upon vote being taken thereon, the following voted in favor thereof:

Mayor Strommen
Councilmember Riley
Councilmember Shyrock
Councilmember Williams
Councilmember Johns
Councilmember Kuzma
Councilmember LeTourneau

and the following voted against the same:

None

and the following abstained:

None

and the following were absent:

None

Whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the 28th day of July, 2015.

Mayor

ATTEST:

City Clerk

CC Regular Session **4. 5.**

Meeting Date: 07/28/2015

Submitted For: Patrick Brama, Administrative Services

By: Patrick Brama, Administrative Services

Information

Title

~~Adopt Resolution #15-07-177 Approving Multiple Agreements Related to the Previously Approved Purchase Agreement, Site Plan Approval, and Livable Communities Grant for Sunwood Village; Case of CommonBond Communities~~ **- Please Note: This item was removed from Consent and placed on the Regular Agenda as Item 7.06.**

Purpose/Background:

The purpose of this case is to consider multiple agreement related to the future Sunwood Village project, a 47-unit apartment building by CommonBond Communities. The site plan has been previously approved by the City Council. The purpose of this case is to approve the necessary legal documents in order to allow the project to commence to construction. The following agreements are offered for the City Council's consideration. The project is anticipated to commence in August or September of this year.

1. Amended Reciprocal Driveway and Drainage and Utility Easement (correct legal description on existing easement)
2. Amended Development Agreement
3. Amended Easement Agreement
4. Metropolitan Council Livable Communities Sub-Grant Agreement

Notification:

Notification is not required to approve these agreements.

Observations/Alternatives:

Reciprocal Driveway and Drainage and Utility Easement

This case is a "house-cleaning" item. An error occurred when an original "Reciprocal Driveway and Drainage and Utility Easement" was recorded for The Residence at The COR project (it also encumbered Outlot A, COR ONE, where Sunwood Village will be located). Specifically, an incorrect legal description of an easement. As part of the development adjacent to The Residence at The COR, Sunwood Village (Common Bond), title work/ research was completed. As part of that due diligence process, said error in the original easement was found. The amendment attached to this case is purely an administrative correction. It does not change the intent of the original easement in any way; and it does not negatively affect the City in any way. The City Attorney has reviewed this amendment.

Amended Development Agreement

CommonBond Communities has requested several revisions to the Development Agreement for the Sunwood Village project. The City Council approved the Plat, Site Plan and Development Agreement for Sunwood Village on May 12, 2015. The most significant requested revisions are:

1. Replace CommonBond Communities with CB Ramsey Housing Limited Partnership as the Permittee (CB Ramsey Housing Limited Partnership will be the owner of the Subject Property upon successfully closing on the land transaction with the City).
2. Extend the completion date out from May 12, 2016 to December 31, 2016.
3. Include a provision/mechanism to issue the Building Permit for the project prior to recording of the Plat.

Staff has reviewed the requested revisions and finds them to be reasonable. It is not uncommon for a limited partnership to be formed to act as property owner and identifying that partnership as the Permittee is acceptable. Per City Code, a developer shall complete all required improvements within twelve (12) months of the date of City Council approval of the Site Plan unless otherwise approved by City Council. Due to the delay in construction after obtaining the necessary approvals, extending the completion date out to December 31, 2016 appears reasonable. Finally, the Subject Property is currently owned by the City. Thus, the Building Permit could be issued (upon receipt of payment of the permit fee) and held in escrow with the title company until the closing on the land transaction. It is at that time that all Development Fees would be paid by the Permittee and the Plat of Sunwood Village would be recorded. This provides reasonable protection to the City to ensure that all required Development Fees are paid prior to releasing the Building Permit from escrow to the Permittee.

Easement Agreement (Sidewalk)

A portion of the public sidewalk along both Sunwood Drive and Veterans Drive will slightly encroach on the Subject Property. An Easement Agreement has been drafted to ensure public use of the sidewalks. The Easement Agreement would be recorded as part of the closing on the property. The width of both sidewalks was necessary to match the widths of existing sidewalk east of the Subject Property. As part of the Site Plan review for Sunwood Village, Staff had worked with the Applicant to ensure the new sidewalk would match that of the existing sidewalks with the understanding that an Easement Agreement would be necessary to address the encroachment on the Subject Property. The Easement Agreement has been reviewed by the City Attorney and has been found to be sufficient.

Metropolitan Council Livable Communities Sub-Grant Agreement

The project was awarded two (2) grants from the Metropolitan Council through its Livable Communities Account (LCA) for a total of $780,000. The structure of LCA funds is an agreement/relationship between the City and the Metropolitan Council. The Metropolitan Council LCA does not distribute funds directly to the Developer. Therefore, CommonBond Communities is requesting a Sub-Grant Agreement that it has used on other LCA projects. The intent of the agreement is to outline the process for distributing funds on a reimbursement basis, as required by LCA. The benefit to the Developer is assurances that funds will be properly disbursed in a timely fashion. The benefit to the City is to ensure that the Developer constructs the project in line with the approved LCA grants and eligible costs are incurred. The agreement has been reviewed by the City Attorney and has been found to be appropriate as to legal form.

Funding Source:

NA

Recommendation:

Staff recommends that the City Council adopt Resolution #15-07-177 granting approval to the following agreements for Sunwood Village.

1. Amended Reciprocal Driveway and Drainage and Utility Easement (correct legal description on existing easement)
2. Amended Development Agreement
3. Sidewalk Easement Agreement
4. Metropolitan Council Livable Communities Sub-Grant Agreement

Action:

Motion to adopt Resolution #15-07-177 granting approval to the following agreements for Sunwood Village, subject to the review by the City Attorney as to legal form.

1. Reciprocal Driveway and Drainage and Utility Easement (correct legal description on existing easement)
2. Amended Development Agreement
3. Sidewalk Easement Agreement
4. Metropolitan Council Livable Communities Sub-Grant Agreement

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Attachments

Site Location Map

Original Driveway and Drainage and Utility Easement

Amendment to Driveway Drainage and Utility Easement

Proposed Development Agreement

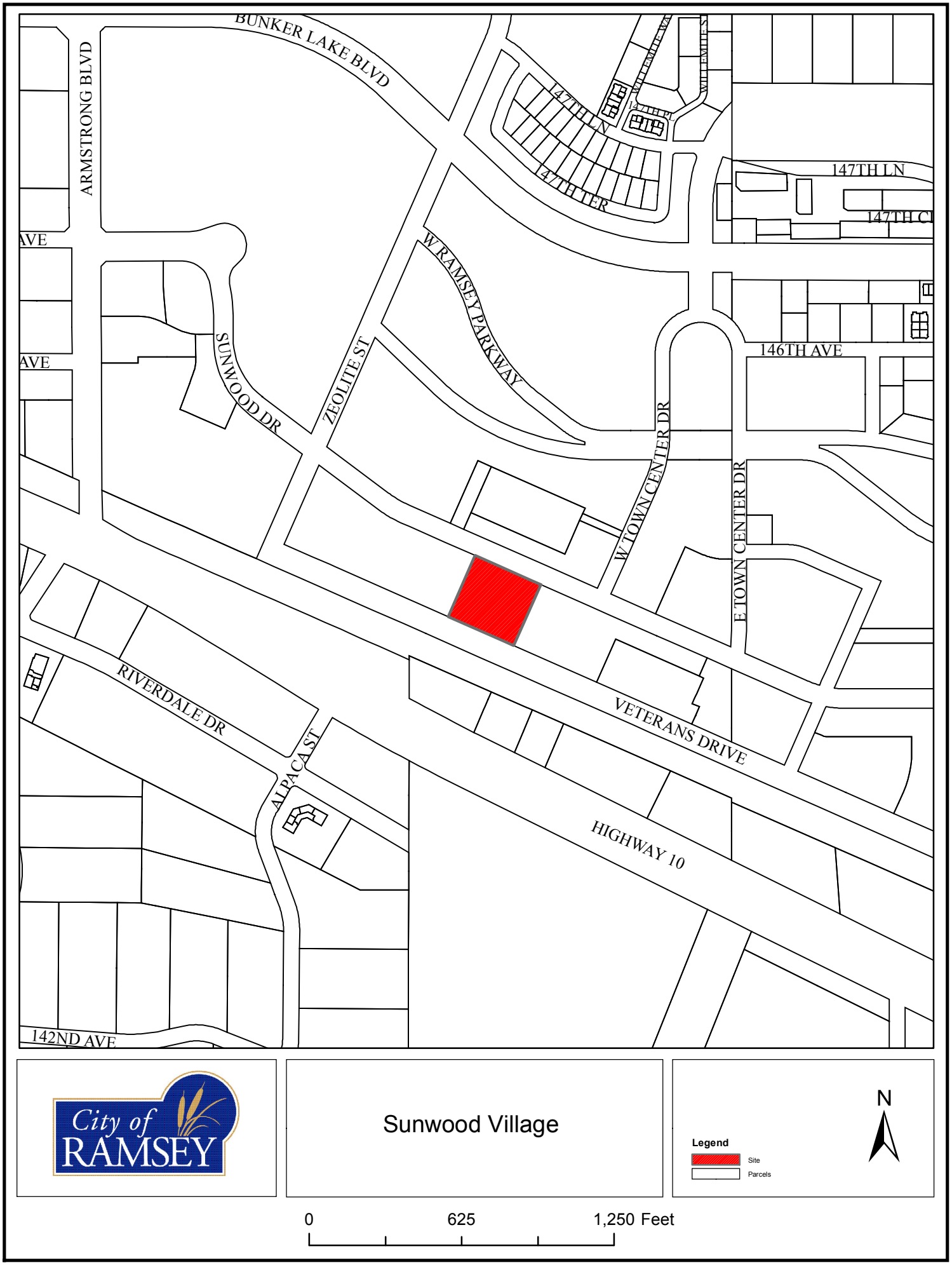
Sidewalk Easement Agreement

Sub-Grant Agreement for Metropolitan Council LCA Funds

Resolution #15-07-177

Form Review

Inbox	Reviewed By	Date
Chris Anderson	Chris Anderson	07/10/2015 10:26 AM
Patrick Brama	Patrick Brama	07/20/2015 02:42 PM
Tim Gladhill	Tim Gladhill	07/22/2015 10:53 AM
Patrick Brama	Patrick Brama	07/23/2015 09:50 AM
Kurt Ulrich	Kurt Ulrich	07/23/2015 10:39 AM
Form Started By: Patrick Brama		Started On: 07/07/2015 05:12 PM
Final Approval Date: 07/23/2015		


BUNKER LAKE BLVD
ARMSTRONG BLVD
147TH LN
147TH TER
147TH LN
147TH CT
W RAMSEY PARKWAY
SUNWOOD DR
ZEOLITE ST
146TH AVE
W TOWN CENTER DR
E TOWN CENTER DR
RIVERDALE DR
ALPACA ST
VETERANS DRIVE
HIGHWAY 10
142ND AVE
City of RAMSEY
Sunwood Village
Legend
Site
Parcels
N
0
625
1,250 Feet

Record ID 2491130

508341.013

DECLARATION OF RECIPROCAL DRIVEWAY EASEMENTS AND DRAINAGE AND UTILITY EASEMENTS

1. **Declarant**. The Housing and Redevelopment Authority in and for the City of Ramsey, a body politic and corporate under the laws of the state of Minnesota (the "HRA") makes this Declaration of Reciprocal Driveway Easements and Drainage and Utility Easements (this "Declaration") as of the date set forth in Section 2 below.

2. **Effective Date**. This Declaration is effective as of the 30th day of April, 2012.

3. **Recitals**.

3.1 Recital One. The HRA is the owner of the real property legally described as Lot 3, Block 1, COR ONE, Anoka County, Minnesota ("Lot 3") and the real property legally described as Outlot A, COR ONE, Anoka County, Minnesota ("Outlot A").

3.2 Recital Two. The HRA desires to create a reciprocal easements for driveway over and across portions of Lot 3 and Outlot A to establish common access points between those parcels and Veterans Drive (f/k/a Civic Center Drive), a dedicated public right-of-way located southwesterly of Lot 3 and Outlot A and between these parcels and Sunwood Drive, a dedicated public right-of-way located northeasterly of Lot 3 and Outlot A.

3.3 Recital Three. In addition, the HRA desires to create two easements for drainage and utility purposes over portions of Lot 3 for the benefit of Outlot A.

4. **Declaration of Reciprocal Access Easements**. The HRA hereby declares perpetual, non-exclusive, appurtenant easements over, under and across the portions of Lot 3 legally described on the attached **Exhibit A-1** and depicted on the attached **Exhibit A-2** (the "Lot 3 Easement Areas") for the construction, use, maintenance, repair and replacement of a driveway and the use such driveway by the owner of Outlot A and its employees, agents, contractors, tenants and invitees. These easements are appurtenant to Outlot A. The HRA also hereby declares perpetual, non-exclusive, appurtenant easements over, under and across the portions of Outlot A legally described on the attached **Exhibit B-1** and depicted on the attached

Commercial Partners Title, LLC
200 South Sixth Street
Suite 1300
Minneapolis, MN 55402
33274 DH (D)

Exhibit B-2 (the "Outlot A Easement Areas") for the construction, use, maintenance, repair and replacement of a driveway and the use of such driveway by the owner of Lot 3 and its employees, agents, contractors, tenants and invitees. This easement is appurtenant to Lot 3. The Lot 3 Easement Areas and the Outlot A Easement Areas are referred to herein, collectively, as the "Driveway Easement Areas."

5. **Drainage and Utility Easements**. The HRA hereby declares perpetual, non-exclusive, easements over, under and across the portions of Lot 3 legally described on the attached **Exhibit C-1** and depicted on the attached **Exhibit C-2** (the "Drainage and Utility Easement Areas") for the construction, use, maintenance, repair and replacement of below grade drainage and utility lines, pipes and other improvements.

6. **Construction of Driveway Improvements**. If the owner of Lot 3 constructs driveways on the Outlot A Easement Areas in connection with the development of Lot 3 or if the owner of Outlot A constructs driveways on the Lot 3 Easement Areas in connection with the development of Outlot A, they must do so at their sole cost and expense and they are not entitled to any reimbursement for such construction costs from the owner of the other parcel.

7. **Maintenance, Repair and Replacement of the Driveway Improvements**. The owner of Lot 3 must, at its sole cost and expense, maintain, repair and, as necessary, replace any driveway improvements constructed within the Lot 3 Easement Areas, and the owner of Outlot A must, at its sole cost and expense, maintain, repair and, as necessary, replace any driveway improvements constructed within the Outlot A Easement Areas; provided, however, neither owner is obligated to maintain, repair or replace any driveway improvements located on its property until such time as a certificate of occupancy has been issued for improvements constructed on its property. For purposes of this Section 7, maintenance includes snow removal. Notwithstanding the forgoing, the owners of Lot 3 and Outlot A may subsequently agree to jointly contract for the maintenance, repair and, as necessary, replacement of any driveway improvements constructed within the Driveway Easement Areas and to allocate the costs of such maintenance, repair and, as necessary, replacement in any manner they deem appropriate. If either the owner of Lot 3 or Outlot A fails to reasonably maintenance, repair or, as necessary, replace any driveway improvements constructed within its property as required hereunder, the other parcel owner may, after thirty (30) days written notice and the failure of the non-performing owner to perform its obligations under this Section 7, undertake such maintenance, repair and, as necessary, replacement work within the easement as it deems necessary and appropriate, but such work shall be undertaken at the performing owner's sole cost and expense.

8. **Indemnifications and Obligation to Repair**. The owner of Lot 3 and the owner of Outlot A must each indemnify and defend the other parcel owner against and hold the other parcel owner harmless from, any third party claims, including, but not limited to, mechanics liens claims, arising out of or relating to any construction, maintenance, repair or replacement work performed by or at the request of the indemnifying party within the Driveway Easement Areas. The owner of Outlot A must indemnify and defend the owner of Lot 3 against and hold the owner of Lot 3 harmless from, any third party claims, including, but not limited to, mechanics liens claims, arising out of or relating to any construction, maintenance, repair or replacement work performed by or at the request of the owner of Outlot A within the Drainage and Utility Easement Areas. Notwithstanding the provisions of Section 7, each owner is solely responsible

for the cost of repairing or, if necessary, replacing any improvements within the Driveway Easement Areas that each owner or its respective employees, agents, contractors, tenants or invitees damage.

9. **Enforcement**. The owners of all or any portion of Lot 3 or of all or any portion of Outlot A may enforce the terms of this Declaration in a legal or equitable action brought in a court of competent jurisdiction, and the prevailing party in any such action is entitled to recover from the opposing party the prevailing parties attorney's fees and costs.

10. **Run With Title**. The benefits and burdens of the covenants and easements set forth in this Declaration run with title to Lot 3 and to Outlot A and inure to the benefit of and are binding upon the owners of Lot 3 and Outlot A and their successors in title to all or any portions of Lot 3 and Outlot A.

[Signature page follows.]

IN WITNESS WHEREOF, the parties hereto have executed this Declaration of Easement on the date set forth in Section 2 above.

THE HOUSING AND REDEVELOPMENT AUTHORITY IN AND FOR THE CITY OF RAMSEY, MINNESOTA,
a body politic incorporate under the laws of the State of Minnesota

By: _____
Name: Colin McGlone
Its: Chairperson

By: _____
Name: Kurtis Ulrich
Its: Executive Director

STATE OF MINNESOTA)
) ss.
COUNTY OF ANOKA)

The foregoing instrument was acknowledged before me on this 27th day of April, 2012, by Colin McGlone and Kurtis Ulrich the Chairperson and Executive Director of The Housing and Redevelopment Authority in and for the City of Ramsey, Minnesota on behalf of the authority.

JOANN E SHAW
Notary Public
Minnesota
My Commission Expires January 31, 2015

_____
Signature of Notary Public

DRAFTED BY AND WHEN
RECORDED RETURN TO:

Briggs and Morgan, P.A. (TLB)
2200 IDS Center
80 South 8th Street
Minneapolis, MN 55402
(612) 977-8400

EXHIBIT A-1

Should be "westerly"

Legal Description of the Lot 3 Easement Areas

THE WESTERLY 13.00 FEET OF THE NORTHERLY 40.00 FEET AND THE EASTERLY 13.00 FEET OF THE SOUTHERLY 50.00 FEET OF LOT 3, BLOCK 1, COR ONE, ANOKA COUNTY, MINNESOTA.

EXHIBIT A-2

Depiction of the Lot 3 Easement Areas

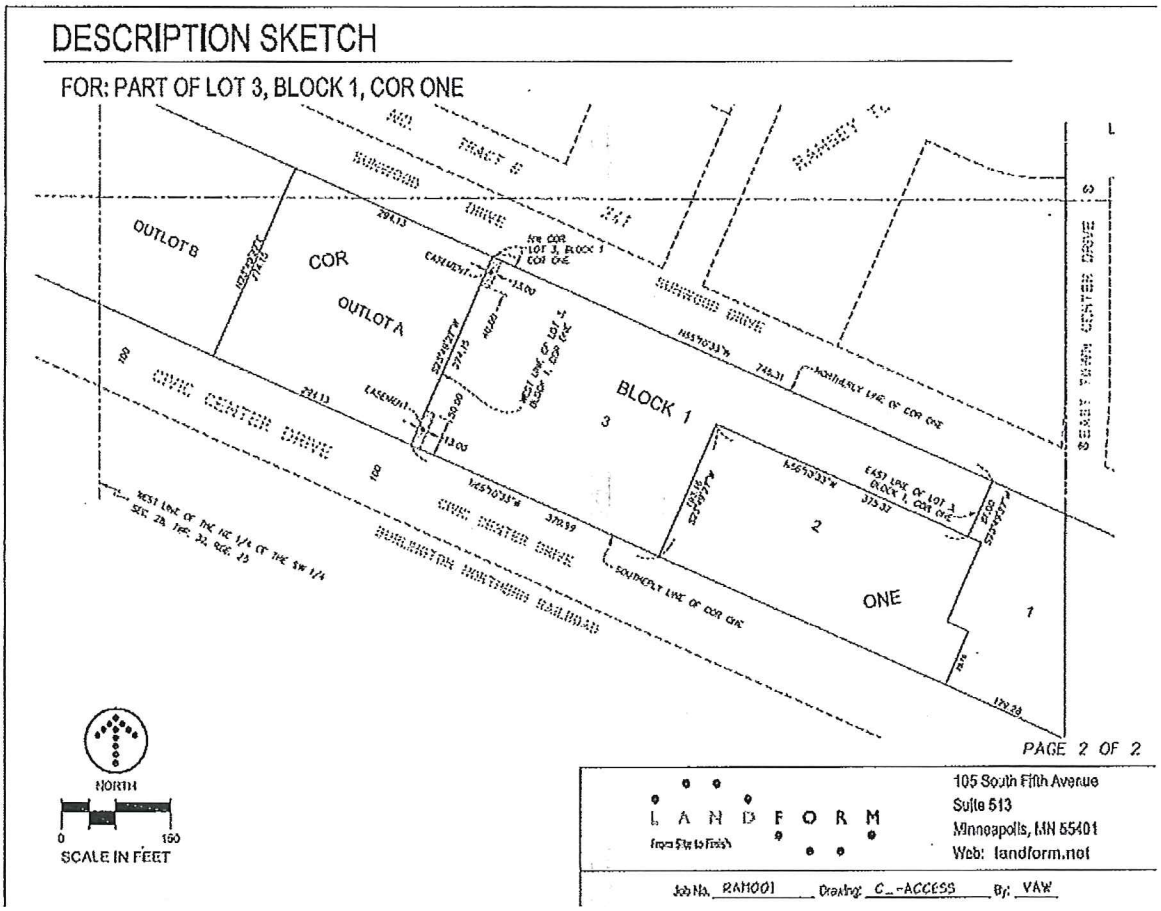


EXHIBIT B-1

Legal Description of the Outlot A Easement Areas

THE EASTERLY 13.00 FEET OF THE NORTHERLY 40.00 FEET AND THE EASTERLY 13.00 FEET OF THE SOUTHERLY 50.00 OF OUTLOT A, COR ONE, ANOKA COUNTY, MINNESOTA.

EXHIBIT B-2

Depiction of the Outlot A Easement Areas

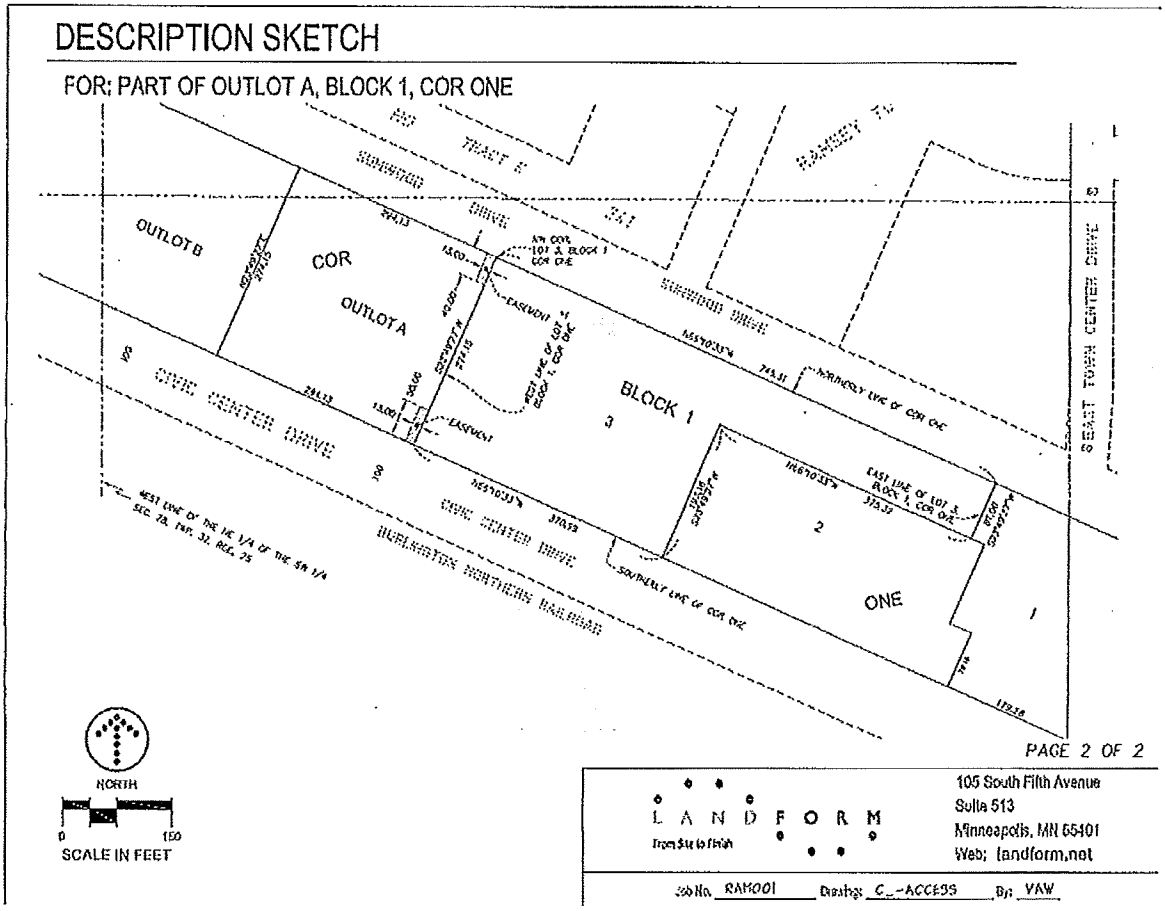


EXHIBIT C-1

Legal Description of the Drainage and Utility Easement Areas

EASEMENT 1

A 10.00 FOOT WIDE EASEMENT OVER, UNDER AND ACROSS LOT 3, BLOCK 1, COR ONE, ANOKA COUNTY, MINNESOTA, THE CENTERLINE OF SAID EASEMENT IS DESCRIBED AS FOLLOWS:

> COMMENCING AT THE NORTHWEST CORNER OF SAID LOT 3; THENCE SOUTH 66 DEGREES 10 MINUTES 33 SECONDS EAST, ASSUMED BEARING, ALONG THE NORTHERLY LINE OF SAID COR ONE, A DISTANCE OF 39.86 FEET TO THE POINT OF BEGINNING OF THE CENTERLINE TO BE DESCRIBED; THENCE SOUTH 23 DEGREES 49 MINUTES 27 SECONDS WEST, A DISTANCE OF 30.95 FEET; THENCE SOUTH 67 DEGREES 51 MINUTES 30 SECONDS WEST, A DISTANCE OF 50.18 FEET; THENCE NORTH 65 DEGREES 43 MINUTES 13 SECONDS WEST, A DISTANCE OF 4.98 FEET TO THE WEST LINE OF SAID LOT 3 AND THERE TERMINATING.

THE SIDELINES OF SAID EASEMENT ARE TO BE PROLONGED OR SHORTENED TO TERMINATE ON THE NORTH AND WEST LINES OF SAID LOT 3.

EASEMENT 2

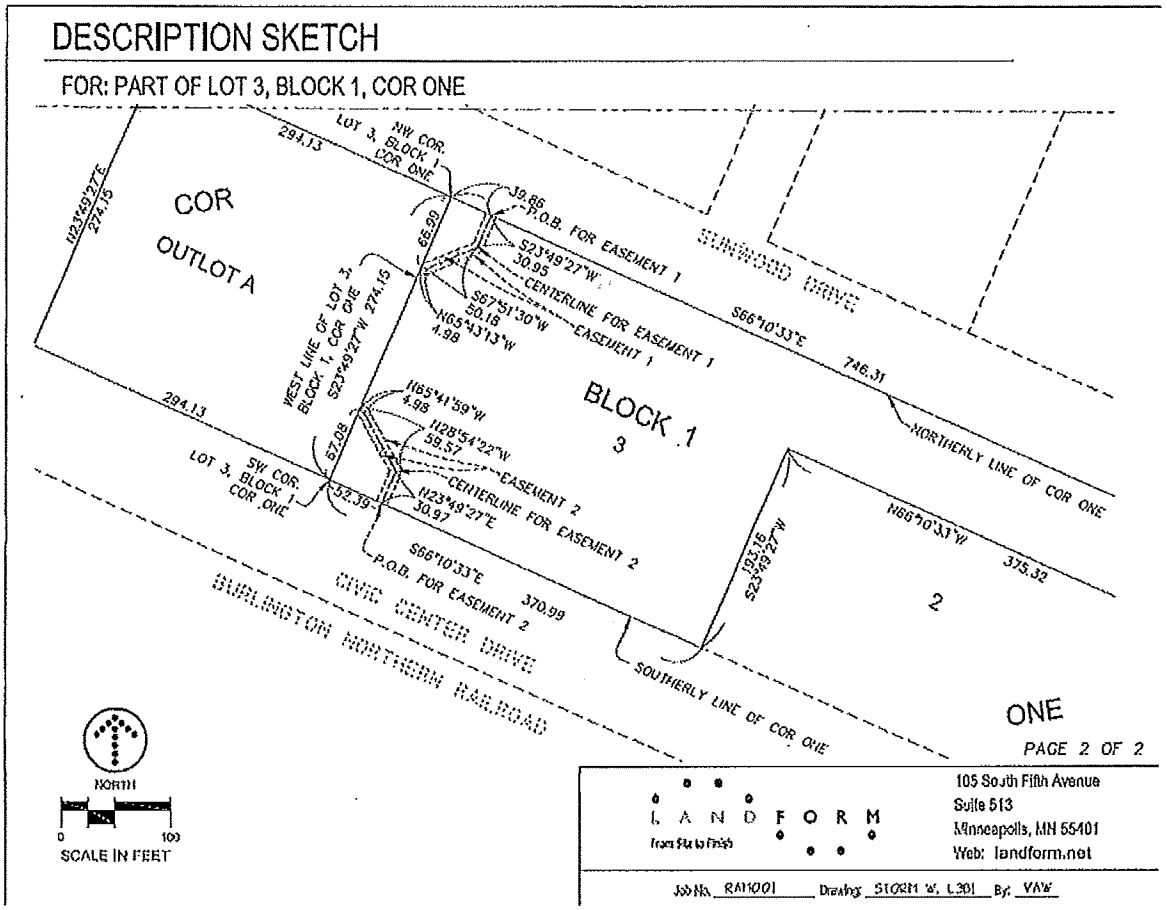
A 10.00 FOOT WIDE EASEMENT OVER, UNDER AND ACROSS LOT 3, BLOCK 1, COR ONE, ANOKA COUNTY, MINNESOTA, THE CENTERLINE OF SAID EASEMENT IS DESCRIBED AS FOLLOWS:

> COMMENCING AT THE SOUTHWEST CORNER OF SAID LOT 3; THENCE SOUTH 66 DEGREES 10 MINUTES 33 SECONDS EAST, ASSUMED BEARING, ALONG THE NORTHERLY LINE OF SAID COR ONE, A DISTANCE OF 52.39 FEET TO THE POINT OF BEGINNING OF THE CENTERLINE TO BE DESCRIBED; THENCE NORTH 23 DEGREES 49 MINUTES 27 SECONDS EAST, A DISTANCE OF 30.97 FEET; THENCE NORTH 28 DEGREES 54 MINUTES 22 SECONDS WEST, A DISTANCE OF 59.57 FEET; THENCE NORTH 65 DEGREES 41 MINUTES 59 SECONDS WEST, A DISTANCE OF 4.98 FEET TO THE WEST LINE OF SAID LOT 3 AND THERE TERMINATING SAID CENTERLINE.

THE SIDE LINES OF SAID EASEMENT ARE TO BE PROLONGED OR SHORTENED TO TERMINATE ON THE SOUTH AND WEST LINES OF SAID LOT 3.

EXHIBIT C-2

Depiction of the Drainage and Utility Easement Areas



ANOKA COUNTY MINNESOTA

Document No.: 508341.013 TORRENS

I hereby certify that the within instrument was filed in this office for record on: 05/03/2012 3:14:00 PM

Fees/Taxes In the Amount of: $46.00

LARRY W. DALIEN

Anoka County Property Tax

Administrator/Recorder/Registrar of Titles

CGT, Deputy

Record ID: 2491130 / GKE

Commercial Partners Title, LLC
200 South Sixth Street
Suite 1300
Minneapolis, MN 55402

AMENDMENT TO
DECLARATION OF RECIPROCAL DRIVEWAY EASEMENTS
AND DRAINAGE AND UTILITY EASEMENTS

THIS AMENDMENT TO DECLARATION OF RECIPROCAL DRIVEWAY EASEMENTS AND DRAINAGE AND UTILITY EASEMENTS (this "Amendment") is dated as of _____, 2015 by and between the City of Ramsey, Minnesota (the "City") and the Residence at the COR Apartments LLC, a Minnesota limited liability company (the "Lot 3 Owner").

WHEREAS, the Housing and Redevelopment Authority for the City of Ramsey, a Minnesota municipal corporation (the "HRA"), executed that certain Declaration of Reciprocal Driveway Easements and Drainage and Utility Easements (the "Original Easement") dated April 30, 2012, which was filed for record in the Office of the Anoka County Registrar of Titles on May 3, 2012, as Document No. 508341.013 against the real property described on Exhibit A hereto ("Lot 3") and the real property described on Exhibit B hereto ("Outlot A"); and

WHEREAS, the HRA subsequently conveyed Lot 3 to the Lot 3 Owner; and

WHEREAS, the City subsequently undertook the statutory process to dissolve the HRA and, as part of the dissolution process, the HRA transferred all of its real estate holdings, including, but not limited to Outlot A, to the City; and

WHEREAS, the legal description of the "Lot 3 Easement Areas," as such term is defined in the Original Easement, contains a scrivener's error, and the City and the Lot 3 Owner now desire to correct such error.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto desire to amend the Original Easement as follows:

1. The term "Lot 3 Easement Areas" as set forth in the Original Easement is amended and restated in its entirety as set forth on Exhibit C attached hereto.

2. Except as explicitly amended hereby, the remaining terms and conditions of the Original Easement shall remain in full force and effect.

[*The remainder of this page has been left blank intentionally*.]

IN WITNESS WHEREOF, the undersigned have executed this Amendment as of the date first above written.

CITY:

CITY OF RAMSEY, MINNESOTA

_____

By: Sarah Strommen
Its: Mayor

_____

By: Kurt Ulrich
Its: City Administrator

STATE OF MINNESOTA)
)ss.
COUNTY OF ANOKA)

The foregoing instrument was acknowledged before me on _____, 2015, by Sarah Strommen, Mayor, and Kurt Ulrich, City Administrator, of the City of Ramsey, Minnesota, on behalf of such city.

_____

Notary Public

LOT 3 OWNER:

RESIDENCE AT THE COR APARTMENTS LLC

_____
By: _____
Its: _____

STATE OF MINNESOTA)
) SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me on _____, 2015, by _____, the _____ of Residence at the COR Apartments LLC, a Minnesota limited liability company, on behalf of such limited liability company.

_____
Notary Public

THIS INSTRUMENT WAS DRAFTED BY:
_____
_____
_____

EXHIBIT A

Lot 3 Legal Description

Lot 3, Block 1, COR ONE, Anoka County, Minnesota.

EXHIBIT B

Outlot A Legal Description

Outlot A, COR ONE, Anoka County, Minnesota.

EXHIBIT C

Legal Description of the Lot 3 Easement Areas

The westerly 13.00 feet of the northerly 40.00 feet and the westerly 13.00 feet of the southerly 50.00 feet of Lot 3, Block 1, COR ONE, Anoka County, Minnesota.

10502645v3

SUNWOOD VILLAGE
DEVELOPMENT AGREEMENT
CITY OF RAMSEY, ANOKA COUNTY, MINNESOTA

THIS DEVELOPMENT AGREEMENT, is made and entered into by and between the **CITY OF RAMSEY,** a municipal corporation under the laws of the State of Minnesota (the **"City"**), and **COMMONBOND COMMUNITIES,** non-profit corporation under the laws of the State of Minnesota, whose address is 1080 Montreal Avenue, St. Paul, MN 55116 (the **"Permittee"**).

WITNESSETH:

WHEREAS, the **Permittee** is the fee owner of the following described property situated in the **CITY OF RAMSEY**, County of Anoka, State of Minnesota, and legally described as follows:

Lot 1, Block 1, Sunwood Village, Anoka County, Minnesota

(the "**Subject Property**"); and

WHEREAS, on May 12, 2015, the **City** approved the final plat of the **Subject Property** for SUNWOOD VILLAGE (the "**Plat**"),

WHEREAS, on May 12, 2015, the **City** approved the final site plan for Sunwood Village on the **Subject Property**; and

WHEREAS, the **Permittee** intends to cause the Required Improvements to the **Subject Property** to be constructed without financial participation by the **City.**

NOW, THEREFORE, the **City** and **Permittee** agree as follows:

SECTION I
REQUIRED IMPROVEMENTS AND FINANCIAL RESPONSIBILITIES

1. **City Code Compliance.** The **City** approves the **Site Plan** conditioned on the **Permittee** developing the **Subject Property** in accordance with the applicable provisions of City Code and with the required revisions identified in the Staff Review Letter dated May 8, 2015**.**

2. **Conformance with Plan**. The **Site Plan** shall be developed pursuant to the plans consisting of Site Plan, Landscaping Plan, Grading and Drainage, Erosion Control, Utility, Storm Sewer, Lighting, Floor Plans, and Building Elevations for Sunwood Village prepared by Miller Hanson Partners and Loucks Associates, dated May 22, 2015, revised June 19, 2015.

3. **Incorporation of All City Code Requirements**. That the recitals above and the applicable provisions of the City Charter, Subdivision Code, Zoning Code and Public Improvement Code of the **City**, as amended to date hereof, are incorporated herein by reference.

4. **State Building Code Compliance**. The structures on the **Subject Property** shall be constructed in accordance with the requirements of the Building Code.

5. **Fire Lanes.** Fire lanes shall be maintained on the **Subject Property**. The exact locations of these items on the **Subject Property** shall be as directed by the Fire Chief or his/her designee. The

Permittee herein agrees to post "No Parking" signs along private streets in accordance with City Code requirements and in conjunction with the instructions of the Fire Chief or his/her designee.

6. **Building Façade.** The **Permittee** agrees to construct the building on the **Subject Property** in accordance with the site plan and architectural elevations prepared by Miller Hanson Partners and Loucks Associates, dated April 27, 2015, revised May 22, 2015, and approved by the City Council on May 12, 2015 contingent upon compliance with the Staff Review Letter dated May 8, 2015.

7. **Required Improvements.** The **Permittee** shall construct and install the following site improvements on and adjacent to the **Subject Property** in accordance with the specifications and location as shown on the **Site Plan.** The Required Improvements are as follows:

   a. Site grading in accordance with the Grading Plan prepared by Miller Hanson Partners and Loucks Associates and dated April 27, 2015, revised June 19, 2015.
   b. Private storm sewer and appurtenances.
   c. Private sanitary sewer system
   d. Private watermains and appurtenances
   e. Private trunk and lateral storm drainage facilities
   f. Bituminous driveways, parking lots, and maneuvering areas.
   g. Public and private sidewalks in accordance with the Site Plan prepared by Miller Hanson Partners and Loucks Associates and dated April 27, 2015, revised June 19, 2015.
   h. Continuous, B6/12 concrete curbing and gutter around the perimeter of all bituminous surfaces.
   i. Installation of Landscaping in accordance with the Landscape Plan prepared by Miller Hanson Partners and Loucks Associates and dated April 27, 2015, revised May 22, 2015.
   j. Irrigation metering and backflow devices shall be approved as part of the Utility Plan, and installed accordingly.
   k. Irrigation rain sensors shall be installed and appropriately placed throughout the development.
   l. Establishment of turf in areas disturbed during construction and in accordance with the Plat.
   m. Temporary and permanent erosion control
   n. Installation of survey monumentation (if not already completed).

   ("Required Improvements)".

   The **Permittee** agrees to construct the Required Improvements according to the terms and conditions of this agreement and in accordance with **Permittee's** plans submitted to the **City.**

8. **Required Improvements Completion Date**. The Required Improvements shall be completed on or before May 12, 2016.

9. **Required Improvements Financial Guarantee**. In order to ensure the installation of the Required Improvements in accordance with **City** specifications and in a timely manner, the **Permittee** shall be required to deposit with the **City** a cash escrow or letter of credit, approved as to form by the **City**, in the amount of Three Hundred Eighty Eight Thousand Two Hundred Sixteen Dollars and No Cents. (**$**388,216.00), which is 150% of the City's estimated cost of the Required Improvements. Prior to the issuance of the building permit, all financial guarantees must be provided as required herein.

   Upon completion of the construction of the Required Improvements, the financial guarantee shall be returned to the **Permittee** as soon as reasonably possible and the **Permittee** shall be required to provide the landscaping maintenance guarantee described in Paragraph 13 of this **Development Agreement**. The determination of completion of the construction of the Required Improvements shall be made by the **City**. In the event the **Permittee** fails to construct and install the Required Improvements as

required herein, within the timeframe provided herein, the City Council may order the completion of the Required Improvements with **City** day labor and/or by letting contracts for said completion and draw upon the escrow for payment. Only the City Council shall have the authority to direct completion of the Required Improvements and withdraw from the escrow account. The **Permittee** hereby grants permission and a license to the **City** and/or its contractors and assigns to enter upon the Site for the purpose of completing the construction and installation of the Required Improvements in the event of the **Permittee's** default.

10. **Inspection Fees.** The **Permittee** shall be responsible for all inspection costs incurred by the **City** related to the installation of Required Improvements. The **Permittee** shall make a cash deposit into the appropriate escrow account at the **City** and the **City** shall have the authority to draw upon these funds for the purpose of compensating for inspection services. The amount of the deposit shall be equal to five percent (5%) of the estimated cost of the Required Improvements, which equates to Twelve Thousand Nine Hundred Forty Dollars and No Cents ($12,940.00) (5% x $258,811). Upon completion of the Required Improvements to the satisfaction of the **City**, any surplus balance remaining in the **City's** escrow account shall be promptly refunded to the **Permittee**.

11. **Payment of Development Fees**. The **Permittee** must pay to the **City** the fees described on Exhibit A which may include, but are not limited to, Park Land Dedication Fees, Trail Development Fees, Sanitary Sewer Connection (Trunk) Fees, Water Connection (Trunk) Fees, Sanitary Sewer Lateral Fees, Water Lateral Fees, Stormwater Management Fees, Street Light as well as Street Light Operation and Maintenance Fees.

SECTION II
PERMITS AND OCCUPANCY

12. **Requirements for Building Permits**. No building permit for any lot on the **Subject Property** shall be issued until: (a) a Class 5 driving surface is installed to within 300 feet of the structure; (b) site plan approval is granted by the **City** and any expense incurred in giving site plan approval has been reimbursed to the **City**; (c) the Building Official has been provided with a copy of the approved **Site Plan**, signed by a registered architect or surveyor, showing all dimensions to scale; (d) the **Plat** has been recorded at Anoka County Property Records, (e) a Lower Rum River Watershed Management Organization Permit has been obtained. In addition, the **City** reserves the right to suspend all building activities upon the **City** being notified by an outside agency that the appropriate permit(s) was not obtained from the applicable agency. Approval of the building foundation requires a certificate of elevation signed by a licensed (State of Minnesota), professional land surveyor, verifying that the elevation with the approved grading plan for the Subject Property. Foundation approvals will require a certificate of elevation verifying that the actual elevation is in compliance with the approved grading and drainage plan. The lowest floor elevation shall be at least 2 feet above the 100 year elevation.

    No occupancy permit for any lot in the **Subject Property** shall be issued until: (a) vehicular access to the **Subject Property** is provided including the installation of at least one layer of bituminous surfacing; (b) all utilities are in place, operational and accepted by the **City**; (c) if slope of less than 2%, a certificate of grading, prepared by a licensed (State of Minnesota), professional land surveyor, must be provided to the **City** documenting that the flattest grade on this lot is 1% or greater.

SECTION III

LANDSCAPING

13. **Maintenance Guarantee for Landscaping**. It is herein agreed that the **Permittee** shall provide a maintenance guarantee to ensure the survival of the plantings for the **Subject Property**, in accordance with the Landscape Plan prepared by Miller Hanson Partners and Loucks Associates dated April 27, 2015, revised May 22, 2015. Said maintenance guarantee shall consist of cash or a letter of credit, approved as to form by the **City**, in the amount of Six Thousand Six Hundred and Sixty Dollars and No Cents **($6,660.00)** [# plantings (45 trees, 206 shrubs) x cost/planting ($150/tree, $75/shrub) x 30% average non-survival rate], which shall be in effect for a two-year period commencing on the date of the **City's** acceptance of said plantings as part of the Required Improvements.

    At the end of the two-year period, the maintenance guarantee shall be returned to the **Permittee**. The determination that all plantings that have been planted in accordance with the **Site Plan** have either survived or have been replaced shall be made by the Community Development Department of the **City**. In the event the **Permittee** fails to maintain the required plantings for a two-year period, the City Council may order the replacement of plantings with **City** day labor and/or by letting contracts and draw upon the escrow for payment. Only the City Council shall have the authority to direct replacement of the plantings and withdraw from the escrow account. The **Permittee** hereby grants permission and a license to the **City** and/or its contractors and assigns to enter upon the **Subject Property** for the purpose of replacing plantings in the event of the **Permittee** default.

SECTION IV
GENERAL

14. **Boulevard and Area Restoration**. The **Permittee** shall be responsible for restoring all areas disturbed by the development grading operation in accordance with the approved erosion and sediment control plan. The **Permittee** shall also be responsible for the cost of cleaning any soil, earth or debris from the wetlands within and adjacent to this **Site Plan** resulting from grading or other construction performed in the development of the land.

15. **Construction Site Maintenance**. The **Permittee** shall adhere to all **City** ordinances relating to, but not limited to, dumping of garbage, site development, construction debris, open burning, etc.

16. **Estimated Cost**. It is understood and agreed that cost amounts set forth in this **Development Agreement** as Required Improvements, unless specified as fixed amounts, are estimated. The **Permittee** agrees to pay the entire cost of said improvements including interest, engineering and legal charges.

17. **Site Plan Approval Expenses**. The **Permittee** agrees that it will pay to the **City** all **City** expenses incurred in the approval of the **Site Plan**, including, but not limited to administration expenses, engineering and legal fees. Said expenses shall be paid within fifteen (15) days of billing by the **City** and outstanding billings shall be paid prior to issuance of the building permit. Any expenses incurred after the release of the building permit shall also be paid within said fifteen (15) day billing period. Failure to pay the **City's** expenses within the fifteen (15) day billing period will permit the **City** to draw upon any of the escrows required by this contract for payment.

18. **Reimbursement to the City**. The **Permittee** agrees to reimburse the **City** for all costs incurred by the **City** in defense or enforcement of this **Development Agreement**, or any portion thereof, including court costs and reasonable engineering and attorney's fees.

19. **Invalidity of Any Section**. If any portion, section, subsection, sentence, clause, paragraph or phase of this **Development Agreement** is for any reason held to be invalid by a court of competent jurisdiction, such decision shall not effect or void any of the other provisions of this **Development Agreement**.

20. **Proof of Authority**. When the **Permittee** is a corporation, the **City** requires proof of authority by the corporation to execute this **Development Agreement**.

21. **Violation of This Permit**. If the **Permittee** fails to perform any of the terms of this **Development Agreement** in the manner required by the **City**, the **City** shall be entitled to recover, from the **Permittee** or the issuer of **Permittee** financial guarantee, the full amount of any and all financial guarantees. Breach of any of the terms of this **Development Agreement** by the **Permittee** shall also be grounds for denial of Building Permit or issuance of Certificate of Occupancy.

22. **Agreement Binding On Successors and Assigns**. The **Permittee** agrees that this **Development Agreement** shall be binding upon its successors and assigns.

23. **Impacted Public Improvements**. The **Permittee** agrees to not damage or destroy any plant, tree, or other landscape material, such as irrigation systems, sidewalk panels, and curbing, throughout construction of the project. Furthermore, **Permittee** agrees to replace any damaged materials and restore any irrigation system to working order prior to issuance of the Certificate of Occupancy.

IN WITNESS THEREOF, the parties have hereunto set their hands and seals, this _____ day of _____, 2015.

COMMONBOND COMMUNITIES

By: _____

Its: _____

CITY OF RAMSEY

By: _____

Its: Mayor

ATTEST

By: _____

Its: City Clerk

STATE OF MINNESOTA)
) ss.
COUNTY OF ANOKA)

On this _____ day of _____, 2015, before me a Notary Public personally appeared Sarah Strommen and JoAnn M. Thieling, to me personally known, being each by me duly sworn did say that they are respectively the Mayor and City Clerk of the City of Ramsey, the municipal corporation named in the

foregoing instrument, and seal affixed to said instrument is the corporate seal of said municipal corporation, and the said instrument was signed and sealed on behalf of said municipal corporation by authority of its City Council and said Sarah Strommen and JoAnn M. Thieling acknowledge said instrument to be the free act and deed of said municipal corporation.

_____
Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF)

The foregoing instrument was acknowledged before me this ____ day of _____, 2015, by _____, the _____ of CommonBond Communities, a non-profit corporation under the laws of the State of Minnesota, on behalf of the company.

_____
Notary Public

This document drafted by:
Cityof Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

This document reviewed by:
Ratwik, Roszak & Maloney, P.A.
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

EXHIBIT A

Fees Payable to the City

1. Park Dedication. The **PERMITTEE** is responsible for satisfying applicable Park Dedication requirements. The 2015 Park Dedication Fee applicable to the Plat is $2,210 per residential unit (when there is 20+ units per acre). **PERMITTEE** must pay a Park Dedication Fee of One Hundred Three Thousand Eight Hundred Seventy Dollars and No Cents ($2,210 x 47 units = **$103,870.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

2. Trail Development Fees. The **PERMITTEE** is responsible for satisfying applicable Trail Development Fee requirements. The 2015 Trail Development Fee applicable to the Plat is $700 per residential unit. **PERMITTEE** must pay a Trail Development Fee of Thirty Two Thousand Nine Hundred Dollars and No Cents ($700 x 47 units = **$32,900.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

3. Sanitary Sewer Connection (Trunk) Fees. The **PERMITTEE** is responsible for satisfying applicable Sanitary Sewer Trunk requirements. The 2015 Sanitary Sewer Trunk Fee applicable to the Plat is $1,126 per residential unit. The **PERMITTEE** must pay a Sanitary Sewer Trunk Fee of Fifty Two Thousand Nine Hundred Twenty Two Dollars and No Cents ($1,126 x 47 units = **$52,922.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

4. Water Connection (Trunk) Fees. The **PERMITTEE** is responsible for satisfying applicable Water Trunk requirements. The 2015 Sanitary Sewer Trunk Fee applicable to the Plat is $1,597 per residential unit. The **PERMITTEE** must pay a Water Trunk Fee of Seventy Five Thousand Fifty Nine Dollars and No Cents ($1,597 x 47 units = **$75,059.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

5. Sanitary Sewer Lateral Benefit Fees. The **PERMITTEE** is constructing its own lateral service lines; therefore no sanitary sewer lateral benefit fee is due.

6. Water Lateral Fees. The **PERMITTEE** is constructing its own lateral service lines; therefore no water lateral benefit fee is due.

7. Stormwater Management Fee. The **PERMITTEE** is responsible for satisfying applicable Stormwater Trunk Fee requirements. The 2015 Stormwater Management Fee $459 per residential unit. **PERMITTEE** must pay a Stormwater Management Fee of Twenty One Thousand Five Hundred Seventy Three Dollars and No Cents ($459 x 47 units = **$21,573.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

8. Street Light Fee. The **PERMITTEE** is responsible for a Street Light Fee of $2,600 per light. **PERMITTEE** must pay a Street Light Fee of Seven Thousand Eight Hundred Dollars and No

Cents ($2,600 x 3 lights = **$7,800.00**).The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

9. Street Light Operation and Maintenance Fee. The **PERMITTEE** is responsible for a Street Light Operation and Maintenance Fee of $294 per light. **PERMITTEE** must pay a Street Light Operation and Maintenance Fee of Eight Hundred Eighty Two Dollars and No Cents ($294 x 3 lights = **$882.00**).The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

EASEMENT AGREEMENT

THIS EASEMENT AGREEMENT (this "Agreement") is made this ____ day of _____, 2015, by and between CB Ramsey Housing Limited Partnership, a Minnesota limited partnership (the "Grantor") and the City of Ramsey, Minnesota (the "Grantee").

Recitals

A. Grantor is the fee owner of certain real estate (the "Property") in Anoka County, Minnesota, described as follows:

Lot 1, Block 1, Sunwood Village, Anoka County, Minnesota.

B. Grantee has requested a permanent easement over a portion the Property legally described and depicted on the attached Exhibit A (the "Easement Area") for a non-exclusive, perpetual easement for pedestrian purposes in connection with the sidewalks (the "Sidewalks"), part of which are located on the Easement Area, and Grantor has agreed to grant such easement to Grantee in accordance with the terms and conditions stated herein.

Grant of Easement

NOW, THEREFORE, in consideration of the covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Easement. Grantor hereby grants, bargains, and conveys to Grantee for the benefit of the public, a perpetual, non-exclusive, appurtenant easement for sidewalk purposes by pedestrians over and across the Easement Area (the "Easement").

2. Exclusivity and Restrictions. In accordance with the terms of this Agreement, Grantor may continue to use the Easement Area for any purpose which does not unreasonably interfere with the public's use of the Easement Area for sidewalk purposes. Grantor shall not grant any rights to the Easement Area to any other party during the term of this Easement which would interfere with or jeopardize the use of the Easement Area. The Easement is subject to any and all restrictions, covenants, easements, licenses, permits, leases and other encumbrances of record related to the Easement Area and all applicable laws, regulations, ordinances and rules.

3. Easement to Run with Land. The Easement created herein shall run with the land and be binding on all parties having any right, title or interest in the Property, their heirs, successors and assigns.

4. Amendment; Modification; Termination. This Agreement may not be modified, restated, amended, or changed in any way without the prior written consent of the Grantor and Grantee.

5. Counterparts. This Agreement may be executed in any number of counterparts, all of which shall constitute a single agreement, any one of which bearing signatures of all parties shall be deemed an original.

[*The remainder of this page has been left intentionally blank*]

IN WITNESS WHEREOF, the parties have executed Agreement as of the date first above written.

GRANTOR:

CB RAMSEY HOUSING LIMITED PARTNERSHIP,
a Minnesota limited partnership

By : CB Ramsey Housing LLC
Its : General Partner

By : _____
Ellen Higgins
Its Chief Manager

STATE OF MINNESOTA)
)ss.
COUNTY OF _____)

On this ____ day of _____, 2015, before me, a notary public, personally appeared Ellen Higgins, the Chief Manager of CB Ramsey Housing LLC, a Minnesota limited liability company, the general partner of CB Ramsey Housing Limited Partnership, a Minnesota limited partnership, named in the foregoing instrument and acknowledged said instrument on behalf of the limited partnership.

_____
Notary Public

GRANTEE:

CITY OF RAMSEY, MINNESOTA

By: _____
Name: Sarah Strommen
Its: Mayor

By: _____
Name: Kurt Ulrich
Its: City Administrator

STATE OF MINNESOTA)
)ss.
COUNTY OF _____)

On this ____ day of _____, 2015, before me, a notary public, personally appeared Sarah Strommen and Kurt Ulrich, the Mayor and City Administrator, respectively, of the City of Ramsey, Minnesota, named in the foregoing instrument and acknowledged said instrument on behalf of the city.

_____
Notary Public

Drafted by:
Winthrop & Weinstine, P.A.
225 South Sixth Street, Suite 3500
Minneapolis, MN 55402-4629

Reviewed by:
Ratwik, Roszak & Maloney, P.A.
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

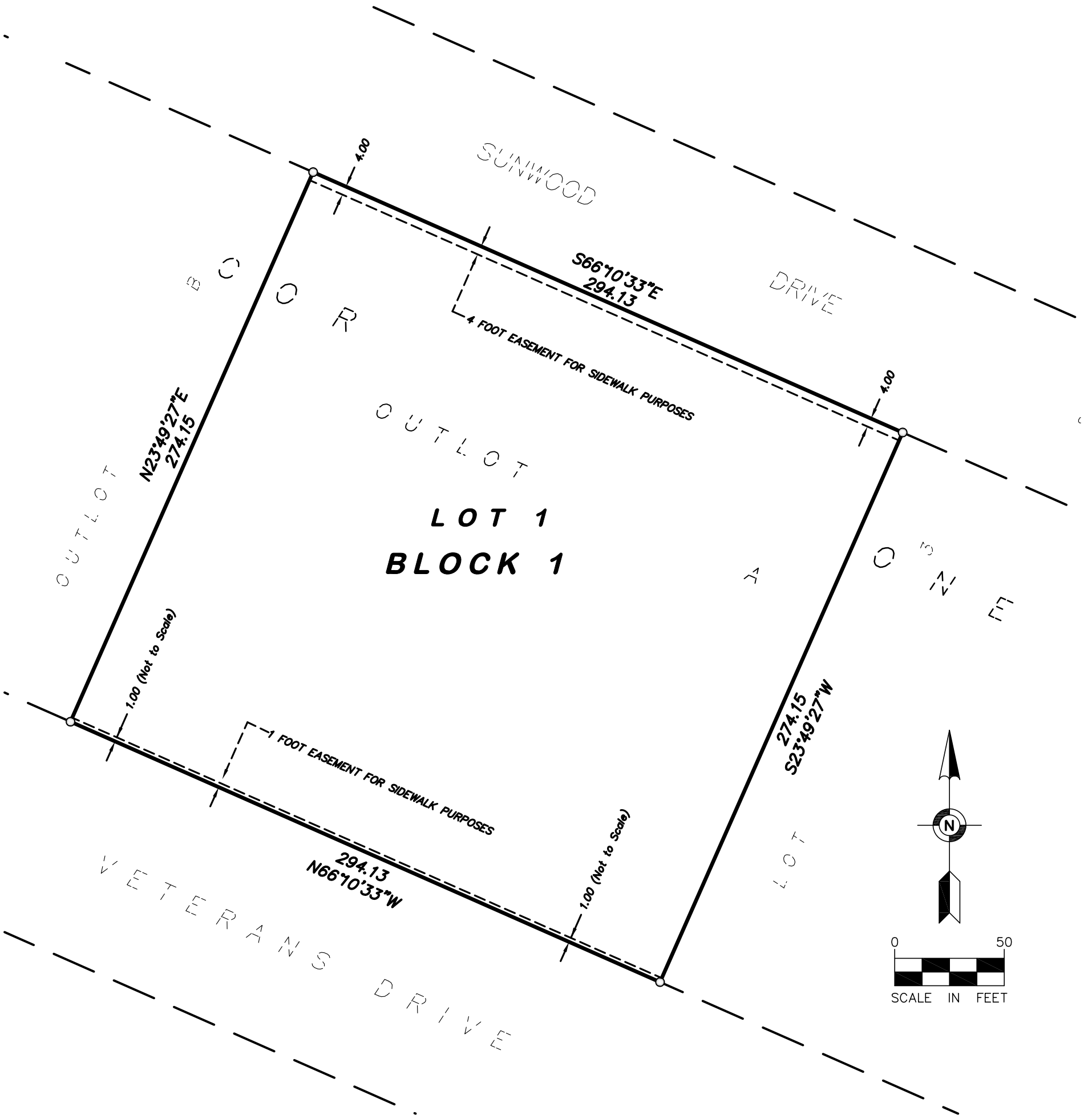
10560071v3

EXHIBIT A

DESCRIPTION AND DEPICTION OF EASEMENT AREA

(Attached)

EASEMENT EXHIBIT
FOR: COMMONBOND COMMUNITIES



EASEMENT DESCRIPTION:

An easement for sidewalk purposes over and across the northeasterly 4.00 feet and the southwesterly 1.00 feet of Lot 1, Block 1, SUNWOOD VILLAGE, Anoka County, Minnesota.

FIELD BOOK	PAGE
2870	

DRAWING NAME: 36152-EASE.dwg
JOB NO. 36152
FILE NO. 3291

FIELDWORK CHIEF:

DRAWN BY: BRP

CHECKED BY: BRP

EASEMENT EXHIBIT

COMMONBOND COMMUNITIES

Egan, Field & Nowak, Inc.
land surveyors since 1872

1229 Tyler Street NE, Suite 100
Minneapolis, Minnesota 55413
PHONE: (612) 466-3300
FAX: (612) 466-3383
WWW.EFNSURVEY.COM

COPYRIGHT © 2015 By EGAN, FIELD & NOWAK, INC.

SUBGRANT AGREEMENT

THIS SUBGRANT AGREEMENT (the "Agreement") is made and entered into as of _____, 2015 (the "Effective Date") by and between the City of Ramsey, a Minnesota municipal corporation (the "City"), and CommonBond Communities, a Minnesota nonprofit corporation (the "Subgrantee").

WITNESSETH:

WHEREAS, the City applied for and has been awarded from the Metropolitan Council (the "Council") a grant of Livable Communities Demonstration Account in the amount of $580,000.00 (the "LCDA Grant") and a grant of funds in connection with its Local Housing Incentives Account in the amount of $200,000.00 (the "LHIA Grant" and, together with the LCDA Grant, the "Grants") to be used by the City to meet its affordable and life-cycle housing goals by partially funding the acquisition and development of a 47-unit multifamily housing project to be located in Ramsey, Minnesota (the "Project");

WHEREAS, the City and the Council have executed Metropolitan Livable Communities Act Grant Agreements in connection with the LCDA Grant (the "LCDA Grant Agreement") and the LHIA Grant (the "LHIA Grant Agreement" and, together with the LCDA Grant Agreement the "Grant Agreements"), true and correct copies of which are attached hereto as Exhibit A and Exhibit B, respectively;

WHEREAS, CB Ramsey Housing Limited Partnership, a Minnesota limited partnership (the "Owner"), shall be the owner of the Project, CB Ramsey Housing LLC, a Minnesota limited liability company (the "General Partner"), is the sole general partner of Owner, and Subgrantee is the sole member of General Partner;

WHEREAS, the City desires to subgrant the proceeds of the Grants to Subgrantee to provide financing for the eligible activities described in the Grant Agreements and in accordance with the terms and conditions contained in this Agreement;

WHEREAS, upon Subgrantee's receipt of the proceeds of the Grants from time to time, Subgrantee shall immediately contribute such funds to the General Partner; the General Partner shall then immediately contribute such funds to the Owner; and then the Owner shall use the proceeds to pay for the Improvements; and

WHEREAS, the City and Subgrantee desire to enter into this Agreement for the purpose of setting forth their respective responsibilities with respect to the Grants.

NOW, THEREFORE, the parties hereto agree as follows:

I. DEFINITIONS:

As used in this Agreement, the following terms shall have the following meaning:

Contractor: The contractor(s) who is (are) under contract with the Subgrantee to construct the Improvements.

Disbursement Request: The form, substantially in the form attached hereto as Exhibit D, to be submitted to City when the disbursement is requested and which is referred to in Article VI. hereof.

Improvements: Those improvements that are included among Project Costs that are eligible to be satisfied with proceeds of the Grants.

Plans and Specifications: The final plans and specifications for the construction of the Project approved by the City.

Project Costs: Those Project costs set forth and described in the Grant Agreements that are or will be eligible to be satisfied with the proceeds of the Grants under the Grant Agreements, this Agreement, and applicable law.

II. TERM OF AGREEMENT

This Agreement shall take effect and be in force from and after the Effective Date, and shall remain in effect until Subgrantee has performed all of its obligations hereunder, unless earlier terminated as provided in this Agreement.

III. THE GRANTS

Subject to the terms and conditions of this Agreement, the City awards the Subgrantee the Grants to be contributed by Subgrantee to the General Partner, immediately contributed by the General Partner to the Owner, and then used by the Owner for payment of Project Costs, which Grants shall be disbursed pursuant to this Agreement and under the terms and conditions of the Grant Agreements. In consideration for the Grants, the Subgrantee agrees to perform, and/or shall cause the Owner to perform, all of its obligations under this Agreement.

IV. STATEMENT OF WORK

The Subgrantee shall require the Owner to acquire and construct the Project in accordance with the Plans and Specifications, the Grant Agreements, and this Agreement in all material respects.

V. CONDITIONS OF DISBURSEMENT

The obligation of the City to make or cause to be made the disbursements pursuant to Article VI hereof shall be subject to the conditions precedent that it shall have received on or before the date of the disbursement hereunder the following:

a. Evidence satisfactory to the City that the Project and the construction and contemplated use thereof are permitted by and comply in all material respects with all applicable restrictions and requirements in prior conveyances, zoning ordinances, subdivision and platting requirements and other laws and regulations;

b. All other conditions specified in the Grant Agreements shall have been duly satisfied by the Subgrantee or waived in writing by the City or such conditions which, by their nature, would not be applicable as of the date of such disbursement;

c. No Event of Default, and no event which with the giving of notice or the lapse of time or both would constitute an Event of Default, shall have occurred and be continuing and all representations and warranties made by the Subgrantee in Article VII hereof shall continue to be true and correct as of the date of such disbursement; and

d. Subgrantee shall have provided to the City such evidence of compliance with all of the provisions of this Agreement, including without limitation, the provisions of the Grant Agreements, as the City may reasonably request.

e. Subgrantee or the City shall have obtained the consent of the Metropolitan Council as provided for under paragraph 2.07 of the LCDA Grant Agreement and paragraph 2.08 of the LHIA Grant Agreement.

VI. REQUEST FOR DISBURSEMENT

6.01. Disbursement. The City and the Subgrantee agree that, on the terms and subject to the conditions hereinafter set forth, the proceeds of the Grants shall be disbursed from the City to the Subgrantee as follows: (i) an initial draw of LCDA Grant funds at the closing of the Owner's acquisition of the Project for Project Cost incurred on or prior to such date, and (ii) in monthly disbursements thereafter, with the last disbursement being made upon one hundred percent (100%) completion of the Improvements. Notwithstanding anything to the contrary contained herein, the City shall only be obligated to make the disbursement hereunder to pay Project Costs in an amount up to or equal to the lesser of the amount of the Grants or the amount actually disbursed to the City under the Grant Agreements and such obligation is further subject to the conditions of Article V hereof.

6.02. Disbursement Request.

a. When the Subgrantee desires to obtain a disbursement, the Subgrantee shall submit a Disbursement Request duly signed by the Subgrantee and the Owner, as applicable.

The Disbursement Request shall be submitted by the Subgrantee at least ten (10) days prior to the date of the requested disbursement. The Disbursement Request shall constitute a representation and warranty by the Subgrantee to the City that all representations and warranties of the Subgrantee set forth in this Agreement are true and correct as of the date of such Disbursement Request, except for such representations and warranties which, by their nature, would not be applicable as of the date of such Disbursement Request. The City will submit a reimbursement request to the Metropolitan Council within 10 business days of receipt of request from Subgrantee. The City will disburse funds as soon as reasonably acceptable upon receipt of funds from the Metropolitan Council.

b. At the time of submission of the Disbursement Request, the Subgrantee shall also submit the following to the City:

1. a written lien waiver from each Contractor for completed Improvements which were previously paid or are to be paid for pursuant to such Disbursement Request;

2. evidence satisfactory to the City that the Improvements completed to date have been constructed in accordance with the Plans and Specifications in all material respects; and

3. a certified statement of the Owner reflecting the use to which the proceeds of the Grants have been applied in addition to those uses reflected in the Grant Agreements.

c. Compliance with Accounting Audit and Report Requirements. All Disbursement Requests shall demonstrate compliance with the Accounting, Audit and Report requirements as contained in Section III paragraphs 3.01, 3.02 and 3.03 of the Grant Agreements.

VII. SUBGRANTEE'S COVENANTS, REPRESENTATIONS, WARRANTIES AND AGREEMENTS

Subgrantee covenants, represents, warrants and agrees that:

a. Subgrantee is a nonprofit corporation duly incorporated under the laws of the State of Minnesota, is duly authorized to operate in the State of Minnesota, has the power to enter into and execute this Agreement and by appropriate corporate action has authorized the execution and delivery of this Agreement.

b. Subgrantee's execution of this Agreement will not result in any breach of or constitute a default under any other mortgage, lease, loan, grant or credit agreement, corporate charter, by-law or other instrument to which Subgrantee is a party or by which it may be bound or affected.

c. This Agreement constitutes the legal and binding obligation enforceable against the Subgrantee.

d. Prior to Subgrantee's submission of any Disbursement Request, the Owner shall have all necessary approvals, licenses and permits required for construction and operation of the Project except those which cannot be obtained until completion of the Project.

e. Subgrantee shall permit and/or shall cause the Owner to permit, as applicable, the City, upon reasonable notice, to examine all books, records, contracts, plans, permits, bills and statements of account pertaining to the Project and to make copies as the City may require.

f. Subgrantee shall cause the Owner to obey and comply with all federal, state and local laws, rules and regulations in connection with the Project.

g. Subgrantee agrees to provide and/or obtain all matching funds, if any, required by the Grant Agreements. Subgrantee agrees to pay for all of the costs incurred to construct the Improvements including any cost overruns in excess of those in the sources and uses set forth in Exhibit C.

h. Subgrantee represents that all uses to which the Grants funds shall be used will be grant eligible uses as provided for within the Grant Agreements.

i. Subgrantee will indemnify and hold the City harmless relative to the Grant Agreements to the extent that its performance or lack thereof under the terms of this Agreement places the City in non-compliance with the Grants.

VIII. DEFAULT

Any one or more of the following shall constitute an "Event of Default" under this Agreement:

a. Subgrantee shall default in the performance or observance of any agreement, covenant or condition required to be performed or observed by Subgrantee under the terms of this Agreement, and such default shall not be remedied within thirty (30) days after written notice to Subgrantee from the City specifying such default.

b. Subgrantee shall be in default of any material term of any other agreement relating to the Project to which it is a party, and such default shall not be remedied within any applicable cure period.

c. Any representation or warranty made by Subgrantee herein or any document or certificate furnished to the City shall prove to be materially incorrect or misleading as of the date made.

d. Subgrantee engages in any illegal activities that have or are likely to have a material adverse effect on the Project.

e. Subgrantee or the Owner uses any of the Grants funds contrary to this Agreement, and fails to correct such error within thirty (30) days.

f. The Owner shall fail to obtain and/or keep in force insurance of the types and in the amounts as specified within this Agreement.

g. Subgrantee violates any term or provision of the Grant Agreements as imposed upon the City or otherwise makes compliance by the City with the terms and provisions thereof impossible or impractical, and such violation is not cured within any applicable cure period set forth in the Grant Agreements.

Notwithstanding anything to the contrary herein, Wincopin Circle LLLP, the expected limited partner of Owner ("Investor Limited Partner"), shall have the right, but not the obligation, to cure any Event of Default under this Agreement and the City shall accept performance by Investor Limited Partner of any obligation of Subgrantee or the Owner as though tendered by Subgrantee or the Owner itself, as applicable, provided such performance has occurred during the applicable cure period, if any, provided to Subgrantee or the Owner under this Agreement.

IX. REMEDIES

Upon the occurrence of an Event of Default, any one or more of the following remedial steps may be taken by the City:

a. The City may terminate this Agreement;

b. The City may suspend or terminate any further disbursements to be made under this Agreement;

c. The City may suspend its performance under this Agreement during the continuance of the Event of Default; or

d. The City may take whatever action at law or in equity may appear necessary or appropriate to seek repayment or reimbursement of the Grants funds disbursed to Subgrantee to the extent required under the Grant Agreements, to enforce performance and observance of any obligation, agreement, covenant, representation or warranty of the Subgrantee under this Agreement; or to otherwise compensate the City for any damages on account of such Event of Default.

X. ADDITIONAL PROVISIONS

a. Indemnity, Hold Harmless. The Subgrantee shall bear all loss, expense (including reasonable attorney's fees) and damage in connection with, and hereby releases and agrees to indemnify, defend, and hold harmless the City, its agents, servants and employees from and against all claims demands, losses expenses and judgments made or recovered against or suffered by the City, its agents, servants and employees from any cause whatsoever, arising out of, incidental to, or in connection with the construction of the Project, except to the extent such losses result solely due to any act or omission, including negligence, of the City or its or their employees, servants or agents.

b. Independent Contractor. For the purpose of this Agreement, Subgrantee shall be deemed an independent contractor and not an employee or agent of the City. Any and all employees or agents of the Subgrantee shall not be considered employees or agents of the City.

XI. INSURANCE

With respect to the Improvements, the Subgrantee shall cause the Owner to require the Contractor and its subcontractors to procure and maintain, at their sole expense and until completion of the Improvements, the following insurance coverages in at least the following amounts (unless otherwise agreed to by the City and the Subgrantee) and observe all requirements of the pertinent policies:

(i) To the extent required under applicable law, workers' compensation in an amount not less than prescribed by law and employer's liability insurance in the amount of One Million Dollars ($1,000,000); and

(ii) If applicable, automobile liability insurance (covering owned, non-owned, and hired) with a combined single limit of One Million Dollars ($1,000,000) per occurrence, which policy shall have a policy extension for sudden and accidental pollution coverage; and

(iii) Commercial general liability insurance with limits of One Million Dollars ($1,000,000) per occurrence and Two Million Dollars ($2,000,000) in the aggregate for bodily injury, including death, and property damage, which policy shall have a policy extension for broad-form completed operations, explosion, collapse, underground property damage, and environmental liability coverage; and

(v) Umbrella liability insurance with limits of One Million Dollars ($1,000,000) per occurrence and Three Million Dollars ($3,000,000) in the aggregate covering claims in excess of the employer's liability, automobile liability and commercial general liability limits above.

With the exception of workers' compensation/employers liability coverage, the City, the Subgrantee, and the Owner shall be named as additional insureds. All policies shall require that thirty (30) days' advance written notice be given to the City, the Subgrantee, and the Owner prior to cancellation. Prior to commencing construction of the Improvements, the Subgrantee shall

cause the Owner to deliver to the City proof of insurance evidencing the above coverages and any endorsements thereto. Thereafter, the Subgrantee shall cause the Owner to make copies of renewal policies available for inspection by the City.

XII. RECORDS AND REPORTS

The Subgrantee shall cause the Owner to submit to the City a full account of the status of the activities undertaken as part of this Agreement. The following records shall be maintained by the Subgrantee, copies of which shall be submitted in such form as City staff may prescribe:

a. All receipts and invoices relating to expenditure of Grants funds.

b. Records shall be sufficient to reflect all costs incurred in performance of the Grants. The books, records, documents, and accounting procedures, relevant to the Grants shall be subject to examination by the City and state agencies and the legislative auditor.

c. Records of insurance required under this Agreement, including proof of insurance in effect, and proof of payment of insurance premiums.

XIII. EXHIBITS

The following identified exhibits are incorporated into and made part of this Agreement:

Exhibit A – LCDA Grant Agreement
Exhibit B – LHIA Grant Agreement
Exhibit C – Project Budget
Exhibit D – Disbursement Request Form

XIV. AMENDMENT

This Agreement shall not be amended or modified except in writing signed by the Subgrantee and the City.

XV. INCORPORATION OF GRANT AGREEMENTS.

Subgrantee acknowledges and agrees that all terms, conditions and obligations contained in the Grant Agreements are incorporated herein, and made a part of this Agreement. In addition to the terms, conditions and obligations described herein, the Subgrantee further acknowledges, accepts and assumes all of the City's obligations described in the Grant Agreements. For purposes of enforcing this Agreement, Subgrantee acknowledges, accepts and agrees that the City shall inure to, and possess the rights and authority of the Council as described in the Grant Agreements.

XVI. MISCELLANEOUS

a. Notices. All notices provided for herein shall be in writing and shall be deemed to have been given when delivered personally or when deposited in the United States mail, registered or certified, postage prepaid, addressed as follows:

If to Subgrantee: CommonBond Communities
1080 Montreal Avenue
Saint Paul, MN 55116
Attention: Vice President of Development

and copies to: Winthrop & Weinstine, P.A.
Capella Tower, Suite 3500
225 South Sixth Street
Minneapolis, MN 55402
Attention: Jeffrey J. Koerselman

Wincopin Circle LLLP
c/o Enterprise Community Asset Management, Inc.
70 Corporate Center
11000 Broken Land Parkway, Suite 700
Columbia, MD 21044
Attention: General Counsel

and

Bocarsly Emden Cowan Esmail & Arndt LLP
7700 Old Georgetown Road, Suite 600
Bethesda, MD 20814
Attention: Craig A. Emden

If to City: City of Ramsey
7550 Sunwood Drive
Ramsey, MN 55303

or addressed to any such party at such other address as such party shall hereafter furnish by notice to the other parties as above provided.

b. Binding Effect; Waiver. The provisions of this Agreement shall inure to the benefit of and be binding upon Subgrantee and City and their respective successors and assigns. No delay on the part of City in exercising any right, power or privilege shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege constitute such waiver nor exhaust the same, which shall be continuing.

c. Survival of Agreements, Representations and Warranties. All agreements, representations and warranties made in this Agreement by Subgrantee shall survive its termination.

d. Governing Law. This Agreement and the attachments are to be construed and enforced according to and governed by the laws of the State of Minnesota.

e. Counterparts. This Agreement may be executed in any number of counterparts, all of which shall constitute a single agreement, any one of which bearing signatures of all parties shall be deemed an original.

f. Time. Time is of the essence in the performance of this Agreement.

g. Entire Agreement. This Agreement contains the entire agreement of the parties hereto on the matters covered herein. No other agreement, statement or promise made by any party or by any employee, officer or agent of any party hereto that is not in writing and signed by all the parties to this Agreement shall be binding.

h. No Joint Venture. The relationship between City and Subgrantee is solely that of grantor and grantee and the relationship by and among City, and Subgrantee is not, nor shall it be deemed to create, a partnership or joint venture in the Project.

i. Assignment. This Agreement may not be assigned by Subgrantee without the prior written consent of City.

j. Permitted Transfers. Notwithstanding anything to the contrary contained in this Agreement, it shall not constitute a default or event of default under this Agreement and the consent of the City is not required, for: (a) the transfer of limited partner interests in the Owner to an affiliate of the Investor Limited Partner in accordance with the terms of the Owner's partnership agreement, as amended (the "Partnership Agreement"), (b) the transfer of ownership interests in a limited partner of the Owner, so long as the manager, managing member or general partner of such limited partner is an affiliate of Investor Limited Partner, (c) the removal of the General Partner for cause in accordance with the Partnership Agreement by Investor Limited Partner and the replacement of the General Partner with an affiliate of Investor Limited Partner, or (d) an amendment of the Partnership Agreement (i) memorializing the transfers or removal described above or (ii) which does not materially and adversely affect the ability of the Owner to perform the Owner's obligations under this Agreement.

[*The remainder of this page has been left blank intentionally.*]

IN WITNESS WHEREOF, the parties have caused this Subgrant Agreement to be executed as of the date first above written.

SUBGRANTEE:

COMMONBOND COMMUNITIES,
a Minnesota nonprofit corporation

By: _____
Ellen Higgins
Its Vice President

CITY:

CITY OF RAMSEY, MINNESOTA

By: _____
Name: _____
Its: _____

By: _____
Name: _____
Its: _____

10528737v2

EXHIBIT A

LCDA GRANT AGREEMENT
(Attached)

EXHIBIT B

LHIA GRANT AGREEMENT
(Attached)

EXHIBIT C

PROJECT BUDGET
(Attached)

EXHIBIT D

DISBURSEMENT REQUEST FORM

Pursuant to that certain Subgrant Agreement dated as of _____, 2015 (the "Agreement"), between CommonBond Communities ("Subgrantee") and the City of Ramsey, Minnesota ("City") Subgrantee hereby requests payment of the expenses listed on the attached Expense Listing.

The total amount to be disbursed for this Disbursement Request is $_____.

In connection with this Disbursement Request, the undersigned hereby represents as follows:

a. each obligation listed in the attached exhibit has been incurred and is a Project Cost related to the Improvements,

b. no license or permit necessary for construction of the Improvements previously issued has been revoked or the issuance thereof subjected to challenge before any court of other governmental authority having or asserting jurisdiction thereover; and

c. no event has occurred and is continuing which, but for the giving of notice, the expiration of any cure period, or both, would constitute an Event of Default under the Agreement.

Any capitalized terms used herein that are not otherwise defined herein shall have the meanings assigned to such terms in the Agreement.

COMMONBOND COMMUNITIES

By: _____
Name: _____
Its: _____

Approved:

CITY OF RAMSEY

By: _____
Name: _____
Its: _____

Expense Listing

Item	Amount

Councilmember _____ introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-177

RESOLUTION APPROVING MULTIPLE AGREEMENTS LOT 3, BLOCK 1, COR ONE AND OUTLOT A, COR ONE.

WHEREAS, on March 24, 2015, the City of Ramsey received an application and plans for sketch plan, final plat and site plan from CommonBond Communities to replat Outlot A, COR ONE into one buildable lot; and

WHEREAS, on May 12, 2015, the City Council approved the Final Plat and Site Plan for Sunwood Village; and

WHEREAS, a Declaration of Reciprocal Driveway Easements and Drainage and Utility Easements was approved by the City of Ramey's Housing and Redevelopment Authority (HRA) in April of 2012 benefiting both Lot 3, Block 1, COR ONE and Outlot A, COR ONE, and an error was discovered in the legal description of said reciprocal driveway easement; and

WHEREAS, as of January 1, 2015, the HRA was dissolved and all holdings were transferred to the City of Ramsey; and

WHEREAS, on December 10, 2014, the Metropolitan Council approved two (2) funding awards for Sunwood Village for a total of $780,000; and

WHEREAS, the City has already accepted the grant awards on behalf of Sunwood Village and CommondBond Communities is requesting the City enter into a Sub-Grant Agreement with CommonBond Communities; and

WHEREAS, one of the items noted in the Staff Review Letter was the need for an Easement Agreement to address the encroachment of public sidewalks along both Sunwood and Veterans Drives onto Lot 1 Block 1 Sunwood Village; and

WHEREAS, upon closing on the land transaction with the City of Ramsey, CB Ramsey Housing Limited Partnership will be the owner of Lot 1 Block 1 SUNWOOD VILLAGE and has agreed to grant to the City of Ramsey an Easement Agreement to ensure public use of the sidewalk.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA, as follows:

That the Ramsey City Council hereby approves the following agreements related to Sunwood Village by CommonBond Communities, all subject to review and approval by the City Attorney as to legal form.

1) Amended Reciprocal Driveway and Drainage and Utility Easement

2) Amended Development Agreement
3) Sidewalk Easement Agreement
4) Metropolitan Council Livable Communities Sub-Grant Agreement

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember _____, and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

Whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

CC Regular Session **4. 6.**

Meeting Date: 07/28/2015

By: Chris Anderson, Community Development

Information

Title

Adopt Res. #15-07-179 Approving an Encroachment Agreement for a Portion of a Proposed Driveway in a Drainage and Utility Easement at 17209 Tungsten St. NW; Case of Frank and Dorothy Frederick

Purpose/Background:

The owner of property located at 17209 Tungsten St. NW (the "Subject Property") is proposing to construct a second driveway to the garage as well as a parking space to the north of the garage. The driveway extension will encroach upon a drainage and utility easement (the "Easement") on the Subject Property and the setback required for driveways in R-1 Residential Districts (the "Setback"). On July 9, 2015, a Variance to the Setback was approved, allowing the driveway to maintain a five (5) foot setback angling towards a class V parking area, thereby encroaching on the easement.

Notification:

No notification is required to consider an Encroachment Agreement.

Observations/Alternatives:

The existing garage and second driveway on the Subject Property were constructed prior to the current Property Owner. The Property Owner is proposing to access an area to the north of the garage as well as the garage itself with the construction of a concrete driveway, which will maintain a five (5) foot setback for a distance then angling towards the property line which encroaches upon the setback requirement for driveways as shown in Exhibit "A."

A Variance to the Setback was approved by the Ramsey Planning Commission on July 9, 2015. The encroachment has been reviewed by the Engineering Division. So long as the Property Owner maintains positive drainage on the Subject Property and existing grades at the property line, they are comfortable with the encroachment.

An Encroachment Agreement has been drafted to reflect those requirements and obligates the Property Owner to achieve those drainage standards. The Encroachment Agreement also stipulates that the Property Owner is responsible for demolishing the portion of the driveway in the easement and all of its associated costs should maintenance or installation of utilities in the easement be necessary.

Alternatives

Option 1: Approve Resolution #15-07-179 Approving an Encroachment Agreement for a Proposed Driveway Extension Partially Located in a Drainage and Utility Easement. City Staff has reviewed the existing encroachment and has no concerns with it.

Option 2: Do not Approve Resolution #15-07-179 Approving an Encroachment Agreement for a Proposed Driveway Extension Partially Located in a Drainage and Utility Easement.

Funding Source:

The preparation of this case is being handled as part of Staff's regular duties; however, should the Encroachment Agreement be approved, it will need to be recorded against the Subject Property and that cost would be the responsibility of the property owner.

Recommendation:

City Staff recommends approving Resolution #15-07-179 approving an Encroachment Agreement for a Proposed Driveway Extension Partially Located in a Drainage and Utility Easement at 17209 Tungsten St. NW.

Action:

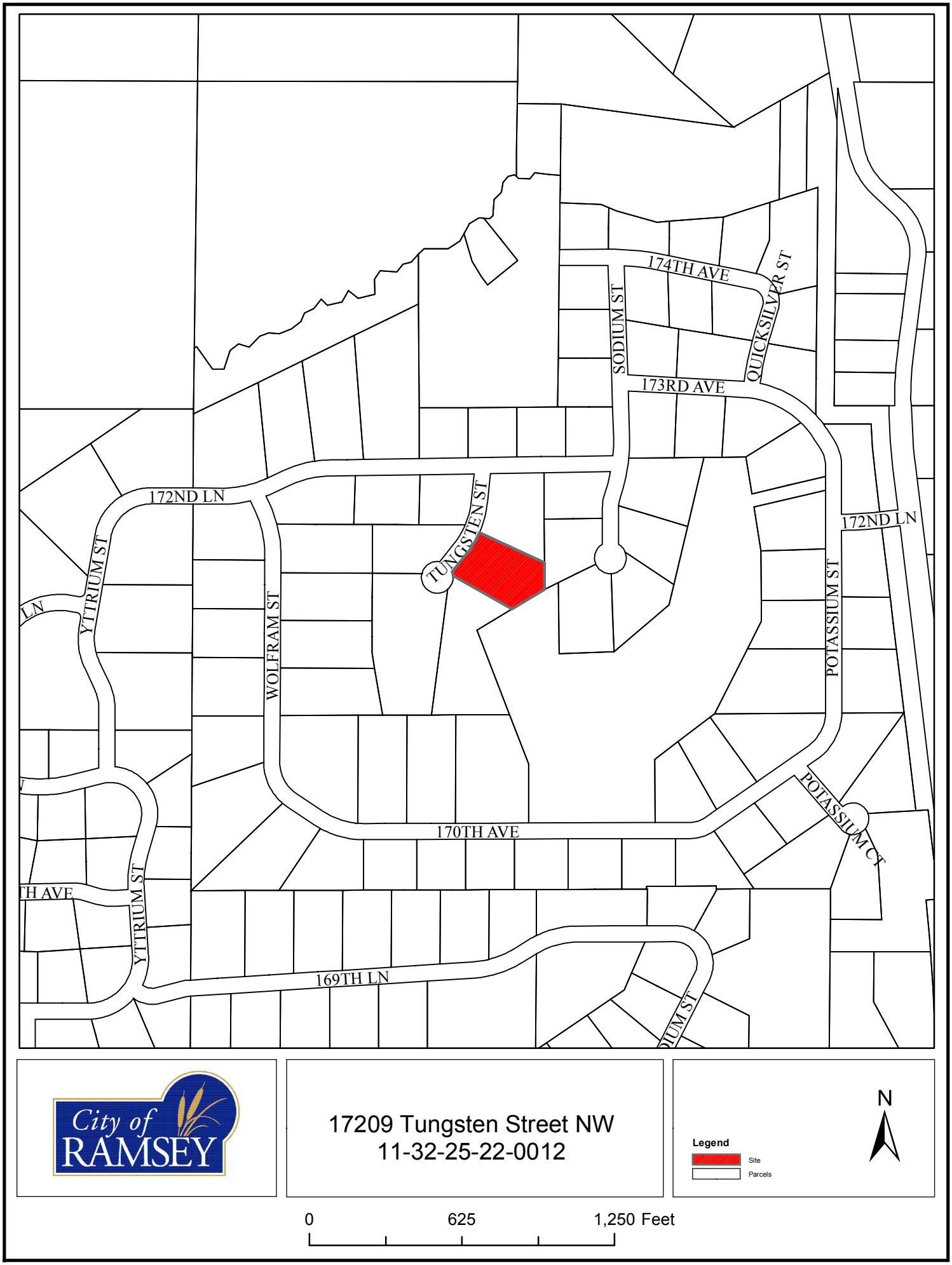
Adopt Resolution #15-07-179 Approving an Encroachment Agreement for a Proposed Driveway Extension Partially Located in a Drainage and Utility Easement at 17209 Tungsten St. NW.

Attachments

Site Location Map
Exhibit A - Site Plan Proposal from Applicant
Aerial Photo of Site
Photos of Site
Encroachment Agreement
Resolution Document #15-07-179

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	07/22/2015 10:25 AM
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:26 PM
Form Started By: Chris Anderson		Started On: 07/13/2015 04:37 PM
Final Approval Date: 07/22/2015		

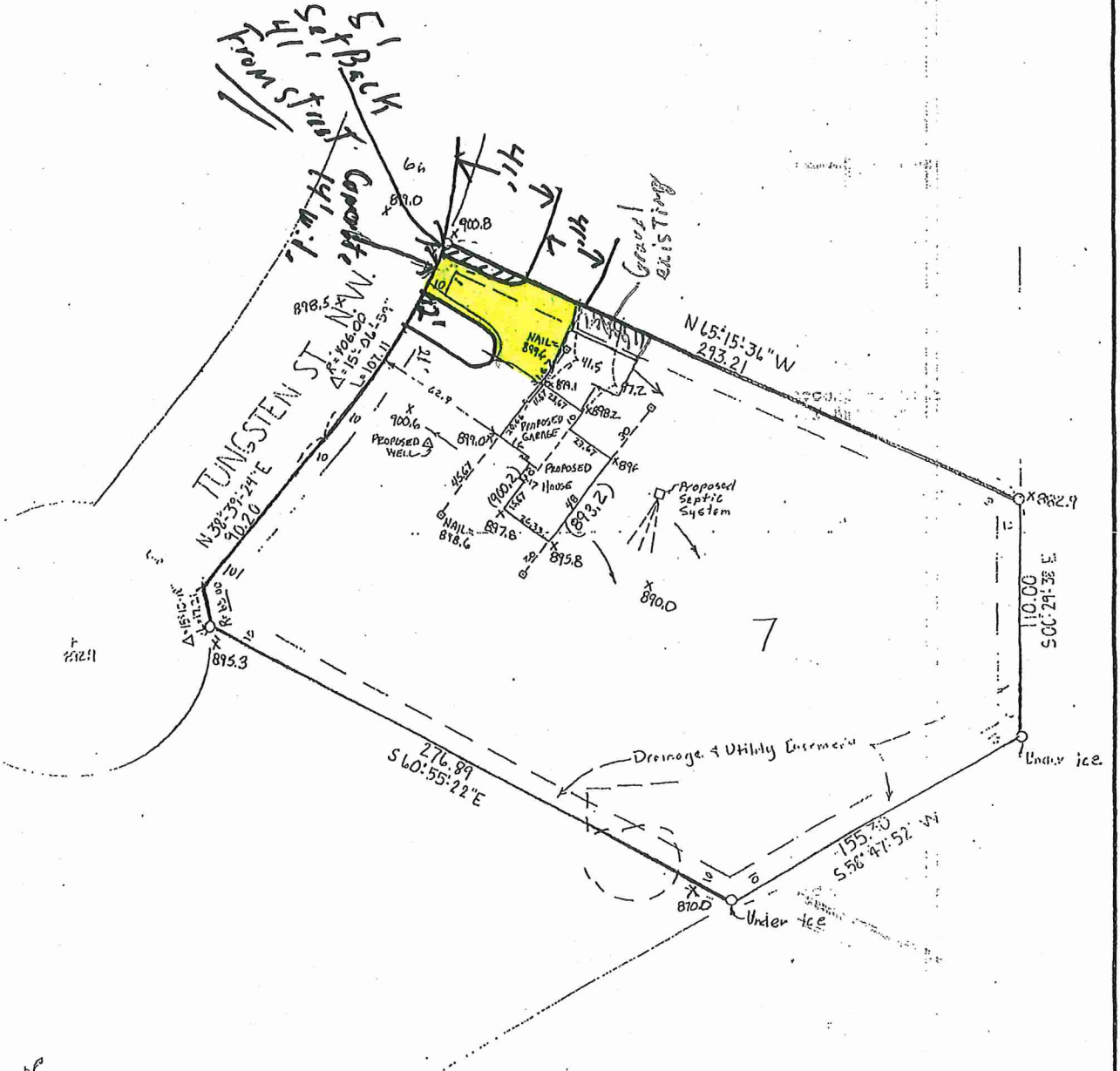

174TH AVE
SODIUM ST
QUICKSILVER ST
173RD AVE
172ND LN
TUNGSTEN ST
172ND LN
YTTRIUM ST
WOLFRAM ST
POTASSIUM ST
170TH AVE
POTASSIUM CT
YTTRIUM ST
169TH LN
City of RAMSEY
17209 Tungsten Street NW
11-32-25-22-0012
Legend
Site
Parcels
N
0
625
1,250 Feet

CAINE & ASSOCIATES
LAND SURVEYORS, INC.

17720 Highway 65 N.E. – Ham Lake, Minnesota 55304
434-7646

CERTIFICATE OF SURVEY FOR: CHRIS GALLAGHER

LEGAL DESCRIPTION: Lot 7, Block 5, FOX RIDGE ESTATES, according to the recorded plat thereof, Anoka County, Minnesota.



NOTE:
Verify all setback requirements and proposed building elevations for compliance with all requirements before construction.

895.0X Denotes Existing Elevation
(895.0) Denotes Proposed Elevation
← Denotes Direction of Proposed Surface Drainage
Proposed Top of Found. El.=902.3
Proposed Garage Floor El.=900.5
Proposed Bsmt. Floor El.= 893.5

I HEREBY CERTIFY THAT THIS SURVEY, PLAN, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

Jeffrey M. Caine

DATE Feb. 7, 1994 REG. NO. 12251

SCALE: 1 INCH = 50 FEET.
O DENOTES 1/2 INCH IRON PIPE SET.
⊕ DENOTES FOUND IRON MONUMENT.
BEARINGS SHOWN ARE ASSUMED.
⊙ DENOTES GAL NAIL SET.

PREPARED BY: FRANK & DOROTHY FREDERICK
DATE: July 9, 205

2011
17209
17201

ENCROACHMENT AGREEMENT

THIS AGREEMENT ("Agreement") is made this _____ day of _____, 20___, by and between the **CITY OF RAMSEY**, a municipal corporation under the laws of the State of Minnesota ("City"), and **Frank J. and Dorothy Frederick**, and their successors and assigns ("Landowner").

RECITALS:

WHEREAS, Landowner is the fee owner of the real property located at 17209 Tungsten St. NW, Ramsey, Minnesota and legally described as follows:

Lot 7, Block 5, Fox Ridge Estates, subject to easement of record, Anoka County, Minnesota. ("Property"); and

WHEREAS, the City currently has Drainage and Utility Easements ("Easements") over, under and across a portion of the Property, as dedicated to the public pursuant to the Plat known as "Fox Ridge Estates" recorded in the Office of the County Recorder, Anoka County, Minnesota, which Easements are shown on Exhibit "A" attached hereto and made a part hereof; and

WHEREAS, the Property has an existing attached garage ("Garage") with two existing driveways, one concrete and one class V material which leads to a land area of class V material to the north of the Garage; and

WHEREAS, the current class V driveway and parking space ("Driveway") was constructed before the current Landowner purchased the Property and are located in an easement and does not meet the required setbacks from the northerly boundary of the Property; and

WHEREAS, Landowner proposes to replace the current class V driveway with a permanent concrete driveway to Garage and parking space as shown on Exhibit "A;" and

WHEREAS, Landowner was granted a Variance from the City per Resolution #15-07-165 to encroach upon the required driveway setback for properties in the R-1 Residential District and an Easement located along the northerly boundary of the Property by a distance of five (5) feet and angling back towards the northerly Property boundary to the parking space as shown on Exhibit "A."

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the parties agree as follows:

1. The City hereby approves an encroachment on and over the Easements by Landowner for the purposes of constructing a Driveway over that part of the Easements as shown in Exhibit "A" subject to the terms of this Agreement. Landowner shall not encroach upon the Easements greater than what is shown on Exhibit "A."

2. Nothing in this Agreement shall be deemed a waiver or abandonment of the City's rights under the Easements.

3. Landowner shall be responsible for all costs relating to use, maintenance and repair of the Driveway.

4. Landowner agrees to maintain positive drainage on the Subject Property and existing grades at the property line so as not to negatively impact property to the north.

5. Landowner agrees that if the City, during its normal construction, reconstruction, maintenance and/or repair of the public utilities of the City located within the Easements including, but not limited to, watermain, sanitary sewer and/or storm sewer systems, deems it necessary and expedient to excavate within the Easements, Landowner shall be responsible for removing, reconstructing and/or repairing the Driveway and the City's only obligation shall be to

fill the excavated area and level the same to the grade that it was prior to the City's excavation. Notwithstanding the above, in the event the City finds it is necessary to completely and totally restore easement area, the landowner agrees to remove the Driveway that has been placed in the Easements. Landowner will promptly comply with said removal request at his expense and will remove the Driveway and Parking Space within sixty (60) days of the written request by the City.

6. In the event that Landowner fails to take any action required in this Agreement and the City is required to repair, reconstruct or take other actions to maintain the City's utilities, as a result of the Landowner's use and maintenance of the Driveway and Parking Space, the City may take any and all actions permitted by law to collect the costs of those repairs and the City may further levy an assessment against the Property for all costs incurred by the City. Landowner waives any and all rights to challenge or appeal the assessment.

7. Landowner and their successors and assigns do hereby agree to defend, indemnify, and hold the City harmless from any and all costs and expenses, all claims and liability, including attorney's fees, relating to or arising from granting the Landowner permission to encroach on the Easements for the maintenance, use, and operation of the Driveway, including third party claims against flooding issues that may occur due to filling within the drainage easement.

8. All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed given if personally delivered or mailed, certified mail, return receipt requested, to the following:

TO CITY: Jo Thieling, City Clerk
City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

TO LANDOWNER: Frank J. and Dorothy Frederick
17209 Tungsten St. NW
Ramsey, MN 55303

or to any successors or assigns of the Landowner or City, or any future address of the Landowner or City, if Landowner or City gives the other party notice of said change of address as provided pursuant to the provision for notice herein.

8. This Agreement shall be recorded against the title to the Property.

CITY OF RAMSEY

By: _____ By: _____
Sarah Strommen, Mayor Jo Thieling, City Clerk

LANDOWNER:

By: _____ By: _____
Frank J. Frederick Dorothy Frederick

STATE OF MINNESOTA)
)ss.
COUNTY OF ANOKA)

The foregoing instrument was acknowledged before me this ____ day of _____, 20_____, by Sarah Strommen and Jo Thieling, respectively the Mayor and City Clerk of the City of Ramsey, a Minnesota municipal corporation, on behalf of the corporation and pursuant to the authority granted by its City Council.

_____
Notary Public

STATE OF MINNESOTA)
)ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 20__, by Frank J. Frederick and Dorothy Frederick.

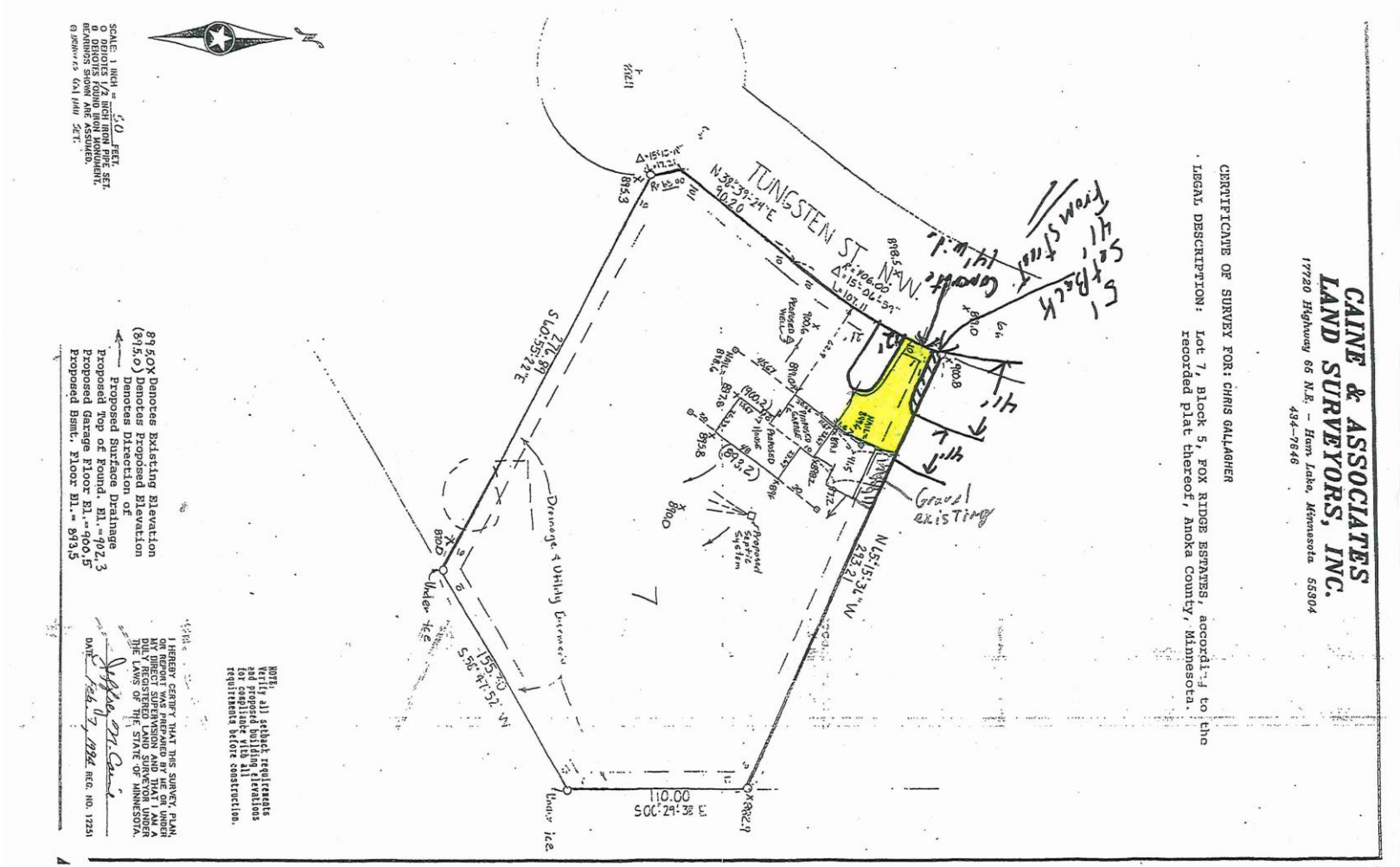
_____
Notary Public

Drafted by:
City of Ramsey
7550 Sunwood Dr NW
Ramsey, MN 55303

Reviewed by:
Ratwik, Roszak & Maloney, P.A.
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

EXHIBIT “A”

Site Plan



PREPARED BY: FRANK & DOROTHY FREDERICK
DATE: JULY 9, 2015

Councilmember _____ introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-179

RESOLUTION APPROVING AN ENCROACHMENT AGREEMENT FOR A PROPOSED DRIVEWAY EXTENSION TO BE PARTIALLY LOCATED IN A DRAINAGE AND UTILITY EASEMENT AT 17209 TUNGSTEN ST. NW AND DECLARING TERMS OF SAME

WHEREAS, Frank J. and Dorothy Frederick, hereinafter referred to as the "Applicant," have requested an Encroachment Agreement for a driveway extension that partially encroaches upon a drainage and utility easement (the "Easement") on the property generally known as 17209 Tungsten St. NW and legally described as follows:

Lot 7, Block 5, Fox Ridge Estates, subject to easement of record, Anoka County, Minnesota

(the "Subject Property").

WHEREAS, a legal nonconforming driveway currently exists on the Subject Property; and

WHEREAS, the Ramsey Planning Commission, on July 9, 2015, approved a Variance to the setback requirement for a driveway extension that would service the attached garage and parking space to the north of the garage; and

WHEREAS, the Ramsey Engineering Department approves of the encroachment into the drainage and utility easement so long as Applicant maintains both positive drainage on the Subject Property and existing grades at the property line; and

WHEREAS, City Council reviewed the request on _____, 2015.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA, as follows:

1. That, contingent upon the Applicant entering into an Encroachment Agreement with the City, the Applicant may construct, use, and maintain the driveway extension in accordance with the terms and conditions contained within the Encroachment Agreement.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember _____, and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

whereupon said resolution was declared duly adopted by the Ramsey City Council this the __ day of ___, 2015.

CITY OF RAMSEY:

By:_____ By:_____
Mayor City Clerk

STATE OF MINNESOTA)
) SS.
COUNTY OF ANOKA)

On this _____ day of _____, 20___, before me, a Notary Public, personally appeared Sarah Strommen and JoAnn M Thieling, to me personally known, who, being each by me duly sworn did say that they are respectively the Mayor and City Clerk of the City of Ramsey, the Municipal Corporation named in the foregoing instrument, and seal affixed to said instrument is the corporate seal of said Municipal Corporation, and the said instrument was signed and sealed on behalf of said Municipal Corporation by authority of its City Council, and said Sarah Strommen and JoAnn M Thieling acknowledge said instrument to be the free act and deed of said Municipal Corporation.

_____
Notary Public

This document drafted by:
City of Ramsey
7550 Sunwood Dr NW
Ramsey, MN 55303

This document reviewed by:
Ratwik, Roszak & Maloney, P.A.
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

CC Regular Session **4. 7.**

Meeting Date: 07/28/2015

Submitted For: Patrick Brama, Administrative Services

By: Kathy Schmitz, Administrative Services

Information

Title

Adopt Resolution #15-07-180 Approving Partial Payment to Construction Results Corporation for IP #14-28 Parking Ramp Garage Enclosure

Purpose/Background:

Resolution and Pay Request attached.

Recommendation:

SRF Consulting, the project manager hired by the City, has inspected the completed work and recommends partial payment to Construction Results Corporation for IP #14-28, parking ramp enclosure, in the amount of $70,300.00.

Action:

Motion to Adopt Resolution #15-07-180 Approving Partial Payment to Construction Results Corporation for IP #14-28 Parking Ramp Garage Enclosure.

Attachments

Res 15 07 180

Pay Request Ramp Enclosure

Form Review

Inbox	Reviewed By	Date
Patrick Brama	Patrick Brama	07/20/2015 02:44 PM
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:27 PM
Form Started By: Kathy Schmitz		Started On: 07/14/2015 11:56 AM
Final Approval Date: 07/22/2015		

Councilmember introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-180

RESOLUTION APPROVING PARTIAL PAYMENT TO CONSTRUCTION RESULTS CORPORATION FOR IP #14-28 PARKING RAMP GARAGE ENCLOSURE

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted October 14, 2014, accepting plans and specifications and authorizing advertisement for bids for the enclosure of 14 parking stalls located within the existing Ramsey Municipal Parking Ramp; and

WHEREAS, the bid of Construction Results Corporation in the amount of $303,440.00 was the lowest responsible bidder; and

WHEREAS, pursuant to a motion of the Ramsey City Council on March 10, 2015 adopting Resolution #15-03-071, Construction Results Corporation was awarded a contract for said work; and

WHEREAS, as of July 27, $154,707.50 has been paid to date; and

WHEREAS, the SRF Consulting Group has inspected the completed work and recommends partial payment to Construction Results Corporation in the amount of $70,300.00.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA:

1) That the City Council hereby authorizes partial payment to Construction Results Corporation for Improvement Project 14-28; parking ramp garage enclosure in the amount of $70,300.00.

2) That the City Council hereby accepts the project and authorizes the City Administrator to sign the release form for this payment.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember , and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:
CITY OF RAMSEY
7550 SUNDWOOD DRIVE NW
RAMSEY, MN 55303

FROM CONTRACTOR:
CONSTRUCTION RESULTS CORPORATION
14170 23RD AVENUE NORTH
PLYMOUTH, MN 55447

PROJECT: RAMSEY MUNICIPAL PARKING FACILITY ENCLOSURE PROJECT

VIA ARCHITECT:
LSA DESIGN INC.
ONE CARLSON PRKWY. N., STE. 150
MINNEAPOLIS, MN 55447-1087

APPLICATION NO: 3
PERIOD TO: 6/30/2015
CONTRACT FOR: GENERAL CONSTRUCTION
CONTRACT DATE: 3/19/2015
PROJECT NOS: / 14-28 Reissued
CRC PROJ. #: 5250

Distribution to:
OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
FIELD ☐
OTHER ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM		$303,440.00
2. NET CHANGE BY CHANGE ORDERS		$0.00
3. CONTRACT SUM TO DATE *(Line 1 ± 2)*		$303,440.00
4. TOTAL COMPLETED & STORED TO DATE *(Column G on G703)*		$236,850.00
5. RETAINAGE:		
a. 5 % of Completed Work *(Columns D + E on G703)*	$11,842.50	
b. 0 % of Stored Material *(Column F on G703)*	$0.00	
Total Retainage *(Lines 5a + 5b, or Total in Column I of G703)*		$11,842.50
6. TOTAL EARNED LESS RETAINAGE *(Line 4 minus Line 5 Total)*		$225,007.50
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT *(Line 6 from prior Certificate)*		$154,707.50
8. CURRENT PAYMENT DUE		$70,300.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE *(Line 3 minus Line 6)*		$78,432.50

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$0.00	$0.00
Total approved this month	$0.00	$0.00
TOTAL	$0.00	$0.00
NET CHANGES by Change Order	$0.00	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: John Dyle Date: 6-25-15
State of: Minnesota
County of: Hennepin
Subscribed and sworn to before me this 25th day of June, 2015
Notary Public: Mary L. Hoiland
My commission expires: January 31, 2020

MARY L. HOILAND
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2020

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $ 70,300.00
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:
By: William Tossey PE Date: 7-14-15

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA Document G702™ – 1992. Copyright © 1953, 1963, 1965, 1971, 1978, 1983 and 1992 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. Purchasers are permitted to reproduce ten (10) copies of this document when completed. To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects' legal counsel, copyright@aia.org.

010711ACD44

CITY OF RAMSEY

AIA® Document G703™ – 1992

Continuation Sheet

AIA Document G702™–1992, Application and Certificate for Payment, or G732™–2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

CRC PROJ. #: 5250

APPLICATION NO: 3
APPLICATION DATE: 6/25/2015
PERIOD TO: 6/30/2015
ARCHITECT'S PROJECT NO: 14-28 Reissued

A	B	C	D	E	F	G		H	I
			WORK COMPLETED						
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD	MATERIALS PRESENTLY STORED (Not in D or E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C – G)	RETAINAGE (If variable rate)
1	MOBILIZATION	$20,000.00	$20,000.00	$0.00	$0.00	$20,000.00	100%	$0.00	$1,000.00
2	TEMP FENCING	$2,500.00	$2,000.00	$0.00	$0.00	$2,000.00	80%	$500.00	$100.00
3	EXCAVATION	$50,000.00	$50,000.00	$0.00	$0.00	$50,000.00	100%	$0.00	$2,500.00
4	ASPHALT	$20,000.00	$0.00	$4,000.00	$0.00	$4,000.00	20%	$16,000.00	$200.00
5	CONCRETE	$40,000.00	$36,000.00	$4,000.00	$0.00	$40,000.00	100%	$0.00	$2,000.00
6	MASONRY	$30,000.00	$24,000.00	$6,000.00	$0.00	$30,000.00	100%	$0.00	$1,500.00
7	DOORS, FRAMES & HDWE	$1,500.00	$0.00	$1,000.00	$0.00	$1,000.00	67%	$500.00	$50.00
8	SECTIONAL DOOR	$5,800.00	$0.00	$0.00	$0.00	$0.00	0%	$5,800.00	$0.00
9	PAINTING	$8,400.00	$0.00	$0.00	$0.00	$0.00	0%	$8,400.00	$0.00
10	FIRE SPRINKLERS	$23,000.00	$0.00	$4,500.00	$0.00	$4,500.00	20%	$18,500.00	$225.00
11	PLUMBING	$4,000.00	$0.00	$4,000.00	$0.00	$4,000.00	100%	$0.00	$200.00
12	HVAC	$29,000.00	$0.00	$28,000.00	$0.00	$28,000.00	97%	$1,000.00	$1,400.00
13	ELECTRICAL	$10,000.00	$0.00	$9,500.00	$0.00	$9,500.00	95%	$500.00	$475.00
14	FIRE ALARM	$4,000.00	$0.00	$0.00	$0.00	$0.00	0%	$4,000.00	$0.00
15	ACCESS CONTROL ALLOWANCE	$3,500.00	$0.00	$0.00	$0.00	$0.00	0%	$3,500.00	$0.00
16	ALTERNATE #2	$5,000.00	$0.00	$5,000.00	$0.00	$5,000.00	100%	$0.00	$250.00
17	PERMITS, BONDS AND INSURANCE	$12,000.00	$12,000.00	$0.00	$0.00	$12,000.00	100%	$0.00	$600.00
18	GENERAL CONDITIONS	$34,740.00	$18,850.00	$8,000.00	$0.00	$26,850.00	77%	$7,890.00	$1,342.50
	GRAND TOTAL	$303,440.00	$162,850.00	$74,000.00	$0.00	$236,850.00	78%	$66,590.00	$11,842.50

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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101210ACD44

CC Regular Session **4. 8.**

Meeting Date: 07/28/2015

By: Kathy Schmitz, Administrative Services

Information

Title

Adopt Resolution #15-07-181 Approving Partial Payment to Brennan Construction of MN, Inc. for IP #14-30 Fire Station #2

Purpose/Background:

Resolution and Pay Requests are Attached.

Recommendation:

BKV Group, Inc., the project manager hired by the City, has inspected the completed work and recommends partial payments to Brennan Construction of MN for IP #14-30, Fire Station #2, in the amounts of $84,423.65 and $106,875.00 for a total of $191,298.65.

Action:

Motion to Adopt Resolution #15-07-181 Approving Partial Payment to Brennan Construction of MN, Inc. for IP #14-30 Fire Station #2

Attachments

Res 15 07 181

Pay Request 002 Material

Pay Request 002 Labor

Form Review

Inbox	Reviewed By	Date
Patrick Brama	Patrick Brama	07/20/2015 02:45 PM
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:27 PM
Form Started By: Kathy Schmitz		Started On: 07/14/2015 11:59 AM
Final Approval Date: 07/22/2015		

Councilmember introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-181

RESOLUTION APPROVING PARTIAL PAYMENT TO BRENNEN CONSTRUCTION OF MN, INC. FOR IP #14-30 FIRE STATION #2

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted January 27, 2015, accepting plans and specifications and authorizing advertisement for bids for Fire Station #2; and

WHEREAS, the bid of Brennan Construction in the amount of $3,135,000.00 was the lowest responsible bidder; and

WHEREAS, pursuant to a motion of the Ramsey City Council on April 14, 2015 adopting Resolution #15-04-079, Brennan Construction of MN, Inc. was awarded a contract for said work; and

WHEREAS, as of July 27, $138,353.25 has been paid to date; and

WHEREAS, the BKV Group has inspected the completed work and recommends partial payments to Brennan Construction in the amounts of $84,423.65 and $106,875.00 for a total of $191,298.65.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA:

1) That the City Council hereby authorizes partial payments to Brennan Construction of MN, Inc. for Improvement Project #14-30; Fire Station #2 in amounts of $84,423.65 and $106,875.00 for a total of $191,298.65.

2) That the City Council hereby accepts the project and authorizes the City Administrator to sign the release form for these payments.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember , and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:	City of Ramsey 7550 Sunwood Drive NW Ramsey, MN 55303	**PROJECT:**	Ramsey Fire Station #2 5650 Alpine Drive NW Ramsey, MN 55303	**APPLICATION NO:** 002 Material - #2809 **PERIOD TO:** June 30, 2015 **CONTRACT FOR:** General Construction **CONTRACT DATE:** April 15, 2015 **PROJECT NOS:** / 15-12 /	**Distribution to:** OWNER: ARCHITECT: CONTRACTOR: FIELD: OTHER:
FROM CONTRACTOR:	Brennan Construction of MN Inc. 124 E. Walnut Street, Suite 20 Mankato, MN 56001	**VIA ARCHITECT:**	BKV Group, Inc. 222 North Second Street Minneapolis, MN 55401		

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM		$ 1,685,000.00
2. NET CHANGE BY CHANGE ORDERS		$ 0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$ 1,685,000.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)		$ 202,135.00
5. RETAINAGE:		
a. 5 % of Completed Work (Column D + E on G703)	$ 10,106.75	
b. 0 % of Stored Material (Column F on G703)	$ 0.00	
Total Retainage (Lines 5a + 5b or Total in Column I of G703)		$ 10,106.75
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)		$ 192,028.25
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$ 85,153.25
8. CURRENT PAYMENT DUE		$ 106,875.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	$ 1,492,971.75	

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$ 0.00	$ 0.00
Total approved this Month	$ 0.00	$ 0.00
TOTALS	$ 0.00	$ 0.00
NET CHANGES by Change Order	$	0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: Nathanae Brennan Date: July 01, 2015
State of: MN
County of: Blue Earth
Subscribed and sworn to before me this 1st day of July, 2015
Notary Public: Julia Hall
My Commission expires: January 31, 2020

JULIA MARIE HALL
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $ 106,875.00 OK

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:
By: Date: 7/8/2015

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CITY OF RAMSEY:

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AIA® Document G703™ – 1992

Continuation Sheet

AIA Document, G702™–1992, Application and Certification for Payment, or G736™–2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: 002 Material
APPLICATION DATE: 06/30/2015
PERIOD TO: 06/30/2015
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
	General Conditions	291,577.00	78,000.00	15,000.00	0.00	93,000.00	31.90 %	198,577.00	0.00
	Sod & Landscaping	24,738.00	0.00	0.00	0.00	0.00	0.00 %	24,738.00	0.00
	Irrigation	4,790.00	0.00	0.00	0.00	0.00	0.00 %	4,790.00	0.00
	Asphalt	15,527.00	0.00	0.00	0.00	0.00	0.00 %	15,527.00	0.00
	Earthwork	118,500.00	1,000.00	77,500.00	0.00	78,500.00	66.24 %	40,000.00	0.00
	Concrete	111,462.00	0.00	20,000.00	0.00	20,000.00	17.94 %	91,462.00	0.00
	Precast	3,503.00	0.00	0.00	0.00	0.00	0.00 %	3,503.00	0.00
	Masonry	204,480.00	0.00	0.00	0.00	0.00	0.00 %	204,480.00	0.00
	Structural Steel	137,184.00	0.00	0.00	0.00	0.00	0.00 %	137,184.00	0.00
	Fence	1,517.00	0.00	0.00	0.00	0.00	0.00 %	1,517.00	0.00
	Millwork & Trim	19,904.00	0.00	0.00	0.00	0.00	0.00 %	19,904.00	0.00
	Caulking	2,376.00	0.00	0.00	0.00	0.00	0.00 %	2,376.00	0.00
	Air Barrier	10,000.00	0.00	0.00	0.00	0.00	0.00 %	10,000.00	0.00
	Roofing	161,340.00	0.00	0.00	0.00	0.00	0.00 %	161,340.00	0.00
	Spray Foam	2,600.00	0.00	0.00	0.00	0.00	0.00 %	2,600.00	0.00
	Doors & Hardware	35,348.00	0.00	0.00	0.00	0.00	0.00 %	35,348.00	0.00
	Glass & Glazing	50,125.00	0.00	0.00	0.00	0.00	0.00 %	50,125.00	0.00
	Special Doors	42,559.00	0.00	0.00	0.00	0.00	0.00 %	42,559.00	0.00
	Dryall	14,380.00	0.00	0.00	0.00	0.00	0.00 %	14,380.00	0.00
	Tile	9,181.00	0.00	0.00	0.00	0.00	0.00 %	9,181.00	0.00
	Acoustic Ceiling	4,745.00	0.00	0.00	0.00	0.00	0.00 %	4,745.00	0.00
	Flooring	10,400.00	0.00	0.00	0.00	0.00	0.00 %	10,400.00	0.00

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User Notes: (1836069433)

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD					
	Painting & Wallcovering	10,800.00	0.00	0.00	0.00	0.00	0.00 %	10,800.00	0.00
	Resinous Flooring	14,000.00	0.00	0.00	0.00	0.00	0.00 %	14,000.00	0.00
	Signage	4,815.00	0.00	0.00	0.00	0.00	0.00 %	4,815.00	0.00
	Flag	4,441.00	0.00	0.00	0.00	0.00	0.00 %	4,441.00	0.00
	Lockers	4,075.00	0.00	0.00	0.00	0.00	0.00 %	4,075.00	0.00
	Toilet Accessories	1,405.00	0.00	0.00	0.00	0.00	0.00 %	1,405.00	0.00
	Appliances	1,500.00	0.00	0.00	0.00	0.00	0.00 %	1,500.00	0.00
	Entrance Flooring	2,534.00	0.00	0.00	0.00	0.00	0.00 %	2,534.00	0.00
	Window Treatments	3,090.00	0.00	0.00	0.00	0.00	0.00 %	3,090.00	0.00
	Plumbing	132,336.00	10,635.00	0.00	0.00	10,635.00	8.04 %	121,701.00	0.00
	Fire Protection	9,300.00	0.00	0.00	0.00	0.00	0.00 %	9,300.00	0.00
	HVAC	102,968.00	0.00	0.00	0.00	0.00	0.00 %	102,968.00	0.00
	Electrical	117,500.00	0.00	0.00	0.00	0.00	0.00 %	117,500.00	0.00
			0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
	GRAND TOTAL	$1,685,000.00	$89,635.00	$112,500.00	$0.00	$202,135.00	12.00 %	$1,482,865.00	$0.00

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User Notes: (1836069433)

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:	City of Ramsey 7550 Sunwood Drive NW Ramsey, MN 55303	**PROJECT:**	Ramsey Fire Station #2 5650 Alpine Drive NW Ramsey, MN 55303	**APPLICATION NO:** 002 Labor - #2808 **PERIOD TO:** June 30, 2015 **CONTRACT FOR:** General Construction **CONTRACT DATE:** April 15, 2015 **PROJECT NOS:** / 15-12 /	**Distribution to:** OWNER: ARCHITECT: CONTRACTOR: FIELD: OTHER:
FROM CONTRACTOR:	Brennan Construction of MN Inc. 124 E. Walnut Street, Suite 20 Mankato, MN 56001	**VIA ARCHITECT:**	BKV Group, Inc. 222 North Second Street Minneapolis, MN 55401		

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM		$ 1,450,000.00
2. NET CHANGE BY CHANGE ORDERS		$ 0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$ 1,450,000.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)		$ 144,867.00
5. RETAINAGE:		
a. 5 % of Completed Work (Column D + E on G703)	$ 7,243.35	
b. 0 % of Stored Material (Column F on G703)	$ 0.00	
Total Retainage (Lines 5a + 5b or Total in Column I of G703)		$ 7,243.35
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)		$ 137,623.65
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$ 53,200.00
8. CURRENT PAYMENT DUE		$ 84,423.65
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	$ 1,312,376.35	

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$ 0.00	$ 0.00
Total approved this Month	$ 0.00	$ 0.00
TOTALS	$ 0.00	$ 0.00
NET CHANGES by Change Order	$	0.00

CITY OF RAMSEY:

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: Catherine Brennan Date: July 01, 2015
State of: MN
County of: Blue Earth
Subscribed and sworn to before me this 15 day of July, 2015
Notary Public: Julia Hall
My Commission expires: January 31, 2020

JULIA MARIE HALL
Notary Public-Minnesota
My Commission Expires Jan 31, 2020

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $ 84,423.65 OK

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:
By: Date: 7/8/2015

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

Gordon T. Brown

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AIA® Document G703™ – 1992

Continuation Sheet

AIA Document, G702™–1992, Application and Certification for Payment, or G736™–2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: 002 Labor
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
	General Contractor Labor	112,228.00	6,000.00	10,000.00	0.00	16,000.00	14.26 %	96,228.00	0.00
	General Conditions	100,108.00	15,000.00	10,000.00	0.00	25,000.00	24.97 %	75,108.00	0.00
	Sod & Landscaping	35,762.00	0.00	0.00	0.00	0.00	0.00 %	35,762.00	0.00
	Irrigation	4,950.00	0.00	0.00	0.00	0.00	0.00 %	4,950.00	0.00
	Asphalt	11,368.00	0.00	0.00	0.00	0.00	0.00 %	11,368.00	0.00
	Earthwork	108,867.00	35,000.00	38,867.00	0.00	73,867.00	67.85 %	35,000.00	0.00
	Concrete	167,193.00	0.00	30,000.00	0.00	30,000.00	17.94 %	137,193.00	0.00
	Precast	13,090.00	0.00	0.00	0.00	0.00	0.00 %	13,090.00	0.00
	Masonry	221,610.00	0.00	0.00	0.00	0.00	0.00 %	221,610.00	0.00
	Steel Erection	113,300.00	0.00	0.00	0.00	0.00	0.00 %	113,300.00	0.00
	Fence	4,172.00	0.00	0.00	0.00	0.00	0.00 %	4,172.00	0.00
	Caulking	5,548.00	0.00	0.00	0.00	0.00	0.00 %	5,548.00	0.00
	Air Barrier	13,600.00	0.00	0.00	0.00	0.00	0.00 %	13,600.00	0.00
	Roofing	104,990.00	0.00	0.00	0.00	0.00	0.00 %	104,990.00	0.00
	Spray Foam	5,050.00	0.00	0.00	0.00	0.00	0.00 %	5,050.00	0.00
	Glass & Glazing	47,921.00	0.00	0.00	0.00	0.00	0.00 %	47,921.00	0.00
	Special Doors	6,870.00	0.00	0.00	0.00	0.00	0.00 %	6,870.00	0.00
	Dryall	26,620.00	0.00	0.00	0.00	0.00	0.00 %	26,620.00	0.00
	Tile	11,180.00	0.00	0.00	0.00	0.00	0.00 %	11,180.00	0.00
	Acoustic Ceiling	1,255.00	0.00	0.00	0.00	0.00	0.00 %	1,255.00	0.00
	Flooring	4,595.00	0.00	0.00	0.00	0.00	0.00 %	4,595.00	0.00

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User Notes: (1630500936)

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
	Painting & Wallcovering	21,100.00	0.00	0.00	0.00	0.00	0.00 %	21,100.00	0.00
	Resinous Flooring	14,000.00	0.00	0.00	0.00	0.00	0.00 %	14,000.00	0.00
	Signage	1,545.00	0.00	0.00	0.00	0.00	0.00 %	1,545.00	0.00
	FPS	295.00	0.00	0.00	0.00	0.00	0.00 %	295.00	0.00
	Window Treatments	1,060.00	0.00	0.00	0.00	0.00	0.00 %	1,060.00	0.00
	Plumbing	104,043.00	0.00	0.00	0.00	0.00	0.00 %	104,043.00	0.00
	Fire Protection	14,900.00	0.00	0.00	0.00	0.00	0.00 %	14,900.00	0.00
	HVAC	72,780.00	0.00	0.00	0.00	0.00	0.00 %	72,780.00	0.00
	Electrical	100,000.00	0.00	0.00	0.00	0.00	0.00 %	100,000.00	0.00
			0.00	0.00	0.00	0.00	0.00 %	0.00	0.00
	GRAND TOTAL	$1,450,000.00	$56,000.00	$88,867.00	$0.00	$144,867.00	9.99 %	$1,305,133.00	$0.00

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User Notes: (1630500936)

CC Regular Session **4. 9.**

Meeting Date: 07/28/2015

Submitted For: Bruce Westby, Engineering/Public Works

By: MaryJo Warner, Engineering/Public Works

Information

Title

Adopt Resolution #15-07-184 approving Partial Payment to North Valley Inc for IP #14-27; Mississippi River Trail.

Purpose/Background:

Resolution and Pay Request attached.

Recommendation:

The Engineering Technician IV has inspected the completed work and recommends partial payment to North Valley Inc for IP 14-27; Mississippi River Trail in the amount of $46,941.65.

Action:

Motion to adopt Resolution #15-07-184 authorizing approving partial payment to North Valley Inc for IP #14-27; Mississippi River Trail in the amount of $46,941.65.

Attachments

Resolution

Pay Request

Form Review

Inbox	Reviewed By	Date
Bruce Westby	Bruce Westby	07/22/2015 04:20 PM
Kurt Ulrich	Kurt Ulrich	07/23/2015 08:54 AM
Form Started By: MaryJo Warner		Started On: 07/20/2015 12:37 PM
Final Approval Date: 07/23/2015		

Councilmember introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-184

RESOLUTION AUTHORIZING PARTIAL PAYMENT TO NORTH VALLEY INC FOR IMPROVEMENT PROJECT NO. 14-27; MISSISSIPPI RIVER TRAIL – RIVERDALE DRIVE TO ARMSTRONG BOULEVARD

WHEREAS, on March 25th, 2014, the City Council approved proceeding with advance construction for portions of the Mississippi River Trail through the City of Ramsey; and

WHEREAS, on June 24th, 2014, the City Council approved continuing to proceed with advance construction of the portion of the Mississippi River Trail through the Riverdale Drive Extension/Reconstruction project.

WHEREAS, the bid of North Valley Inc. in the amount of $183,272.52 for the construction of said improvements in accordance with the approved plans and specifications and advertisement for bids, is the lowest responsible bidder and their bid shall be and hereby is accepted.

WHEREAS, as of July 28, 2015 $59,090.02 has been paid to date; and

WHEREAS, the Engineering Technician IV has inspected the completed work and recommends partial payment to North Valley, Inc. in the amount of $46,941.65

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA:

1) That the City Council hereby authorizes partial payment to North Valley, Inc. for Improvement Project 14-27; Mississippi River Trail Phase 2 in the amount of $46,941.65.

2) That the City Council hereby accepts the project and authorizes the Mayor or City Administrator to sign the release form for this payment.

3) That the total amount of this payment is not included in resolutions approving payment of bills for the date of July 28, 2015.

4) That the City of Ramsey Finance Department will be provided a signed copy of this resolution.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

Whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the 28th day of July 2015.

_____

Mayor

ATTEST:

_____

City Clerk

CONTRACTOR'S PAY REQUEST

MISSISSIPPI RIVER TRAIL
CITY OF RAMSEY, MN
SP 199-090-001

DISTRIBUTION:
CONTRACTOR (1)
OWNER (1)
ENGINEER (1)
BONDING CO. (1)

TOTAL AMOUNT BID PLUS APPROVED CHANGE ORDERS		$183,272.52
TOTAL, COMPLETED WORK TO DATE		$111,613.23
TOTAL, STORED MATERIALS TO DATE		$0.00
DEDUCTION FOR STORED MATERIALS USED IN WORK COMPLETED		$0.00
TOTAL, COMPLETED WORK & STORED MATERIALS		$111,613.23
RETAINED PERCENTAGE (5%)		$5,580.66
TOTAL AMOUNT OF OTHER PAYMENTS OR (DEDUCTIONS)		$0.00
NET AMOUNT DUE TO CONTRACTOR TO DATE		$106,032.57
TOTAL AMOUNT PAID ON PREVIOUS ESTIMATES		$59,090.92
PAY CONTRACTOR AS ESTIMATE NO.	3	$46,941.65

Certificate for Partial Payment

I hereby certify that, to the best of my knowledge and belief, all items quantities and prices of work and material shown on this Estimate are correct and that all work has been performed in full accordance with the terms and conditions of the Contract for this project between the Owner and the undersigned Contractor, and as amended by any authorized changes, and that the foregoing is a true and correct statement of the contract amount for the period covered by this Estimate.

Contractor: North Valley, Inc.
20015 Iguana St NW #100
Nowthen, MN 55330

By _____ President
Name Title

Date 7/7/2015

CHECKED AND APPROVED AS TO QUANTITIES AND AMOUNT:
ENGINEER: BOLTON & MENK, INC., 7533 SUNWOOD DRIVE, SUITE 206, RAMSEY, MN 55303

By _____, SENIOR PROJECT MANAGER
Kevin Kielb, P.E.

Date July 7, 2015

APPROVED FOR PAYMENT:
OWNER: CITY OF RAMSEY, MN

By _____ CIVIL ENGINEER II 7-9-15
Name Title Date

And _____ City Engineer 7/8/15
Name Title Date

CC Regular Session **4. 10.**

Meeting Date: 07/28/2015

Submitted For: Bruce Westby, Engineering/Public Works

By: MaryJo Warner, Engineering/Public Works

Information

Title

Adopt Resolution #15-07-185 Authorizing Partial Payment to Douglas-Kerr Underground LLC for IP 14-24; Center Street Improvements.

Purpose/Background:

Resolution and Pay Request attached.

Recommendation:

The Engineering Technician IV has inspected the completed work and recommends partial payment to Douglas-Kerr Underground LLC for IP 14-24; Center Street Improvements in the amount of $12,112.03.

Action:

Motion to adopt Resolution #15-07-185 authorizing partial payment to Douglas-Kerr Underground LLC for IP 14-24; Center Street Improvements in the amount of $12,112.03.

Attachments

Resolution

Pay Request

Form Review

Inbox	Reviewed By	Date
Bruce Westby	Bruce Westby	07/22/2015 04:21 PM
Kurt Ulrich	Kurt Ulrich	07/23/2015 08:53 AM
Form Started By: MaryJo Warner		Started On: 07/20/2015 09:50 AM
Final Approval Date: 07/23/2015		

Councilmember introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-185

RESOLUTION AUTHORIZING PARTIAL PAYMENT TO DOUGLAS-KERR UNDERGROUND LLC FOR IMPROVEMENT PROJECT NO. 14-24; CENTER STREET IMPROVEMENTS – SUNWOOD DRIVE TO RAMSEY PARKWAY

WHEREAS, pursuant to the executed Transit Oriented Development (TOD) grant agreement between the Metropolitan Council and the City of Ramsey for the construction of Center Street between Sunwood Drive and Ramsey Parkway in an amount not to exceed $650,369; and

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted August 11, 2014, accepting plans and specifications and authorizing advertisements for bids for making the Center Street improvements including concrete and bituminous curb and gutter, bituminous paving, concrete sidewalk, storm sewer, utility extensions, and other necessary appurtenant work; and

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted September 9, 2014 the bid of Douglas-Kerr Underground LLC in the amount of $483,331.31 for the total bid is the lowest responsible bidder; and

WHEREAS, as of July 28, 2015 $426,056.87 has been paid to date; and

WHEREAS, the Engineering Technician IV has inspected the completed work and recommends partial payment to Douglas-Kerr Underground, LLC in the amount of $12,112.03.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA:

1) That the City Council hereby authorizes partial payment to Douglas-Kerr Underground, LLC for Improvement Project 14-24; Center Street Improvements in the amount of $12,112.03.

2) That the City Council hereby accepts the project and authorizes the Mayor or City Administrator to sign the release form for this payment.

3) That the total amount of this payment is not included in resolutions approving payment of bills for the date of July 28, 2015.

4) That the City of Ramsey Finance Department will be provided a signed copy of this resolution.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

Whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

Pay Estimate Summary Sheet
IP 14-24 Center Street

City of Ramsey

Estimate no 3

TOTAL CONTRACT	$	483,331.31
ADDITIONAL WORK	$	-
TOTAL WITH ADDITIONAL WORK	$	483,331.31
STORED MATERIALS		
TOTAL, COMPLETED WORK TO DATE	$	461,230.42
TOTAL WORK COMPLETED PLUS STORED MATERIALS	$	461,230.42
RETAINED PERCENTAGE 5%	$	23,061.52
NET AMOUNT DUE TO CONTRACTOR TO DATE	$	438,168.90
TOTAL AMOUNT PAID ON PREVIOUS ESTIMATES	$	426,056.87
PAY CONTRACTOR PER ESTIMATE NO. 3	$	12,112.03

Certificate for Partial Payment

I hereby certify that, to the best of my knowledge and belief, all items, quantities and prices of work and material shown on the this Estimate are correct and that all work has been performed in full accordance with the terms and conditions of the Contract for this project between owner and the undersigned Contractor, and as amended by any authorized changes and the foregoing is a true and correct statement of the contract amount for the period covered by this estimate.

Contractor: Douglas-Kerr Underground, LLC

By _____ Manager
Name Title

Date 7-9-15

CHECKED AND APPROVED AS TO QUANTITIES AND AMOUNT:
ENGINEER: CITY OF RAMSEY

By _____ Civil Engineer II
Leonard Linton, PE

Date 7-9-15

APPROVED FOR PAYMENT:
OWNER: City of Ramsey

By Bruce Westby City Engineer 7/9/15
Name Title Date

CC Regular Session **4. 11.**

Meeting Date: 07/28/2015

Submitted For: Bruce Westby, Engineering/Public Works

By: MaryJo Warner, Engineering/Public Works

Information

Title

Adopt Resolution #15-07-186 approving partial payment to Kuechle Underground Inc. for IP#12-22 Riverdale Dr. Reconstruction and Extension

Purpose/Background:

Resolution and Pay Request attached.

Recommendation:

The Engineer Technician IV has inspected the completed work and recommends partial payment to Kuechle Underground Inc. for IP #12-22 Riverdale Drive Reconstruction and Extension in the amount of $329,064.99.

Action:

Motion to adopt Resolution #15-07-186 authorizing partial payment to Kuechle Underground Inc. for IP #12-22 Riverdale Drive Reconstruction and Extension in the amount of $329,064.99.

Attachments

Resolution

Pay Request

Form Review

Inbox	Reviewed By	Date
Bruce Westby	Bruce Westby	07/22/2015 04:21 PM
Kurt Ulrich	Kurt Ulrich	07/23/2015 08:52 AM
Form Started By: MaryJo Warner		Started On: 07/20/2015 08:45 AM
Final Approval Date: 07/23/2015		

Councilmember ____ introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-186

APPROVING PARTIAL PAYMENT TO KUECHLE UNDERGROUND INC. FOR RIVERDALE DRIVE RECONSTRUCTION AND EXTENSION – ARMSTRONG BOULEVARD TO TRAPROCK STREET IMPROVEMENT PROJECT #12-22

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted May 14, 2013, approving Memorandum of Understanding and Easements for the Riverdale Drive Extension to Traprock Street; and

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted May 13, 2014, accepting plans and specifications and authorizing advertisements for bids for making the Riverdale Drive improvements including concrete curb and gutter, bituminous paving, storm sewer, utilities, and other necessary appurtenant work; and

WHEREAS, pursuant to a motion of the Ramsey City Council, adopted July 22, 2014 the bid of Kuechle Underground Inc. in the amount of $2,649,722.45 for the total bid is the lowest responsible bidder; and

WHEREAS, as of July 28, 2015 $2,273,630.16 has been paid to date; and

WHEREAS, the Engineering Technician IV has inspected the completed work and recommends partial payment to Kuechle Underground, Inc. in the amount of $329,064.99.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA:

1) That the City Council hereby authorizes partial payment to Kuechle Underground, Inc. for Improvement Project 12-22; Riverdale Drive Improvements in the amount of $329,064.99.

2) That the City Council hereby accepts the project and authorizes the Mayor or City Administrator to sign the release form for this payment.

3) That the total amount of this payment is not included in resolutions approving payment of bills for the date of July 28, 2015.

4) That the City of Ramsey Finance Department will be provided a signed copy of this resolution.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember _____ and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

Whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

Pay Estimate Summary Sheet
IP 12-22 Riverdale Drive Improvements
S.P. 0202-97, S.A.P. 199-109-005,199-115-001,199-116-003
City of Ramsey

Estimate no **6**

TOTAL CONTRACT	$	2,649,722.45
ADDITIONAL WORK	$	448,651.99
TOTAL WITH ADDITIONAL WORK	$	3,098,374.44
STORED MATERIALS		
TOTAL, COMPLETED WORK TO DATE	$	2,739,679.11
TOTAL WORK COMPLETED PLUS STORED MATERIALS	$	2,739,679.11
RETAINED PERCENTAGE 5%	$	136,983.96
NET AMOUNT DUE TO CONTRACTOR TO DATE	$	2,602,695.15
TOTAL AMOUNT PAID ON PREVIOUS ESTIMATES	$	2,273,630.16
PAY CONTRACTOR PER ESTIMATE NO. 6	$	329,064.99

Certificate for Partial Payment

I hereby certify that, to the best of my knowledge and belief, all items, quantities and prices of work and material shown on the this Estimate are correct and that all work has been performed in full accordance with the terms and conditions of the Contract for this project between owner and the undersigned Contractor, and as amended by any authorized changes and the foregoing is a true and correct statement of the contract amount for the period covered by this estimate.

Contractor: Kuechle Underground, Inc

By _____ V.P.
Name Title

Date 7/9/15

CHECKED AND APPROVED AS TO QUANTITIES AND AMOUNT:
ENGINEER: CITY OF RAMSEY

By _____ Civil Engineer II
Leonard Linton, PE

Date 7-9-15

APPROVED FOR PAYMENT:
OWNER: City of Ramsey

By _____ City Engineer 7/9/15
Name Title Date

CC Regular Session **4. 12.**

Meeting Date: 07/28/2015

By: Tim Gladhill, Community Development

Information

Title

Adopt Resolution #15-07-189 Approving Name Change of Country Club Hills to Woodlands and Re-Affirming Final Plat Approval; Case of US Home Corporation, doing business as Lennar Homes

Purpose/Background:

The purpose of this case is to adopt a resolution formally accepting the name change of Country Club Hills to Woodlands. This resolution is necessary in order to allow the Plat to be recorded.

Notification:

Notification is not required.

Observations/Alternatives:

On September 9, 2014, the City Council approved a plat to be known as Country Club Hills to Greatland Homes. In early 2015, Greatland Homes sold the project to Lennar Homes. At that time, Lennar Homes chose to change the name of the project to Woodlands. In order for the Plat to be properly recorded, the City must pass a resolution approving the name change of the Plat. Said resolution is offered to the City Council for consideration.

Funding Source:

All costs associated with processing the request are the responsibility of the Applicant.

Recommendation:

Staff recommends that the City Council adopt Resolution #15-07-189.

Action:

Motion to adopt Resolution #15-07-189 approving name change of Country Club Hills to Woodlands and re-affirming Final Plat Approval.

Attachments

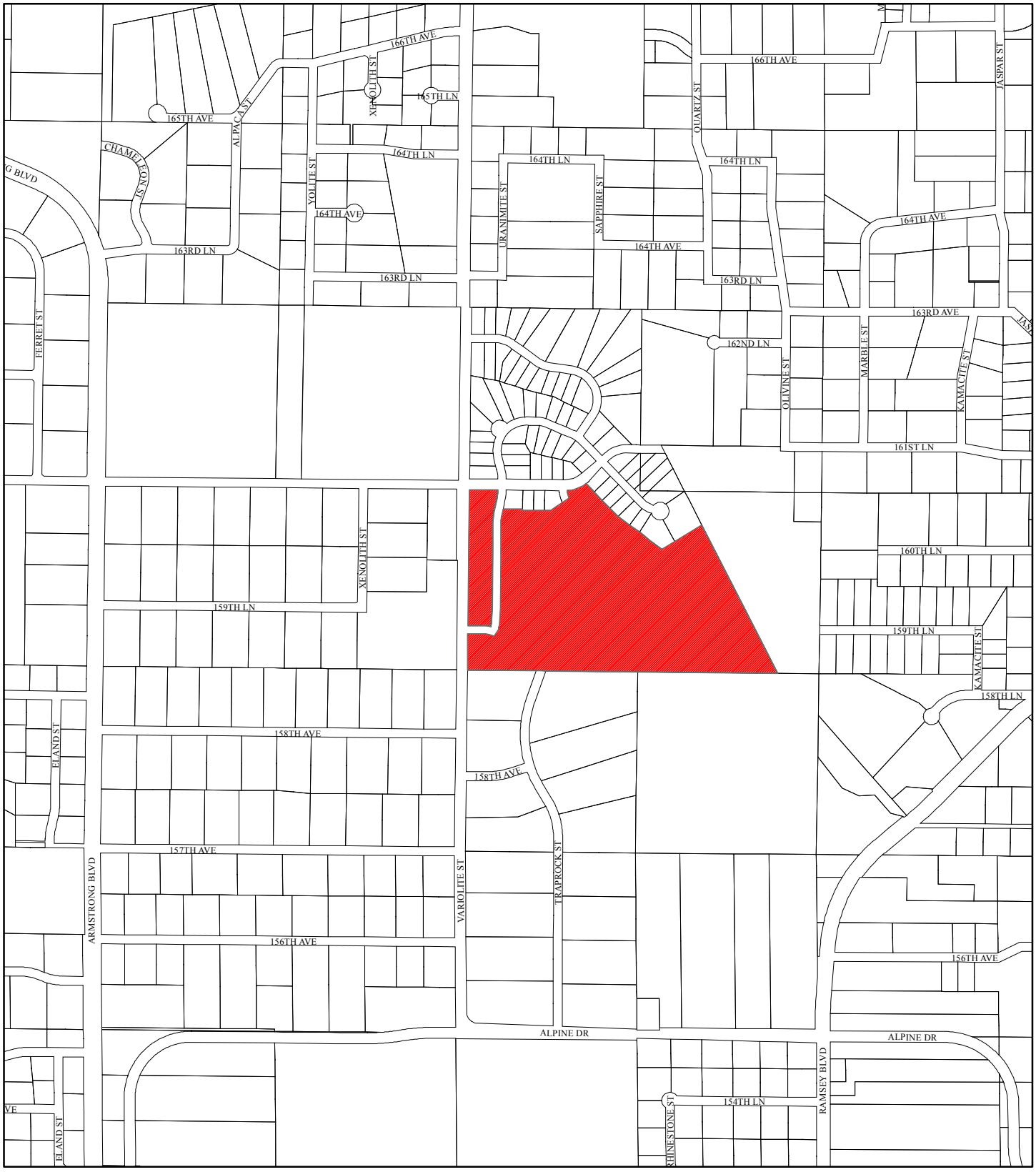
Site Location Map

Final Plat

Resolution #15-07-189

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:30 PM
Form Started By: Tim Gladhill		Started On: 07/17/2015 03:41 PM
Final Approval Date: 07/22/2015		


166TH AVE
165TH AVE
165TH LN
164TH LN
164TH AVE
163RD LN
163RD AVE
162ND LN
161ST LN
160TH LN
159TH LN
158TH LN
158TH AVE
157TH AVE
156TH AVE
ALPINE DR
154TH LN
ALPACA ST
CHAMELEON ST
YOLLITE ST
XENOLITH ST
URANMITE ST
SAPPHIRE ST
QUARTZ ST
JASPAR ST
FERRET ST
OLIVINE ST
MARBLE ST
KAMACITE ST
ELAND ST
ARMSTRONG BLVD
VARIOLITE ST
TRAPROCK ST
RHINESTONE ST
RAMSEY BLVD
City of RAMSEY
COUNTRY CLUB HILLS
N
Legend
Site
Parcels
0
1,250
2,500 Feet

WOODLANDS

CITY OF RAMSEY
COUNTY OF ANOKA
SEC. 16, T. 32, R. 25

KNOW ALL PERSONS BY THESE PRESENTS: That US Home Corporation, a Delaware corporation, owner of the following described property:

Outlot A and Outlot E, SWEETBAY RIDGE, according to the recorded thereof, Anoka County, Minnesota.

Has caused the same to be surveyed and platted as WOODLANDS and does hereby dedicate to the public for public use the public ways and the drainage and utility easements as shown on this plat.

In witness whereof said US Home Corporation, a Delaware corporation, has caused these presents to be signed by its proper officer this _____ day of _____, 20____.

US Home Corporation

By _____
Jonathan A. Aune, Vice President

State of Minnesota
County of _____

This instrument was acknowledged before me on _____ by Jonathan A. Aune, as Vice President of US Home Corporation, a Delaware corporation, on behalf of the corporation.

_____

_____
Notary Public, _____ County, Minnesota
My commission expires _____

I Kyle J. Roddy do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be correctly set within one year; that all water boundaries and wet lands, as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 20_____.

_____
Kyle J. Roddy, Licensed Land Surveyor
Minnesota License Number 42627

State of Minnesota
County of _____

This instrument was acknowledged before me on _____ by Kyle J. Roddy.

_____

_____
Notary Public, _____ County, Minnesota
My commission expires _____

CITY COUNCIL, CITY OF RAMSEY, MINNESOTA

This plat of WOODLANDS was approved and accepted by the City Council of the City of Ramsey, Minnesota at a regular meeting thereof held this _____ day of _____, 20____, and said plat is in compliance with the provisions of Minnesota Statutes, Section 505.03, Subd. 2.

CITY COUNCIL, CITY OF RAMSEY, MINNESOTA

By: _____, Mayor By: _____, City Clerk

ANOKA COUNTY SURVEYOR

I hereby certify that in accordance with Minnesota Statutes, Section 505.021, Subd. 11, this plat has been reviewed and approved this _____ day of _____, 20____.

_____
Larry D. Hoium, Anoka County Surveyor

COUNTY AUDITOR/TREASURER

Pursuant to Minnesota Statutes, Section 505.021, Subd. 9, taxes payable in the year 20____ on the land hereinbefore described have been paid. Also, pursuant to Minnesota Statutes, Section 272.12, there are no delinquent taxes and transfer entered this _____ day of _____, 20____.

_____
Property Tax Administrator

By_____, Deputy

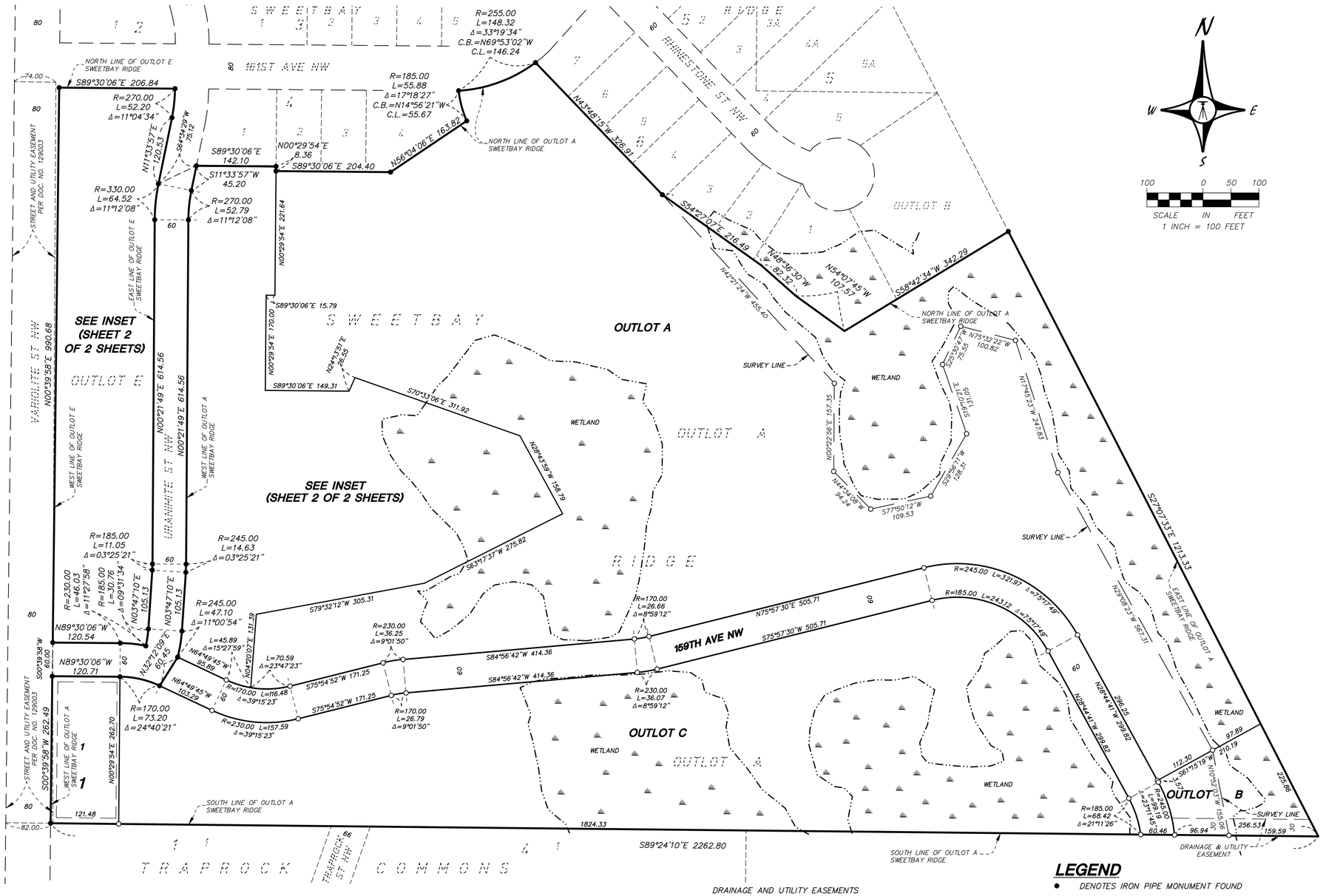
COUNTY RECORDER/REGISTRAR OF TITLES

County of Anoka, State of Minnesota

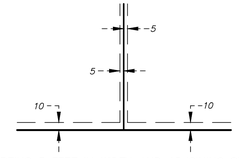
I hereby certify that this plat of WOODLANDS was filed in the office of the County Recorder/Registrar of Titles for public record on this _____ day of _____, 20____, at ____o'clock ___M. and was duly recorded in Book _____ Page _____, as Document Number _____.

_____
County Recorder/Registrar of Titles

By_____, Deputy



DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THUS:



BEING 5 FEET IN WIDTH AND ADJOINING SIDE LOT LINES, AND 10 FEET IN WIDTH, AND ADJOINING STREET AND REAR LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.

LEGEND

- ● DENOTES IRON PIPE MONUMENT FOUND
- ○ DENOTES SET 1/2" IRON PIPE WITH CAP MARKED R.L.S. 42627

BEARING NOTE

FOR THE PURPOSES OF THIS PLAT, THE SOUTH LINE OF OUTLOT A, SWEETBAY RIDGE, IS ASSUMED TO HAVE A BEARING OF SOUTH 89 DEGREES 24 MINUTES 10 SECONDS EAST.

WETLAND NOTE

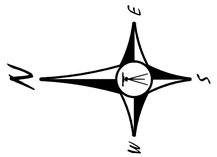
THE WETLANDS SHOWN HEREON WERE DELINEATED BY KJOLHAUG ENVIRONMENTAL, JULY 2014.

APA CONSULTING ENGINEERS & SURVEYORS

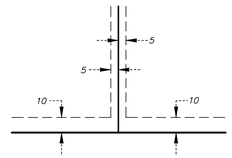
WOODLANDS

INSET

CITY OF RAMSEY
COUNTY OF ANOKA
SEC. 16, T. 32, R. 25



DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THUS:



BEING 5 FEET IN WIDTH AND ADJOINING SIDE LOT LINES, AND 10 FEET IN WIDTH, AND ADJOINING STREET AND REAL LOT LINES, UNLESS OTHERWISE SHOWN ON THE PLAT.

LEGEND

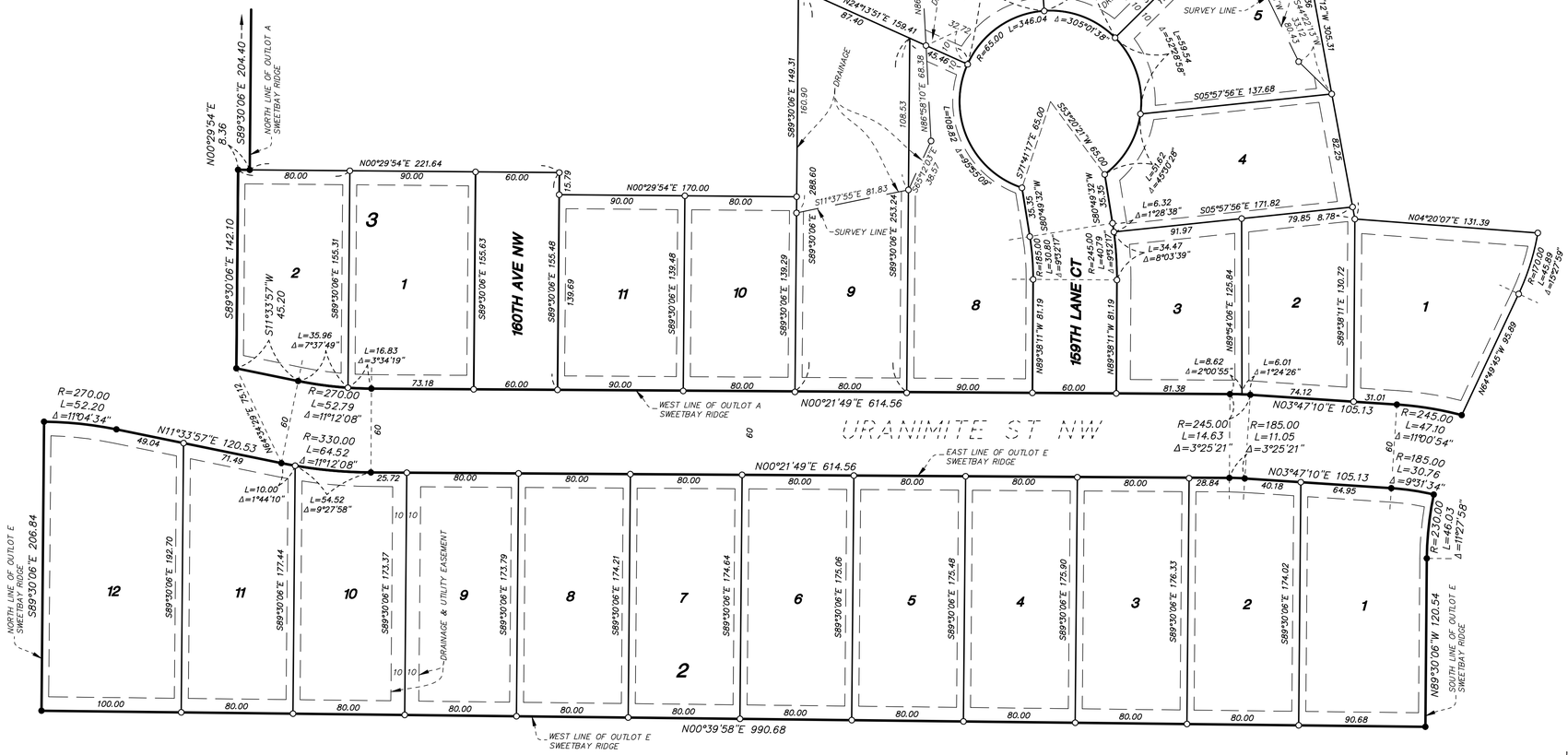
- ● DENOTES IRON PIPE MONUMENT FOUND
- ○ DENOTES SET 1/2" IRON PIPE WITH CAP MARKED R.L.S. 42627

BEARING NOTE

FOR THE PURPOSES OF THIS PLAT, THE SOUTH LINE OF OUTLOT A, SWEETBAY RIDGE, IS ASSUMED TO HAVE A BEARING OF SOUTH 89 DEGREES 24 MINUTES 10 SECONDS EAST.

WETLAND NOTE

THE WETLANDS SHOWN HEREON WERE DELINEATED BY KJOLHAUG ENVIRONMENTAL, JULY 2014.



APA CONSULTING ENGINEERS & SURVEYORS

Councilmember introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-189

RESOLUTION GRANTING APPROVING NAME CHANGE OF FINAL PLAT OF COUNTRY CLUB HILLS TO WOODLANDS AND RE-AFFIRMING APPROVAL OF FINAL PLAT OF WOODLANDS

WHEREAS, U.S. Home Corporation, dba Lennar Homes, hereafter referred to as "Developer", properly applied for final plat approval of the following described property located in the City of Ramsey:

Outlots A & E, SWEETBAY RIDGE

(Subject Property)

WHEREAS, on July 29, 2005, the City Council approved the Preliminary Plat for SWEETBAY RIDGE.

WHEREAS, on April 30, 2014, the City of Ramsey received an application from Greatland Homes, LLC, Inc., for COUNTRY CLUB HILLS; and

WHEREAS, on June 5, 2014, the Planning Commission conducted a Public Hearing on the Preliminary Plat for COUNTRY CLUB HILLS; and

WHEREAS, under 4410.4300(19)(c)of the State of Minnesota Rules, an Environmental Assessment Worksheet (EAW) was prepared for Sweetbay Ridge in 2005; and

WHEREAS, the City finds that there have been no significant changes to the proposed plat, and therefore an amended EAW is not required; and

WHEREAS, on June 24, 2014, the City Council approved the Preliminary Plat; and

WHEREAS, on September 9, 2014, the approved the Final Plat; and

WHEREAS, the Developer has requested to change the name of the plat to WOODLANDS.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY , STATE OF MINNESOTA, as follows:

That the Ramsey City Council hereby approves the name change of Country Club Hills to Woodlands and re-affirms final plat approval of WOODLANDS.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember, and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

Our Mission: To work together to resposibly grow our community, and to provide quality, cost-effective, and efficient government services.

CC Regular Session **7. 1.**

Meeting Date: 07/28/2015

Submitted For: Kurt Ulrich, Administrative Services

By: Jo Thieling, Administrative Services

Information

Title:

Approve Contract with The Tinklenberg Group for Work regarding Improvements to US Trunk Highway 10 and Related Rail Crossings

Purpose/Background:

Purpose: To approve continuation of a contract with Mr. El Tinklenberg of The Tinklenberg Group for work regarding improvements to US Trunk Highway 10 and related rail crossings.

Background: During strategic planning discussions held with the City Council, legislative consulting services was identified as an ongoing resource needed to maintain the Highway 10 effort over the next several years. At the Council Work Session held earlier this evening, Council and staff discussed a detailed work plan presented by Mr. Tinklenberg relating to US Highway 10 and rail crossings. The City of Ramsey has worked with The Tinklenberg Group for most of the past decade. Mr. Tinklenberg brings a strong level of experience and involvement in transportation issues which allows the City to maintain a leadership role in this area, and to successfully promote Ramsey projects. More detail related to past efforts of working with Mr. Tinklenberg was presented in the work session report this evening. This report is attached.

Attached is the work plan and contract language for Council review and consideration. The contract language proposes a work plan to be completed over the course of the contract at a fee of $27,000, which would carry this plan out through December 2015.

Funding Source:

Funds would come from the City's Public Improvement Revolving (PIR) Fund. The undesignated reserve balance of the PIR Fund is approximately $1.5 million.

Recommendation:

Staff recommends Council approve entering into an extension of a contract with The Tinklenberg Group to continue the work plan regarding improvements to US Highway 10 and the related rail crossings.

Action:

Motion to approve a contract (Amendment 1 dated July 2015) with The Tinklenberg Group for Work regarding improvements to US Trunk Highway 10 and related rail crossings.

Attachments

CCWS Report re Tinklenberg

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	07/23/2015 09:36 AM
Form Started By: Jo Thieling		Started On: 07/23/2015 08:56 AM
Final Approval Date: 07/23/2015		

CC Work Session 0.

Meeting Date: 07/28/2015

Information

Title:

Discuss Legislative Strategy Plan and Contract with The Tinklenberg Group for Work regarding Improvements to US Trunk Highway 10 and Related Rail Crossings.

Purpose/Background:

Purpose: The purpose of this item is to discuss a draft legislative work plan in regard to the improvements to US Highway 10 and the related rail crossings, presented by Elwyn Tinklenberg of The Tinklenberg Group, and to discuss the continuation of a contract with Mr. Tinklenberg.

Background:
The City has worked with the Tinklenberg Group for most of the past decade, with contracts over the past three years averaging about $47,000 per year (including the proposed contract for the balance of 2015, not yet approved). This item, legislative consulting services, was identified as an ongoing resource needed to maintain the Highway 10 effort over the next several years.

Mr. Tinklenberg brings a strong level of experience and involvement in transportation issues, and allows the City to maintain a leadership role in this area, and to successfully promote Ramsey projects. The City's past efforts in working with Mr. Tinklenberg have yielded a successful conclusion to the $35M Armstrong Project, which has been awarded several grant awards, including a $10M federal (TIGER) grant, a $10M state (CIMS) grant, a $8M bonding allocation from the state, and a $10.2M award from the Counties Transit Investment Board (CTIB), which fully funded the project. Previously, the North Star Rail Station in Ramsey was also a successful effort.

Currently, El Tinklenberg submitted a work plan to extend his contract in regard to Highway 10 and the related rail improvements. Mr. Tinklenberg points out that the City of Ramsey's leadership on issues related to the safety and congestion of US Highway 10 has produced both significant improvements and important opportunities in the corridor. He notes that besides the very visible construction of the Armstrong Interchange, there are

other improvement as well. These include the high degree of cooperation and collaboration that characterizes the work with the County and other cities in the corridor, the heightened awareness of corridor issues among key legislative and congressional leaders, the growing public and business community support for the City of Ramsey's Highway 10 efforts, and increasing interest in economic development opportunities in the City along US 10.

Mr. Tinklenberg states that his proposed work plan (attached to this case) seeks to capitalize on recent improvements and successes by implementing a series of strategies focused on the goal of securing funding for additional construction projects in the Highway 10 corridor benefiting the City of Ramsey. Specific outcomes and deliverables have been added to the proposal at the request of the City to enhance the accountability of the contract. He also has been asked to review 2015 activity to date with the Council at the work session.

The contract language proposes a work plan to be completed over the course of the contract at a fee of $27,000, which would carry this plan out through December 2015.

Timeframe:
Approximately 15 minutes.

Funding Source:
Funds would come from the City's Public Improvement Revolving Fund. The undesignated reserve balance of the PIR Fund is approximately $1.5 million.

Responsible Party(ies):
City Administrator Kurt Ulrich

Outcome:
A consensus to agree on the details of the work plan for US Highway 10 and to recommend the City Council approve entering into a contract with The Tinklenberg Group in the amount of $27,000, which will be in effect immediately upon approval through December 2015.

Attachments
No file(s) attached.

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	07/22/2015 03:41 PM
Jo Thieling (Originator)		
Form Started By: Jo Thieling		Started On: 07/22/2015 10:07 AM

City of Ramsey
BNSF Railroad Interchange Initiative
2015 Consulting Services Agreement

Amendment 1
July, 2015

Overview

The Tinklenberg Group respectfully submits the attached work plan as Amendment 1 to its Consulting Services Agreement with the City of Ramsey. This work plan is proposed in response to the City's continuing interest in pursuing funding for the construction of underpasses on Ramsey Boulevard and Sunfish Lake Boulevard at their intersection with the BNSF rail corridor. The heightened interest and awareness the City has created among key decision makers through its earlier efforts provides this work plan a remarkable basis for achieving the outcomes identified and advancing the improvements the City is seeking.

Timing and Cost

The activities identified in the attached work plan will begin immediately upon the City's adoption of this amendment and continue through the end of December, 2015. It can be amended at any time by mutual consent of the parties and terminated without cause by either party with 30 days advance notice.

The cost of the Consulting Services associated with attached work plan will be $27,000 payable in five equal monthly installments of $5,400 beginning immediately following the City's adoption of the amendment.

Agreed and Approved

---	---
Kurtis G. Ulrich	Elwyn Tinklenberg
City Administrator, City of Ramsey	President, The Tinklenberg Group
---	---
Date	Date

Ramsey US Trunk Highway 10

Improvement Development Plan

July, 2015

The City of Ramsey's leadership on issues related to the safety and congestion of US TH 10 has produced both significant improvements and important opportunities in the corridor. The improvements are best exemplified in the on-going construction of the Armstrong Interchange project, but other, less visible improvements have occurred as well. These include the high degree of cooperation and collaboration that characterizes the work with the county and other cities in the corridor, the heightened awareness of corridor issues among key legislative and congressional leaders, the growing public and business community support for the City's US TH 10 efforts, and increasing interest in economic development opportunities in the City along US TH 10. All of these improvements contribute in significant ways to the momentum that has built around the City's US TH 10 initiatives and the realistic opportunities that now exist for those initiatives to succeed in attracting additional public investment in planned corridor improvements.

This proposed work plan seeks to capitalize on those improvements and opportunities by implementing a series of strategies focused on the goal of securing funding for additional construction projects in the US TH 10 corridor benefiting the City of Ramsey. These strategies will be targeted in three areas of opportunity: federal support, state legislative support, and Minnesota Department of Transportation (MnDOT) support. It is critical to engage these efforts now in order to take full advantage of the important inroads the City has through its earlier legislative initiatives, its very successful federal contacts, and the effective way in which the City has broadly communicated its US TH 10 rail crossing and safety concerns. At both the federal and state levels, long term transportation funding decisions are currently being considered and the strategies proposed in this work plan will help insure that the city continues to be in the best possible position to benefit.

1. **Federal**
   A. <u>Federal support strategies</u> will include:
      - Follow-up work with congressional members and staff contacted during the City's June meetings in DC

- On-going efforts to identify and secure potential federal funding sources for US TH 10 improvements
- Track and capitalize on funding opportunities that may emerge in the process of reauthorizing federal transportation legislation
- Schedule and organize a tour of US TH 10 improvements and opportunities for Minnesota's member of the US House Transportation and Infrastructure Committee

B. Federal support outcomes
- Improved connections with congressional members and staff
- Identification of optional federal funding sources
- Transportation funding targeted local projects

C. Federal support strategies deliverables
- Monthly written progress/activity report to City Council
- Site visit and meeting with US Representative

2. **State legislative**

A. State legislative support strategies will include:
- Scheduling and organizing tours of Ramsey US TH 10 needs and projects with members of the legislative bonding/capital investment committees
- Developing and implementing targeted contact plans for key legislative leaders
- Developing and nurturing positive and on-going media contacts regarding US TH 10 needs and issues
- Supporting continued development and growth of business community awareness of and engagement in US TH 10 issues and projects
- Organizing and facilitating a US TH 10 summit meeting of interested communities along the entire corridor to increase visibility and awareness of corridor needs/issues and to support broader, coordinated efforts to fund necessary improvements
- Developing and organizing essential groundwork for US TH 10 funding proposals to be introduced during the 2016 session of the state legislature

B. State legislative support outcomes
- Improved connections with critical state legislators
- Improved connections with other corridor communities
- Increased public awareness vis increased media placements
- Increased participation of local business community in US TH 10 advocacy
- Funding consideration by legislature in 2016

C. State legislative support deliverables
- Monthly written progress/activity report to City Council
- Inclusion of Ramsey on State Bonding tour

- Draft 2016 legislation to provide funding
- US TH 10 "summit" meeting of corridor communities

3. <u>MnDOT</u>

A. <u>MnDOT support strategies</u> will include:
- Support and monitor development of funding categories appropriate to issues on US TH 10
- Continue to identify and capitalize on opportunities to keep the MnDOT Commissioner and key MnDOT staff informed about and supportive of improvement needs in the US TH 10 corridor
- Work with the Metro Division of MnDOT to advance the schedule of identified improvements on US TH 10
- Continue to develop and maintain awareness and support by the Governor and key staff in the Governor's office regarding US TH 10 issues and opportunities
- Utilize the US TH 10 summit meeting referenced above to engage broader support within MnDOT for corridor improvements

B. <u>MnDOT support outcomes</u>
- Improved connections with MnDOT via the Commissioner's office and District offices
- Improved awareness and identification of corridor improvements on MnDOT's scheduled plans

C. <u>MnDOT support deliverables</u>
- Monthly written progress/activity report to City Council
- US TH 10 projects included on MnDOT's construction schedule

Activities implementing these strategies are proposed to begin immediately upon approval by the City Council and will continue through the end of December, 2015

Our Mission: To work together to resposibly grow our community, and to provide quality, cost-effective, and efficient government services.

CC Regular Session **7. 2.**

Meeting Date: 07/28/2015

By: Geoff Solomonson, Community Development

Information

Title:

Adopt Resolutions #15-07-167 & #15-07-168 Approving a Conditional Use Permit for Auto Sales in a B-2 Highway Business District on the Property Located at 6650 Highway 10 NW; Case of Dumark's Auto Sales, LLC

Purpose/Background:

The City has received an application from Dumark's Auto Sales, LLC (the "Applicant") requesting a conditional use permit (CUP) to allow auto sales on the property at 6650 Highway 10 NW (the "Subject Property"). The Applicant currently conducts auto sales at 7127 Highway 10 NW and plans to relocate to the Subject Property. The Subject Property currently houses Twin Cities Pawn in the northern section of the structure and the applicant would be leasing the southern portion, on the condition that the current tenant for the southern portion has officially vacated before the applicant's occupation.

Notification:

In accordance with State statute, Staff attempted to notify property owners within 350 feet of the subject property of the public hearing via Standard US Mail. The Public Hearing was also noticed in the Anoka County Union Herald, the City's official newsletter for public notices.

Observations/Alternatives:

Section 117-115 (B-2 Highway Business District) states that motor vehicle sales is a conditional use in this district. Dumark's Auto Sales, LLC ("the Applicant") is currently licensed and operating at 7127 Highway 10 NW and plans on relocating to 6650 Highway 10 NW (the "Subject Property"). The applicant has provided a site plan of proposed parking locations for both sales and customers on the Subject Property . Section 117-356 (Off-Street Parking Standards) states that one (1) customer space must be provided for each ten (10) automobiles displayed one (1) space for each full time employee. The applicant's site plan provides five (5) customer parking spaces with a stall width of nine (9) feet with the remainder of the space for sales parking. The Subject Property has an improved surface lot. The City has previously approved conditional use permit applications relating to requests for auto sales in the B-2 Highway Business District. Staff feels this is a reasonable request given the site location and existence of other auto sales in this district.

Alternatives

Option 1: Adopt Resolutions #15-07-167 and #15-07-169 approving a Conditional Use Permit for auto sales in a B-2 Highway Business District. Auto sales is a conditional use in this district, the applicant currently is licensed and operating at another location, and the Subject Property will adequately function as a site for auto sales. The approval is contingent on the condition that the Subject Property portion will be verified as vacant before Applicant's occupation. Staff supports this option.

Option 2: Deny the request. The City would need to find that the property does not adequately function as a site for auto sales due to outdoor parking and storage constraints or other conflicts with City Code provisions. Staff does not support this option.

Funding Source:

All costs associated with reviewing the application are the responsibility of the Applicant.

Recommendation:

The Planning Commission recommends approval of the request for a conditional use permit for Auto Sales in a B-2 Highway Business District .

Action:

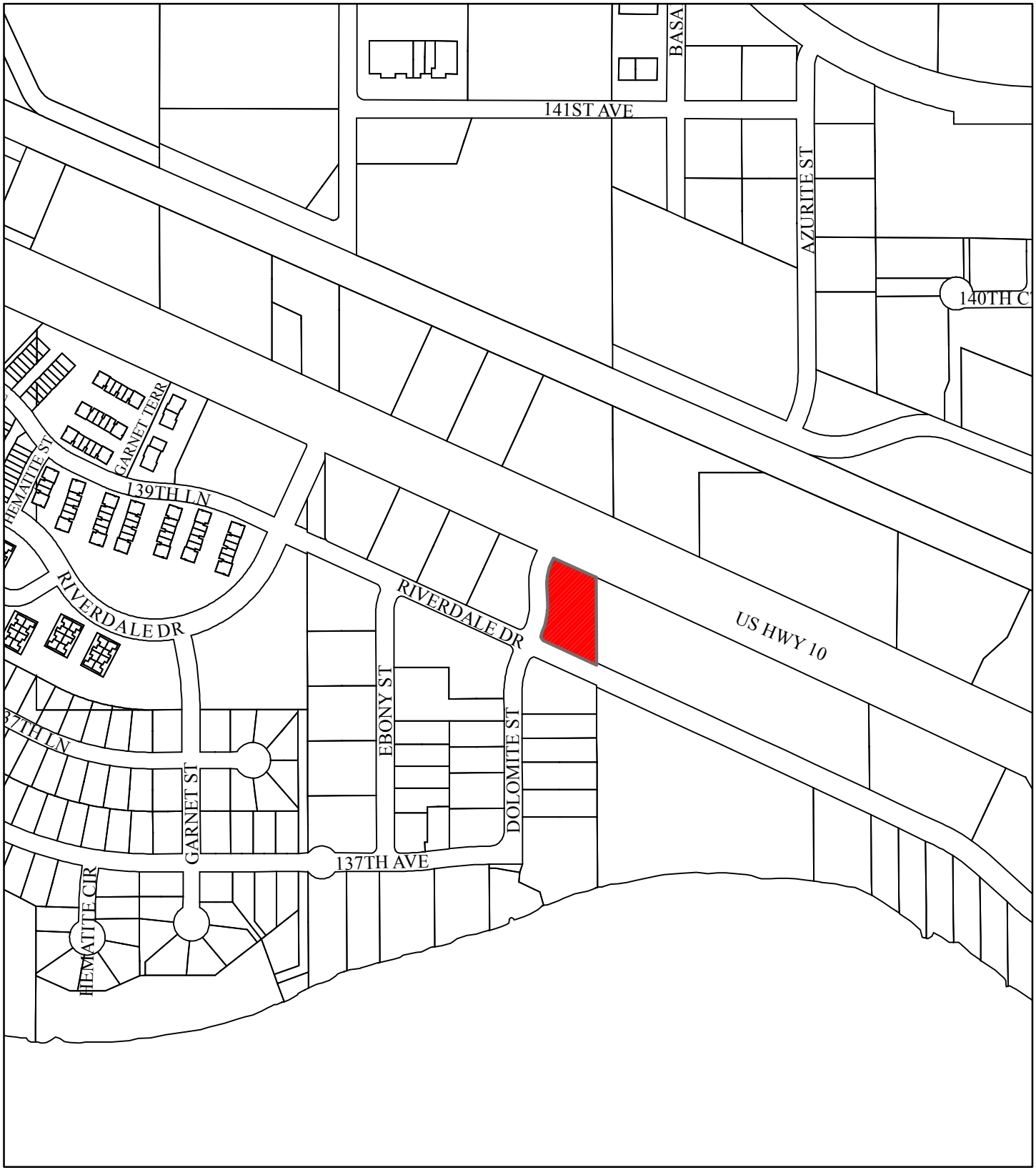
Motion to adopt Resolutions #15-07-167 and #15-07-168 approving a Conditional Use Permit for auto sales in a B-2 Highway Business District at 6650 Highway 10 NW.

Attachments

Site Location Map
Site Plan
Aerial Site Image
Resolution #15-07-167: DRAFT Findings of Fact
Resolution #15-07-168: DRAFT Conditional Use Permit
DRAFT Planning Commission Meeting Minutes Dated July 9, 2015

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	07/22/2015 10:06 AM
Kurt Ulrich	Kurt Ulrich	07/22/2015 02:29 PM
Form Started By: Geoff Solomonson		Started On: 07/17/2015 08:29 AM
Final Approval Date: 07/22/2015		



City of RAMSEY

Dumarks & Sons Auto Sales, LLC
6650 Highway 10 NW
34-32-25-13-0006

Legend
Site
Parcels

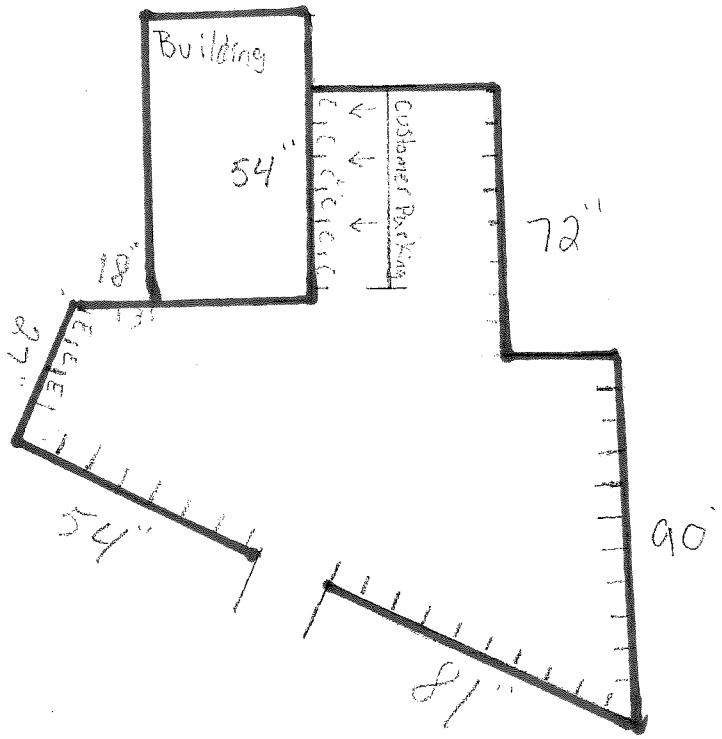
N

0 625 1,250 Feet

⊔ – 9ft. (car Space)

E – Employee Parking

C – Customer Parking



6710

10

DOLOMITE ST NW

6650

RIVERDALE DR NW

Councilmember _____ introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-167

A RESOLUTION ADOPTING FINDINGS OF FACT #0947 RELATING TO A REQUEST FROM DUMARKS & SONS AUTO SALES, LLC TO CONDUCT MOTOR VEHICLE SALES IN THE B-2 HIGHWAY BUSINESS DISTRICT AT THE PROPERTY LOCATED AT 6650 HIGHWAY 10 NW.

WHEREAS, Dumarks & Sons Auto Sales, LLC, hereinafter referred to as the "Applicant," has properly applied for a Conditional Use Permit (the "Permit") to conduct motor vehicle sales in the B-2 Highway Business District on the property generally known as 6650 Highway 10 NW and legally described as follows:

Lot 1, Block 2, Riverside West (Subject to Easement as Shown on Plat), Anoka County, Minnesota

("Subject Property")

NOW THEREFORE, BE IT RESOLVED BY THIS CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA that the findings of fact relating to the request are determined to be as follows:

1. That the Applicant applied for a Conditional Use Permit on June 2, 2015.

2. That the Applicant appeared before the Planning Commission for a public hearing pursuant to Section 117-51 of the Ramsey City Code on July 9, 2015, and that said public hearing was properly advertised and that the minutes of said public hearing are hereby incorporated by reference.

3. That the Subject Property is located in B-2 Highway Business District. Properties to the east, west and south of the Subject Property are also located in B-2 Highway Business District and the properties to the north are located in the H-1 Highway 10 Business District.

4. That the Subject Property is approximately 1.32 acres in size.

5. That motor vehicle, implement, and recreation equipment sales and service is identified in City Code as a conditional use in the B-2 Highway Business District.

6. That the Applicant is requesting to use the Subject Property for the sale of motor vehicles.

7. That the Subject Property currently has two (2) users and is currently being used for an enclosed retail activity.

8. That the conditional use permit is contingent on the current occupant of the southern portion of the building is vacated and verified to be vacant before the Applicant may take occupation.

9. That the Applicant has provided a site plan that indicates customer parking stalls with the allotment of one (1) customer space for each ten (10) automobiles displayed.

10. That the Applicant will provide one (1) parking space for every full-time employee on site, including the business owner.

11. That the Applicant will not use parking lot space allotted for another tenant of the property.

12. That the Applicant will obey all parking regulations as stated in Section 117-356, especially a nine (9) foot customer parking stall width.

13. That the Applicant will not park vehicles for sale on any street or on any unimproved surface areas.

14. That the Applicant will provide adequate drive aisles for public safety.

15. That the Applicant will obey all sign restrictions as stated in Section 117, Division 8 (Signs) of the Ramsey City Code.

16. That the Applicant will obey the public nuisance ordinance requirements related to inoperable vehicles and other public nuisances as outlined in City Code Chapter 30 on the Subject Property.

17. That the proposed use will not be unduly dangerous or otherwise detrimental to persons residing or working in the vicinity of the use or to the public welfare.

18. That the proposed use will not substantially adversely impair the use, enjoyment, or market value of any surrounding property.

19. That the proposed use will not be hazardous or disturbing to existing neighboring uses.

20. That the proposed use will be served adequately by public facilities and services such as highways and streets.

21. That the proposed use will not create excessive additional requirements at public cost for public facilities and services

22. That the proposed use will not be detrimental to the economic welfare of the community.

23. That the proposed use will not involve activities and uses that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke fumes, glare or odors.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember _____, and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the ___ day of _____, 2015.

_____
Mayor

ATTEST:

_____
City Clerk

Councilmember _____ introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-168

A RESOLUTION APPROVING A CONDITIONAL USE PERMIT FOR DUMARKS & SONS AUTO SALES, LLC TO CONDUCT MOTOR VEHICLE SALES IN THE B-2 HIGHWAY BUSINESS DISTRICT AT THE PROPERTY LOCATED AT 6650 HIGHWAY 10 NW AND DECLARING TERMS OF SAME:

WHEREAS, Dumarks & Sons Auto Sales, LLC, hereinafter referred to as the "PERMITTEE," has properly applied for a Conditional Use Permit to conduct motor vehicle sales in the B-2 Highway Business District on the property generally known as 6650 Highway 10 NW and legally described as follows:

Lot 1, Block 2, Riverside West (Subject to Easement as Shown on Plat), Anoka County, Minnesota

("Subject Property")

WHEREAS, the Planning Commission met on July 9, 2015, conducted the public hearing and recommended City Council approve/deny the request.

NOW THEREFORE, BE IT RESOLVED BY THIS CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA, as follows:

1. That based on Findings of Fact #0947, a Conditional Use Permit ("Permit") to conduct motor vehicle sales is hereby granted to the **PERMITTEE**.

2. That this **Permit** specifically allows for motor vehicle sales on the **Subject Property**. Based on the site plan and floor plan provided by the **PERMITTEE**, which plans shall not be attached to the **Permit** but shall be kept in **City** files,

3. That this **Permit** be contingent on the proper vacancy and verification of vacancy of the proposed occupancy area of the building on the **Subject Property**.

4. That the **Permit** specifically provides for one (1) customer parking space per ten (10) vehicles displayed.

5. That the **Permit** specifically provides one (1) parking space for every full-time employees on site, including the business owner.

6. That the **Permit** specifically prohibits using parking space allotted for another tenant of the property.

7. That the **PERMITTEE** will obey all parking regulations as stated in Section 117-356, especially a nine (9) foot customer parking stall width.

8. That the **Permit** specifically prohibits parking vehicles for sale on any street or on any unimproved surface areas.

9. That the **PERMITTEE** maintains adequate drive aisles within the parking space.

10. That this **PERMITTEE** must obey all sign restrictions as stated in Section 117, Division 8 (Signs) of the Ramsey City Code.

11. That the **Permit** specifically prohibits the use of outdoor speaker devices.

12. That the **PERMITTEE** must comply with public nuisance ordinance requirements related to inoperable vehicles and other public nuisances as outlined in City Code Chapter 30 on the **Subject Property**.

13. That this **Permit** shall be perpetual in duration as long as the terms are herein complied with.

14. That the **PERMITTEE** shall be responsible for all **CITY** costs incurred in administering and enforcing this **Permit**.

15. That the City Administrator, or his/her designee, shall have the right to inspect the **Subject Property** for compliance and safety purposes annually or at any time, upon reasonable request.

16. That this **Permit** shall automatically expire if the use is not initiated by _____, 2015 and issuance of a building permit shall constitute initiation.

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember _____, and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the ___ day of _____, 2015.

PERMITTEE

Dumarks & Sons Auto Sales, LLC hereby acknowledges receipt of this Permit and that he has reviewed the conditions of this Permit and has agreed that he will comply with the terms of this Permit.

By:

_____

Its:_____

STATE OF MINNESOTA)
) SS.
COUNTY OF _____)

On this _____ day of _____, _____, before me, a Notary Public, personally appeared _____, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

_____
Notary Public

PROPERTY OWNER

ABLE PROPERTY MANAGEMENT, INC. hereby acknowledges receipt of this Permit and that they have reviewed the conditions of this Permit and have agreed that they will comply with the terms of this Permit.

By: _____ Its: _____

STATE OF MINNESOTA)
) ss.
COUNTY OF _____)

On this _____ day of _____, _____, before me, a Notary Public, personally appeared _____, the _____ of ABLE PROPERTY MANAGEMENT, INC, a Domestic Business Corporation under the laws of Minnesota, fee title owner of the Subject Property, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as their free act and deed.

_____

Notary Public

CITY OF RAMSEY

By:_____ By:_____
Mayor City Clerk

STATE OF MINNESOTA)
) ss.
COUNTY OF ANOKA)

On this _____ day of _____, _____, before me a Notary Public personally appeared Sarah Strommen and Jo Ann M. Thieling, to me personally known, who, being each by me duly sworn, did say that they are respectively the Mayor and City Clerk of the City of Ramsey, the Municipal Corporation named in the foregoing instrument, and seal affixed to said instrument is the corporate seal of said Municipal corporation, and the said instrument was signed and sealed on behalf of said Municipal Corporation by authority of its City Council, and said Sarah Strommen and Jo Ann M. Thieling acknowledge said instrument to be the free act and deed of said Municipal Corporation.

_____
Notary Public

This document drafted by:
The City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

This document reviewed by:
Ratwik, Roszak & Maloney
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

PLANNING COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Planning Commission conducted a regular meeting on Thursday, July 9, 2015, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present:	Chairperson Gary Levine Commissioner Randy Bauer Commissioner Matthew Maul (arrived at (6:02 p.m.) Commissioner Cindy Nosan Commissioner Gary VanScoy
Members Absent:	Commissioner Andrew Andrusko Commissioner Ralph Brauer
Also Present:	Community Development Director Timothy Gladhill City Planner Chris Anderson

DRAFT

1. CALL TO ORDER

Chairperson Levine called the regular meeting to order at 6:00 p.m.

2. CITIZEN INPUT

None.

3. APPROVAL OF AGENDA

Motion by Commissioner VanScoy, seconded by Commissioner Bauer, to approve the agenda as presented.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Bauer, and Nosan. Voting No: None. Absent: Commissioners Andrusko, Brauer and Maul.

4. APPROVE PLANNING COMMISSION MINUTES

4.01: Approve the Following Planning Commission Minutes:

4.01.1: Planning Commission Meeting Minutes Dated June 4, 2015

Commissioner VanScoy requested that his and Commissioner Bauer's vote on the St. Catherine issue be changed from absent to abstain.

Motion by Commissioner VanScoy, seconded by Commissioner Bauer, to approve the following minutes as amended: Planning Commission Meeting Minutes dated June 4, 2015.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Bauer, and Nosan. Voting No: None. Absent: Commissioners Andrusko, Brauer and Maul.

5. PUBLIC HEARINGS/COMMISSION BUSINESS

5.01: PUBLIC HEARING: Request for a Conditional Use Permit to Exceed Sign Size Restrictions at 6228 Highway 10 NW; Case of Country Side Services of Minnesota, Inc.

Public Hearing

Chairperson Levine called the public hearing to order at 6:02 p.m.

Presentation

Community Development Director Gladhill presented the staff report stating the City has received an application from the Country Side Services of Minnesota, Inc. requesting a conditional use permit (CUP) to exceed sign size restrictions for their parcel located at 6228 Highway 10 NW. The subject property is vacant and located directly adjacent to the east of Country Side Services' current site. The applicant desires to add a twenty-eight (28) square foot dynamic display sign to an existing 105 square foot sign. Staff finds the request reasonable for the Highway 10 Corridor and recommends approval of the CUP to exceed the square footage limitations for a ground sign in a business type district.

Citizen Input

There was no Citizen Input.

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to close the public hearing.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Chairperson Levine closed the public hearing closed at 6:04 p.m.

Commission Business

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to recommend that City Council adopt Resolution #15-07-169 approving Findings of Fact #0951.

DRAFT

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to recommend that City Council adopt Resolution #15-07-170 relating to Country Side Services of Minnesota, Inc's request for a Conditional Use Permit to exceed sign size restrictions established by City Code.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

5.02: PUBLIC HEARING: Consider Request for a Variance to Minimum Lot Size to Facilitate a Lot Split at 16520 Germanium Street NW: Case of Paul and Mary Johnson

Public Hearing

Chairperson Levine called the public hearing to order at 6:05 p.m.

Presentation

City Planner Anderson presented the staff report stating the City received an application from Paul and Mary Johnson for a variance to the minimum lot size in the R-1 Residential (Rural Developing) district as well as the Scenic River Overlay District. Ultimately, the applicant desires to complete a lot split of their property located at 16520 Germanium Street NW to create one (1) new buildable lot. However, prior to expending the necessary funds to prepare a Minor Plat, the applicants wanted to first see if a deviation from the minimum lot size requirement would be possible. Thus, should this request be approved, the applicant would still be subject to the standard Minor Plat application process outlined in City Code. Staff reviewed the request in further detail and recommend approval of the variance contingent upon completion of a wetland delineation that is approved by the LRRWMO and application providing evidence of a recorded drainage and utility easement for the rerouted ditch section or dedicating a drainage and utility easement that encumbers the rerouted ditch section.

Citizen Input

Paul Johnson, 16520 Germanium Street NW, thanked staff for the thorough report. He explained he has lived on this property and noted he would like to create a single level house.

Commissioner VanScoy asked if the homeowner would have access issues to the newly created lot.

Mr. Johnson did not believe this would be a problem.

City Planner Anderson reported that a wetland delineation would have to be completed on the new lot prior to construction. He did not anticipate that the home or driveway would impact the

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wetlands. If an impact were to happen, the applicant would have to work with the LRRWMO. He provided further comment on the LRRWMO meeting schedule. He reported that the applicant's variance would last for one year and after that time, an extension could be requested.

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to close the public hearing.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Chairperson Levine closed the public hearing closed at 6:17 p.m.

Commission Business

Commissioner Bauer asked how the easement would be addressed.

City Planner Anderson commented that the easement would be handled by the applicant through the minor platting process.

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to adopt Resolution #15-07-162 approving Findings of Fact #0948.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Motion by Commissioner Bauer, seconded by Commissioner VanScoy, to adopt Resolution #15-07-163 approving a Variance to minimum lot size on the property located at 16520 Germanium Street NW contingent upon:

- Completion of a wetland delineation that is approved by the LRRWMO; and
- Application providing evidence of a recorded drainage and utility easement for the rerouted ditch section or dedicating a drainage and utility easement that encumbers the rerouted ditch section

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Bauer, VanScoy, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

5.03: PUBLIC HEARING: Consider Request for a Variance to Driveway Setback Standards on the Property Located at 17209 Tungsten Street NW

Public Hearing

Chairperson Levine called the public hearing to order at 6:19 p.m.

Presentation

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City Planner Anderson presented the staff report stating the City has received an application from Frank and Dorothy Frederick for a Variance to the required setback for a driveway on the property located at 17209 Tungsten Street NW. The applicant is requesting a variance to allow a new concrete driveway to be installed up to the side lot line (extending a line event with the front wall of an attached garage) and to continue use of an existing gravel surface along the side of the attached garage for parking purposes. Staff reviewed the request in detail with the Commission and recommended approval of the variance to the driveway setbacks for a portion of the driveway but not the entire length of it. He commented that staff approved of the 41-foot length of the variance as requested by the applicant.

Citizen Input

Frank Frederick, 17209 Tungsten Street NW, explained that he purchased his home last August and noted he was planning to upgrade his driveway. He discussed the turning radius required to park his motorhome alongside his garage and requested the 41 feet be approved by the Planning Commission.

Motion by Commissioner VanScoy, seconded by Commissioner Bauer, to close the public hearing.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Bauer, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Chairperson Levine closed the public hearing closed at 6:29 p.m.

Commission Business

City Planner Anderson stated the drainage and utility easement required an encroachment agreement. He reported that the applicant was aware of this fact and staff would work with him to prepare the agreement, which would be reviewed by the City Council.

Motion by Commissioner VanScoy, seconded by Commissioner Bauer, to adopt Resolution #15-07-164 approving Findings of Fact #0949.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Bauer, Maul, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Motion by Commissioner VanScoy, seconded by Commissioner Maul, to adopt Resolution #15-07-165 approving a Variance to allow a portion of the driveway to be up to the side lot line on the property located at 17209 Tungsten Street NW contingent upon executing an Encroachment Agreement with the City and amended by the applicant's Site Plan dated July 9, 2015.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Maul, Bauer, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

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5.04: PUBLIC HEARING: Consider Request for Conditional Use Permit for Auto Sales in a B-2 Highway Business District; Case of Dumark's Auto Sales, LLC

Public Hearing

Chairperson Levine called the public hearing to order at 6:32 p.m.

Presentation

Planning Intern Solomonson presented the staff report stating the City received an application from Dumark's Auto Sales, LLC requesting a conditional use permit (CUP) to allow auto sales on the property at 6650 Highway 10 NW. The applicant currently conducts auto sales at 7127 Highway 10 NW and plans to relocate to the subject property. The subject property currently houses Twin Cities Pawn in the northern section of the structure and the applicant would be leasing the southern portion, on the condition that the current tenant for the southern portion has officially vacated before the applicant's occupation. Staff reviewed the request further with the Commission and recommended approval of the request for a conditional use permit to allow auto sales in a B-2 Highway Business District.

Citizen Input

Commissioner Bauer asked how many parking spaces would be set aside for employees.

Planning Intern Solomonson reviewed the parking spaces on the Site Plan that were designated for employees.

Ryan Duccette, Dumark's Auto Sales, explained that he was interested in relocating his business. He discussed his niche market was in used auto sales. He indicated that he was interested in keeping his business within the City of Ramsey.

Motion by Commissioner VanScoy, seconded by Commissioner Maul, to close the public hearing.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Maul, Bauer, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Chairperson Levine closed the public hearing closed at 6:36 p.m.

Commission Business

Motion by Commissioner Maul, seconded by Commissioner Nosan, to recommend that City Council adopt #15-06-158 approving Findings of Fact #0947.

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Motion Carried. Voting Yes: Chairperson Levine, Commissioners Maul, Nosan, Bauer, and VanScoy. Voting No: None. Absent: Commissioners Andrusko and Brauer.

Motion by Commissioner Maul, seconded by Commissioner Nosan, to recommend that City Council adopt Resolution #15-06-159 relating to Dumark's Auto Sales, LLC request for a Conditional Use Permit to allow auto sales in a B-2 Highway Business District.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners Maul, Nosan, Bauer, and VanScoy. Voting No: None. Absent: Commissioners Andrusko and Brauer.

6. COMMISSION / STAFF INPUT

Staff then provided the Commission with an update on the development taking place in and around the City.

Commissioner Bauer was in favor of reviewing the City's Sign Ordinance given the number of variances that were being reviewed by the Planning Commission.

Community Development Director Gladhill understood this concern and noted staff was also interested in reviewing the Sign Ordinance.

6.01: Zoning Bulletins

Zoning Bulletins were noted.

7. ADJOURNMENT

Motion by Commissioner VanScoy, seconded by Commissioner Maul, to adjourn the meeting.

Motion Carried. Voting Yes: Chairperson Levine, Commissioners VanScoy, Maul, Bauer, and Nosan. Voting No: None. Absent: Commissioners Andrusko and Brauer.

The regular meeting of the Planning Commission adjourned at 6:47 p.m.

Respectfully submitted,

_____

Tim Gladhill
Community Development Director

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ATTEST:

_____

JoAnn Shaw
Community Development Assistant

Drafted by Heidi Guenther
TimeSaver Off Site Secretarial, Inc.

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Our Mission: To work together to resposibly grow our community, and to provide quality, cost-effective, and efficient government services.

CC Regular Session **7. 3.**

Meeting Date: 07/28/2015

Submitted For: Jo Thieling, Administrative Services

By: Jo Thieling, Administrative Services

Information

Title:

Introduce Ordinance #15-13 Amending Ordinance #15-04 Massage Businesses and Services by Deleting the Insurance Requirements

Purpose/Background:

Purpose: The purpose of this case is to introduce an ordinance that would amend an ordinance adopted in January relating to Massage Businesses and Services.

Background: In January, 2015, the City Council adopted Ordinance #15-04 amending Chapter 26 of the Ramsey City Code - Licenses, Permits and Miscellaneous Business Regulations - by Adding Article XVIII, Massage Businesses and Services. The purpose for adopting the ordinance was to implement a new regulatory structure for massage therapists and massage establishments as part of an effort to prevent and eliminate criminal activity. The ordinance imposes licensing requirements, regulates the conduct of massage therapists and businesses, allows for City inspections, and sets forth procedures for denying, suspending or revoking licenses. Upon the effective date, staff emailed the ordinance to MuniCode (The City's Code Host and Codifier) to be incorporated into our City Code. MuniCode staff noted that section 26-859(e) referenced section 26-851(n)(1), and that there was no such subsection. Upon further review by City staff, it was noted that the reference was to an insurance requirement. Based upon Council discussion at the November 25, 2014 work session, (minutes attached to case) it had been decided that the City should not be involved with requiring insurance; however, consensus was that a question regarding whether or not the establishment had insurance be added to the application. The question was added to the application; however, in editing the original ordinance, staff erred in not removing that section.

Ordinance #15-13 being presented this evening for introduction is a simple amendment to Ordinance #15-04 and eliminates the insurance requirement.

Notification:

This does not change anything for the Massage licensing process; therefore, no notifcations were necessary.

Recommendation:

Staff is recommending Council introduce Ordinance #15-13 amending Ordinance #15-04 by deleting the language referencing insurance requirements.

Action:

Motion to introduce Ordinance #15-13 Amending Ordinance #15-04 Massage Businesses and Services by Deleting the Insurance Requirements.

Attachments

CCWS Mts 112514

Ord 15 13

Form Review

Inbox	Reviewed By	Date
Joe Langel	Joe Langel	07/23/2015 08:50 AM
Kurt Ulrich	Kurt Ulrich	07/23/2015 09:04 AM
Jo Thieling (Originator)	Jo Thieling	07/23/2015 09:09 AM
Joe Langel	Jo Thieling	07/23/2015 09:09 AM
Kurt Ulrich	Jo Thieling	07/23/2015 09:09 AM
Form Started By: Jo Thieling		Started On: 07/22/2015 01:51 PM
Final Approval Date: 07/23/2015		

CITY COUNCIL WORK SESSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey City Council conducted a City Council Work Session on Tuesday, November 25, 2014, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present:	Mayor Sarah Strommen Councilmember Jill Johns Councilmember Mark Kuzma Councilmember John LeTourneau Councilmember Chris Riley
Members Absent:	Councilmember Randy Backous Councilmember Jason Tossey
Also Present:	City Administrator Kurtis Ulrich Police Captain Jeff Katers Public Works Superintendent Grant Riemer Human Resources Manager Colleen Lasher City Clerk Jo Ann Thieling City Attorney Joe Langel

1. CALL TO ORDER

Mayor Strommen called the City Council Work Session to order at 5:36 p.m.

2. TOPICS FOR DISCUSSION

2.01: Review Survey Information Relating to an Ordinance Licensing Massage Establishments and Massage Therapists

City Administrator Ulrich stated the last time this was discussed, the Council directed staff to conduct a survey of massage establishments in Ramsey. Two responses were received and are within the meeting packet as well as a streamlined ordinance. He noted that City Attorney Langel and Police Captain Katers are present to answer the Council's questions related to the ordinance and/or enforcement.

City Attorney Langel stated of 20 surveys sent out there was a low response with only two surveys being returned and neither indicated strong objections to the draft ordinance or offered guidance. He stated this topic is in the same position as on September 9, 2014, related to whether the Council supported moving the ordinance forward. City Attorney Langel reviewed the language revisions made to streamline the process and asked if the Council would like additional revisions prior to formal consideration.

Mayor Strommen asked if City Attorney Langel and the Police Department are comfortable with the language of the ordinance to assure it meets the Council's concerns and can be enforced without over reaching.

City Attorney Langel explained if the establishment is forced to give certain information, those who are creative with their license will be reluctant to provide that information and obtain a license. He stated he would like to see the ordinance language that was removed to be reinserted including the requirement to provide past addresses as it would aid the Police Department in tracking the establishment, deterring illicit acts, and enforcing the ordinance.

Police Captain Katers concurred and stated any tool available for enforcement is a benefit to the Police Department and ultimately the community. He stated there is an issue with massage therapist establishments in Ramsey and the Police Department has worked with the Anoka County Sheriff's Department to do undercover work and address issues raised by neighboring businesses. The intent is to assure the businesses are operating legally and the City has the tools needed for enforcement. Police Captain Katers explained that because there is a lack of State law regulating these establishments, it is left to counties and cities to have such an ordinance. Police Captain Katers agreed that address history, similar to other applications, is important as it relates to past criminal practices and shows the Police Department whether the business is being run by someone in the metro area, outside of the metro area, operates additional establishments, or only a single establishment.

Councilmember Riley stated having an ordinance in place is very important, which staff has made clear. He stated he has also heard that the five-year history of addresses should be re-inserted into the ordinance as it is recommended by the City Attorney and Police Department. Councilmember Riley stated he does not want the language to over reach and be unfriendly to business as this ordinance will create a hurdle that illicit establishments may not even attempt to hurdle. He felt it contained language to allow good businesses to exist while keeping out illegal activity.

Councilmember Kuzma stated he found the survey spoke volumes, due to the non-response, as being a vote of support for the ordinance. He stated if there had been a lot of objection, those business owners would have shown up in force at tonight's meeting. Councilmember Kuzma supported adding the requirement for address history.

The consensus of the Council was to add the requirement for address history.

Councilmember LeTourneau asked if Item 8, relating to training and educational casework, is needed and what is the extended value.

City Attorney Langel advised that provision was taken from other licensing ordinances and is basically to expose if an establishment hires an untrained therapist that is not providing massage therapy. In addition, when it is required to set forth their training, it works towards a deterrent effect.

Councilmember LeTourneau stated a person could still get the application and a license even if the training is not related.

City Attorney Langel stated that is correct if everything else is in play but it would provide information that could be used against an establishment if activity not related to massage therapy occurs at the establishment. In addition, it is a defense for the therapist who is properly trained to bolster their application and defense they may have to someone claiming they are not providing massage therapy. City Attorney Langel stated, however, that provision is not as important as other requirements. He referenced the following provision requiring professional information on employees because in a business license, law enforcement will want to know who is working there in the capacity of a massage therapist.

Police Captain Katers explained that language will avoid a situation where employees are shifted from one location to another, which the Police Department has seen occur with larger illegal operations when one location is cited for a violation.

Councilmember LeTourneau asked if it is the responsibility of the license holder to report new employees in order to maintain the license, which would make it more complicated in who is monitoring that information.

City Attorney Langel stated it is the owner's responsibility to monitor their establishment and provide the City with information when there is a new employee. He explained that should there be a raid and it is found there are employees working at that establishment who are not listed on the license, it is another means to enforce.

Councilmember Riley stated it was his understanding that requiring both the establishment and masseuse to be licensed would address that problem. He felt requiring a business to keep a list of employees would be burdensome and he does not know of another business that is required to do that. In addition, he is concerned with the City monitoring that information.

City Attorney Langel clarified that language is to target the business, not the individual. He stated if the business owner is having a large turn over, that is an indicator that there may be other activity occurring at the establishment. He stated if illegal activity is occurring, the City wants that type of 'hook' in the ordinance language. In addition, Anoka County wants to assure there is a mechanism to close the business, not just cite the therapist.

Councilmember Johns asked if the individual as well as business licenses would be posted or on file for inspections.

Mayor Strommen stated that may be an item to include on a checklist for inspection.

City Clerk Thieling explained that the only time the City has asked for prior addresses is for background checks on pawnbrokers, peddlers/solicitors license, and liquor licenses. But, constant updates are not required on any of those licenses. She stated the City renews licenses yearly and at that point, it is asked who is the manager and the owner, but not the names of employees.

Councilmember LeTourneau asked how that licensing for the individual employee would be enforced and if there is requirement for the establishment owner to have on file the licensing credentials of the individual therapists.

City Attorney Langel reviewed the language of Section 26-858.b, saying the establishment cannot hire an employee who does not have a current license. He explained that there is no language that requires the owner to constantly update the City but if law enforcement conducts a raid and finds employees who are not properly licensed, it is a violation of this section that can be grounds for revocation of the business license.

Mayor Strommen asked if that language is sufficient or deficient for enforcement.

City Attorney Langel explained that clause i. was stricken so providing an original list of therapists is not required when the establishment opens. But, the requirement remains that the establishment hire only therapists with a current license. He stated it is true that this is not the norm to regulate businesses but the problem with prostitution does not regularly occur in normal types of business. City Attorney Langel referenced the point made by Councilmember Kuzma that most of the 20 surveyed do not have 'heartburn' over this ordinance or find it to be overly onerous.

Mayor Strommen stated if this was her business, she would want a process to establish her business as being legitimate and separation from illicit businesses.

Councilmember Johns noted that on Page 14, Requirements, the language requires the establishment to post its license as well as each therapist's license in such location the public can readily view.

Mayor Strommen asked the Council if it finds the current language to be sufficient relating to licensing.

After review of the ordinance, City Attorney Langel advised that language was stricken requiring each business to notify the City Clerk within 10 days when an employee is changed. But, a restriction remains that the establishment cannot retain a therapist without a license.

Mayor Strommen noted that since the licenses have to be posted, in theory, the list of employees is known. She stated her question is more the application so the City can check out the credentials on the original list of employees.

Councilmember Kuzma stated without being too restrictive, it seems that other establishments don't have a problem and once the ordinance is in place, the language can be 'tweaked' if found to be needed.

Councilmember Riley supported requiring posting of the establishment's and individual employee's licenses and he does not take the 'survey silence' by establishments to indicate their stance on the ordinance.

Councilmember Johns asked about a requirement for insurance in case a client is harmed.

City Attorney Langel explained that the public liability insurance portion of the ordinance was removed. He stated if included, this requirement would distinguish between legitimate and non-legitimate establishments. However, this requirement may not be required for other types of business licensing.

City Administrator Ulrich asked whether the City assumes any liability by licensing massage therapists as being qualified to do their job and having a background check.

City Attorney Langel stated typically not because simple issuance of a license is not liability on the part of the City and no different from when a City issues a liquor license to a bar that violates the law, or with electrical or building inspections when something is missed. He advised this is not an issue.

Councilmember Riley stated he thinks all reputable businesses should have insurance but he does not think the City should be involved with requiring the insurance. He noted it is not required of other businesses so he would not want to go any further than just inquiring if they have insurance.

City Clerk Thieling stated it is asked on all applications whether they have liability insurance, but it is not required.

Mayor Strommen suggested that question be added to the application.

The consensus of the Council was to add a question to the application asking whether the establishment has insurance.

Councilmember Riley stated the Council has done a job it was 'forced' to do and asked if the City should attempt to push licensing of these establishments to the County or State as the City does not license other professions.

Mayor Strommen asked if the League of Minnesota Cities had taken up this topic to address whether the licensing requirement should be pushed to the County.

City Attorney Langel stated he is unsure why the State is silent on the issue of licensing these types of establishments as prostitution is against State law.

Councilmember Riley asked if the topic should be raised with the City's political delegation.

City Administrator Ulrich stated he will first raise the topic with the League to get additional information.

Mayor Strommen thanked staff who worked to refine this ordinance language.

The consensus of the Council was to direct staff to prepare an ordinance licensing massage establishments and massage therapists for introduction in December and adoption in January.

2.02: Discussion Regarding 2015-2016 Union Contract Negotiations for AFSCME, LELS-Patrol and LELS-Sergeants (Closed to the Public)

2.03: Discussion Regarding the Annual Performance Review of the City Administrator, an Individual who is subject to the City Council's Authority (Closed to the Public)

Human Resources Manager Lasher advised that under Minnesota Statutes, Section 13D.03, the meeting can move into Closed Session to discuss labor negotiations strategy for the City's three union contracts and under Minnesota Statutes, Section 13D.05, Subd.3a, the meeting can move into Closed Session to evaluate the performance of an individual who is subject to the City Council's authority.

Motion by Councilmember LeTourneau, seconded by Councilmember Riley, to move to Closed Session to discuss union contract negotiations and evaluate the performance of City Administrator Ulrich, an individual who is subject to the City Council's authority.

Motion carried. Voting Yes: Mayor Strommen, Councilmembers LeTourneau, Riley, Johns, and Kuzma. Voting No: None. Absent: Councilmembers Backous and Tossey.

The City Council moved into a Closed Session at 6:12 p.m. and reconvened in Work Session at 6:54 p.m.

3. TOPICS FOR FUTURE DISCUSSION

Noted.

4. MAYOR / COUNCIL / STAFF INPUT

None

5. ADJOURNMENT

Mayor Strommen declared the Work Session of the City Council adjourned at 6:54 p.m.

Respectfully submitted,

_____

Kurtis G. Ulrich
City Administrator

ATTEST:

_____

Jo Ann M. Thieling
City Clerk

Drafted by Carla Wirth
TimeSaver Off Site Secretarial, Inc.

ORDINANCE #15-13

CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

AN ORDINANCE AMENDING ORDINANCE #15-04 AND CHAPTER 26 OF THE RAMSEY CITY CODE – LICENSES, PERMITS AND MISCELLANEOUS BUSINESS REGULATIONS – BY DELETING SECTION 26-859 (e) OF THE RAMSEY CITY CODE.

The City of Ramsey Ordains:

SECTION 1 AUTHORITY

This ordinance is adopted pursuant to and under the authority of the City Charter of the City of Ramsey.

SECTION 2 AMENDMENTS

Section 26-859 (e) which currently reads Each business required to be licensed under this Article must continuously maintain an insurance policy that meets the requirements of Section 26-851(n)(1) has been deleted.

SECTION 3. EFFECTIVE DATE

The effective date of this Ordinance is thirty (30) days after its passage and publication, subject to City Charter Section 5.07.

Adopted by the Ramsey City Council the _____day of August, 2015.

_____
Mayor Sarah Strommen

ATTEST:

_____
City Clerk Jo Ann M. Thieling

Introduction Date:
Posting Dates:
Adoption Date:
Publication Date:
Effective Date:

CC Regular Session **7. 4.**

Meeting Date: 07/28/2015

By: Tim Gladhill, Community Development

Information

Title:

Review Comparison Document of The COR Development Plan and Original Ramsey Town Center Master Plan Prepared by the Planning Commission

Purpose/Background:

The purpose of this case is to check in with the City Council on the progress made by the Planning Commission in preparing a comparison document between the original Ramsey Town Center Master Plan and the current The COR Development Plan. The intent of this case is not to adopt this document or its recommendations, but to ensure that the Planning Commission is heading in the right direction based on direction of the May 26, 2015 Joint Meeting between the City Council and the Planning Commission.

At the May 26, 2015 Joint Meeting with the City Council, Staff was directed to prepare a comparison document outlining the differences between the current COR Development Plan and the original Ramsey Town Center Master Plan. Direction was to simply prepare a document outlining the changes and check back with the City Council and its advisory boards for future direction. It is anticipated that the output of this exercise may lead to some changes to the Design Framework for The COR to either better clarify the vision, eliminate any conflicting language, simplify the document, or potential changes to the official vision.

This step is focused on the inventory of the previous plan and the current plan. The intent of this topic report is not to begin developing a new vision for The COR. Staff is looking for some direction on how to format this document, which is the primary intent of this discussion topic. The Planning Commission met on July 9 and prepared the first draft of this document. Staff would appreciate feedback from the City Council prior to the August 6, 2015 Planning Commission Meeting.

Notification:

Notification is not required for this discussion topic.

Observations/Alternatives:

Attached are documents from the original Ramsey Town Center Master Plan and Development Guidelines (the original vision) as well as the COR Development Plan and Design Framework (current vision). Additionally, the Planning Commission has several policy questions that could be used in future joint meeting or surveys of the City Council, its advisory boards and commissions, or the general public.

Finally, Staff has included a generalized timeline of The COR key milestones. This is a working document that will need to be refined over time. Of key update, Staff would like to populate the initial planning stages that led to the creation of The COR, starting with the 2020 Comprehensive Plan Update (completed in 1998), City ballot advisory question, and design charette process. Staff will utilize the introduction to this case to review the overall history of The COR and its original formation.

Funding Source:

This case is being handled as part of normal Staff duties.

Recommendation:

The Planning Commission requests feedback on the draft comparison document before formulating a formal recommendation to the City Council.

Action:

No action is being requested. However, as noted above, the Planning Commission requests feedback on the draft comparison document before formulating a formal recommendation to the City Council.

Attachments

Comparison Document
ORIGINAL Master Plan
ORIGINAL Development Guidelines
CURRENT Development Plan (Master Plan)
CURRENT Design Framework (Development Guidelines)
Timeframe of Key Milestones
Plann Comm Work Session Minutes

Form Review

Inbox	Reviewed By	Date
Tim Gladhill (Originator)	Tim Gladhill	07/22/2015 09:40 AM
Patrick Brama	Jo Thieling	07/23/2015 09:10 AM
Kurt Ulrich	Kurt Ulrich	07/23/2015 09:24 AM
Form Started By: Tim Gladhill		Started On: 07/22/2015 07:50 AM
Final Approval Date: 07/23/2015		

The COR Development Plan
Clarification/Audit of Current Vision
Outcome of Planning Commission Work Session
July 9, 2015

Overview of this document

1. Quick Summary/History of The COR
2. Comparison of Master Plan Versions
3. Future Policy Questions

Section 1: Quick Summary of The COR

- 2020 Comprehensive Plan
- City of Ramsey Ballot Advisory Question
- Ramsey Town Center Design Charrette

2020 Comprehensive Plan

The 2020 Comprehensive Plan was developed/amended between 1998 and 2001. The 2020 Plan called for a mixed use development. Part of the primary reason was to identify an opportunity to address forecasted household growth while protecting the rural character of much of the existing community. The 2020 Plan called to concentrate more of the growth forecasts in a smaller area of the community.

City of Ramsey Ballot Advisory Question

In 2001, the City of Ramsey included several Ballot Questions pertaining to the City Charter as well as multiple Advisory Ballot Questions. Of note to this discussion, a question asked was the following:

"Do you want a Town Center with restaurants, shopping and other amenities along the Highway 10 Corridor?"

In the general election in 2001, 61.20 responded yes to the above question; 38.20 voted no.

Ramsey Town Center Design Charrette

Between 2002-2003, with amendments to the Comprehensive Plan and results from the Advisory Ballot Question, the City embarked on an in-depth public process to assist in the planning for the Ramsey Town Center. Step No. 1 of the current exercise is to develop a summary of the output of this process (previous vision).

2009/2010 Re-visioning Exercise

Following the foreclosure of the Ramsey Town Center development and the purchase by the City of approximately 150 acres of the development, the City embarked on an effort to revise the vision to better match market conditions at that time. Step No. 2 of the current exercise is to develop a summary of the output of this process (current vision).

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Section 2: Comparison of Ramsey Town Center Master Plan to The COR Development Plan

Ramsey Town Center Master Plan	The COR Development Plan
Land Use and Development Standards	
Mixed Use – Vertically mixed use buildings in center	Mixed Use – Mix of uses within each block; single use buildings acceptable
Strong shared parking strategies	Shared parking strategies reduced, but encouraged (floor area ratio reduced)
Development regulations all but required shared, structured parking in first quarter-mile.	Vision remains such to pursue shared, structured parking structures, but stops short of requirement.
High densities to support retail and protect rural character of other areas of community	Still high density, but less than original vision
Centered around transit station	Centered around transit station
Strong 'Blue System' – multi-use surface water management	Blue system amended, but still in existence – see Lake Ramsey planning
1.0 Floor Area Ratio amended to 0.75	0.75 FAR amended to 0.65
2 accesses planned on Armstrong Boulevard	1 access allowed on Armstrong Boulevard due to access spacing and elevation of Armstrong Interchange
Emphasis on pedestrian orientation	Emphasis on pedestrian orientation, but diminished in West 30
Strong streetscape design standards	Strong streetscape design standards
Strong Downtown Feel in center with densities of multi-story buildings, high quality design, mix of uses (residential and commercial)	Strong Downtown Feel in center with densities of multi-story buildings, high quality design, mix of uses (residential and commercial)
Building Design	
Strong architectural standards for individual buildings	Strong architectural standards for individual buildings
Architectural Review Committee – review all new plans and models	No Architectural Review Committee
Strict Sign Standards	Relaxed Sign Standards, yet still stricter than citywide standards
Parks, Recreation, and Open Space	
Master Park Plan	Master Park Plan still intact – but with amendments
West Meandering Commons 'mirrors' East Meandering Commons (now The Draw)	West Meandering Commons now Lake Ramsey Commons – layout amended
Park Dedication + Additional contribution to parks	Base Park Dedication – reduced rate granted for high density residential
Land Use Sub-Areas	
Medium Density Residential in north west corner of development	Traditional suburban retail in north west corner of development (The 'West 30')
Office Park Development in south east corner	Office Park Development in south east corner

DRAFT

Section 3: Policy Questions for Future Discussion and/or Survey (City Council, Advisory Boards and Commissions, Residents)

The intent is to frame a series of questions to send as a survey to advisory boards and City Council. The intent at this stage is not necessarily to answer these questions specifically, but feedback and consensus is more than welcome.

Land Use and Development Standards

1. How much vertically mixed-use buildings is too much?
2. How do we plan for a mix of single-use buildings on a single-block (what happens if the last user in is locked in to a particular use, but doesn't want that use)?
3. How should the City manage parking in The COR? Should the City establish a new strategy for shared parking?
4. How should the City define parking calculations?
5. The remaining westerly leg of Ramsey Parkway – should that continue to have an enhanced design (green medians, enhanced plantings, etc. Similar to existing leg without one-way segments on larger stormwater feature in middle)?
6. Do we want to continue to allow uses with a drive-thru and gas stations?

Building Design Standards

7. Are The COR sign standards still too strict?
8. Should the City re-establish some form of an Architectural Review Committee for The COR?

Land Use Sub-Areas

9. How flexible should Staff be in recommending boundary changes to Sub-District Boundaries?
10. Should the City explore or otherwise re-evaluate the vision of the north west quadrant of the development (south east corner of Armstrong Boulevard and Bunker Lake Boulevard)?
11. The remaining undeveloped area just east of Coborn's – should that stay retail, or is Staff able to entertain residential inquiries?
12. Should we continue to hold the area west of Center Street north of Sunwood Drive for a community type use such as a Community Center or movie theater?

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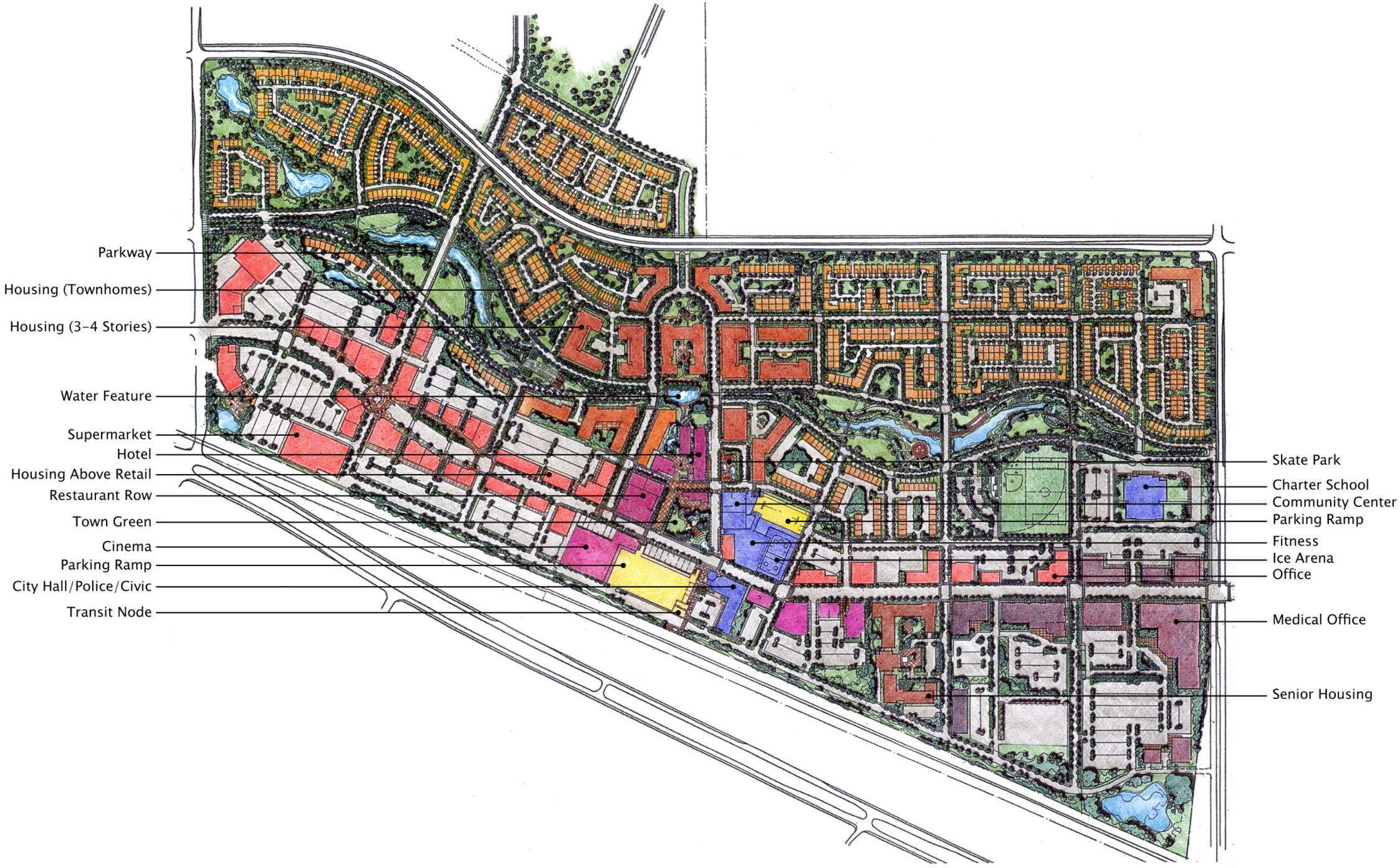


12 March 2004

esg elness swenson graham architects inc.

RAMSEY TOWN CENTER
Ramsey, Minnesota

Site Plan

Ramsey Town Center

Development Guidelines

Final Draft 6/8/04

RAMSEY TOWN CENTER

The Future is Ramsey.

Ramsey Town Center Development Guidelines

Introduction

This is the third in the series of documents created to help direct design solutions and define project character for the Town Center. With increasing levels of detail and specificity, the Master Plan, the Zoning Code and these Development Guidelines clarify and promote the desired outcomes expressed in the illustrative Concept Plan. Each of these documents serves a specific purpose as part of the Town Center reference library, but also work in concert with other city codes and criteria to provide the information needed for review, critique and approval of development projects within the Town Center district.

Purpose

The primary purpose of Development Guidelines is to set basic parameters, describe preferences and illustrate design intent. These guidelines serve as a framework within which creative design can and should occur – there is no one solution, but many options that meet the basic requirements of this document.

Application

The format and content of these guidelines are specifically tailored for use as a reference workbook and are organized into two sections. The first section outlines issues and recommendations that apply to the entire Town Center district. The second section highlights specific guidelines that apply to each sub-district within the Town Center.

Implied Responsibility

All participants in the development of the Town Center recognize the local and regional impacts of this project and the various systems that play an important role. Each parcel and each building must fit within the context of the entire plan. Individual projects must complement, not compete with, adjacent development in terms of public green space, walk and trail connections, stormwater management solutions, street layout, parking strategies, land use mix and building design.

Part One: Overall Guidelines

There are a number of guidelines that apply to the entire Town Center including recommendations for stormwater management, parks, streets, land use, parking, transit and other development components. Many of these overall Town Center guidelines overlap, or are integrated with one another. For ease of discussion they are categorized according to the same list of 'layers' that formed the basic structure for the Master Plan:

- Context – local, city, regional
- Blue System – surface water features, stormwater management
- Green Structure – parks, trails and open space
- Land Use Mix – preferred uses, horizontal/vertical mixed use
- Architecture – built form, character of development
- Streets and Blocks – access, circulation, arrangement
- Parking Strategies – quantity, location, type
- Transit – rail, bus, other options
- Utilities and Infrastructure – sewer, water, electric, gas

It is essential that proposed design solutions for development projects and other improvements within the Town Center demonstrate an understanding of the interplay between these layers.

Overall Guidelines - Context

Overview

Although unique to Ramsey, the Town Center is not intended to be a stand alone district within the the City; instead it will be a part of, and connect with, a variety of local, city-wide and regional systems. Each development project, whether a single building, one lot, or a series of blocks, must provide reasonable links to these systems as a primary design objective.

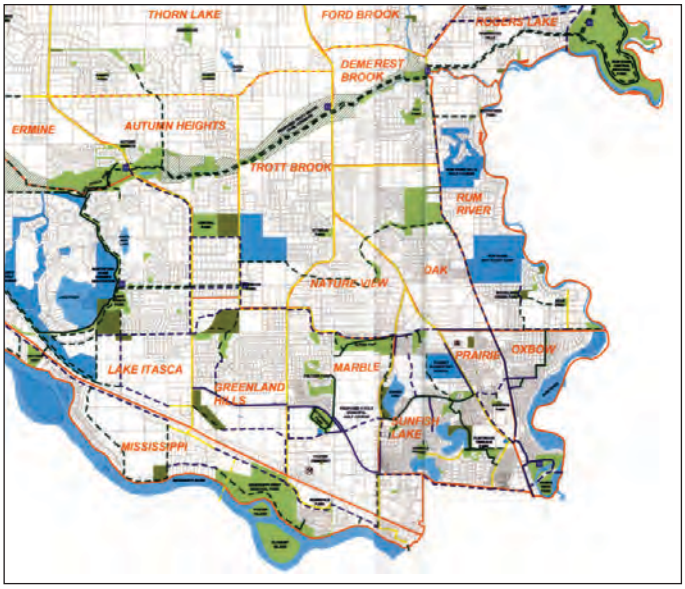
Guideline Recommendations

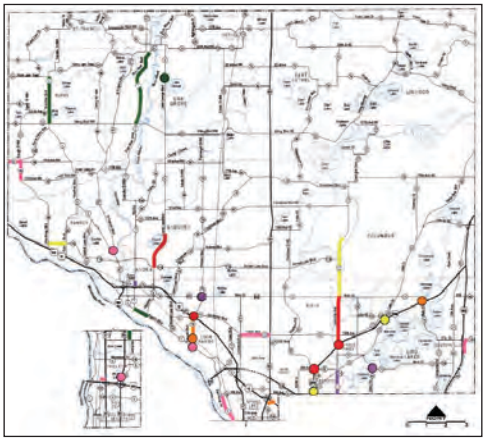
To ensure that the Town Center takes full advantage of local and regional systems, development should:

- Provide safe, easily recognized connections to city, county and state trail corridors
- Make provisions for city and regional transit service and amenities (including the future Northstar Line) and encourage their use
- Tie into, and improve, the Ramsey utility network
- Integrate with and complement the existing (and future) street framework
- Become an integral part of the city and county drainage/ stormwater management plan

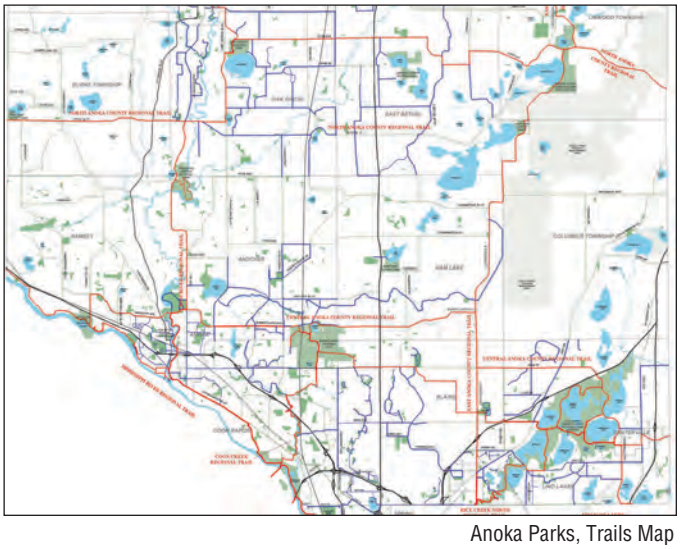
Objectives

- Overall Town Center design (and all new private development within the Center) will accommodate stormwater from new projects and from off-site, and highlight stormwater features as an amenity
- Bikeways and pedestrian routes into the Town Center from adjacent neighborhoods must be designed for safety and ease of access, suggesting that a child on a bicycle has an equally accessible route to downtown.
- Parks and open space will be easily accessible to all Town Center residents, visitors, people who work here and also for the citizens of Ramsey and the surrounding area. This connected green system is reminiscent of the world renowned 'Grand Rounds' of Minneapolis





Regional Transit Map



Anoka Parks, Trails Map

Overall Guidelines - Blue System

Overview

Water features and drainage systems are essential components of the Town Center Master Plan. The potential mix of ponds, streams, fountains and other water elements will provide focal amenities and year round activities within the framework of an environmentally responsible, visually pleasing strategy to manage stormwater. Because the mississippi River is a restricted discharge water of the state, and because we are creating a new discharge from this development, each sub-district and each site has a responsibility to utilize 'best management practices' (BMP) to pretreat run-off, reduce erosion and encourage infiltration. Water elements are not intended to be separate stand alone features, but instead should be integrated with the variety of parks, trails and public open space proposed for the Town Center. Water and landscape should be designed and utilized within multipurpose areas that accommodate both active and passive recreational use.

Guideline Recommendations

Blue System guidelines not only define the overall role and character of public space, but also encourage each development parcel to address the following:

- **Create** signature water features (ponds, pools, fountains, waterfalls, etc.) as major visual amenities throughout the Town Center
- **Promote** high quality, creative and appealing aesthetics for all blue system elements
- **Integrate** stormwater management components (meeting both water quality and quantity requirements)

A great deal of time and effort has gone into the calculation and design of a 'watershed-based' stormwater management plan to support Town Center development. While this overall strategy addresses the water quantity issue for the entire Town Center by providing storage and conveyance facilities for storm events, individual development projects (block-by-block) have an equal responsibility to meet water quality standards as a primary goal. Each project should integrate a variety of techniques, materials and methods (listed in the examples below) to promote multiple use, maximum flexibility, improved aesthetics for parking areas, park spaces, drainage swales and other site features.

Objectives

Integration of water and landscape, design creativity, use of high quality materials and safety concerns are the critical objectives to be met – the following examples illustrate only a few of many possibilities:

- Innovative new products, such as special soil systems (Netlon, structural soils), pervious pavements for parking areas, storm ceptors, underground storage and other creative techniques should be used to BMP standards
- 'Green architecture', expressed through green roofs, gray water recycling and other techniques should be included to reduce the impact of new development on stormwater systems
- Water feature design should include both formal elements (such as reflecting pools or fountains) and natural/informal forms (such as ponds, streams, waterfalls) and should explore creative ways to integrate wetland/rain garden landscapes with active, urban spaces.

Overall Guidelines - Green Structure

Overview

The overall design framework of the Town Center is based on a system of linked parks, trails and open space. The City of Ramsey, Anoka County, and to some extent, the State of Minnesota all play a role in local and regional parks programming, design review, construction sequencing, implementation and ultimately maintenance and operation of key public spaces within this framework. The goal is to link existing and proposed parks and trails defined in regional park plans with proposed new parks and trails within the Town Center. Of equal importance is the contribution from each block and each development project to this network of green, adding a variety of private, semi-private, and perhaps some additional public space throughout the Town Center. Private development will share the responsibility to provide inviting, innovative and useable green space as integral parts of individual parcel site design.

Guideline Recommendations

Ramsey Town Center will set a new standard for the design of parks and open space in suburban Twin Cities communities. Toward that end, Green Structure guidelines encourage the following:

- Work with the City to create an integrated, comprehensive open space system that links with existing city and county trails and open space networks
- Encourage private development (block-by-block) to share in the responsibility to provide inviting, innovative and useable green space as integral parts of each development project
- Integrate stormwater management components (meeting water quality and quantity requirements) within both public / private park and open space improvements

Together, the system of public and semi-public green space will result in a welcoming public realm throughout the new community.

Objectives

Based on the Parks, Trails and Open Space Concept Plan for the Town Center, a variety of public and private green space is proposed including:

- Each block and each project will provide intentional, creative, innovative, useable green areas as integral components of site development and building design.
- At the individual block scale, small squares and greens will provide places for gathering and relaxation, especially targeted to meet the demands of adjacent, or nearby buildings. Elements such as gardens, gazebos and fountains should characterize these more intimate public spaces.
- At the neighborhood scale, parks will provide space for more active recreation, and should be flexible enough to accommodate a variety of recreational activities. Playgrounds, game fields and park buildings are suggested park amenities and will target a wider user demand from the surrounding community.
- At the Town Center scale, the central linear park will connect with all other parks and open space elements, providing a focal point for activity and a sense of place similar to Minnehaha Creek in Minneapolis. Gardens, public pavilions and shelters, playlots and open play fields are suggested amenities that will provide built-in flexibility to meet the demands of both the local population and regional visitors to the Town Center.

Overall Guidelines - Land Use Mix

Overview

The Town Center Master Plan identifies the preferred mix and approximate location of a variety of land use types. Together with the Zoning Code, these guidelines focus on the following overall objectives:

- Promote vertical and horizontal mixed use (within a building, within a block, winthin a district)
- Provide a variety of housing types, styles, pricing
- Encourage increased density in and around the central core area
- Promote an interesting mix of building styles, scales and massing for each sub-district
- Support creative, innovative, high quality design solutions as the benchmark for success
- Integrate mix of uses with public green space within each district
- Provide a variety of commercial types
- Mix residential and commercial uses to promote street-level activity throughout the day

Guideline Recommendations

The mix of land uses in the Town Center will encourage activity during the day and into the evening and nighttime hours. As a focus of commerce, employment, recreation and housing, the Center closely resembles a small to medium size Midwestern downtown in scale and character. Land uses are intentionally mixed, to bring shoppers and workers into the area during the day and attract new residents and visitors to entertainment venues in the evening.

The civic component of the Town Center, exemplified by the new City Hall, Police Station and variety of public spaces and squares, adds an important element to the land use mix and brings a level of authenticity to the district.

Objectives

- Encourage vertical mixed-use in the core with housing and office space over retail uses along the street.
- In residential districts, particularly closer to the core, a limited amount of retail uses will be encouraged to service residents and provide nearby places to gather.
- Promote innovative models for housing that include a mix of townhomes, flats and lofts within single buildings or on the same block.
- Accomodate larger, 'big box' retailing within the Town Center; only if innovative design approaches are used including two story buildings, use of liner stores facing the street, minimal blank walls, creative parking strategies, etc.
- Where similar uses create a 'family' or campus of buildings (e.g. medical campus), buildings should reinforce the street edge and parking should be set within the core of the block.
- Uses shall promote pedestrian friendly streets, contributing to street level activities and overall visual character of each district
- All uses should reinforce the street edge

Overall Guidelines - Architecture

Overview

High quality architecture is an essential component in fulfilling the objectives of the Master Plan. Rather than prescribing a particular style, these architectural guidelines are intended to encourage an integration of both traditional and contemporary design. Architectural designs should provide a consistent quality, measured, to a great degree, by the pedestrian experience along the street and by an architectural expression that provides character without being thematic, obtrusive, or artificial. Architectural character should strive to be authentic and varied, but not 'thematic'.

Guideline Recommendations

Of all the layers that combine to form the Ramsey Town Center Master Plan, architecture will typically be the most prominent development component. Both visually and physically, architecture will play a major role in defining the overall design character and mix of uses for the Town Center. It is crucial that the design and location of buildings address these architectural guidelines, with specific emphasis on the following:

- Promote an animated street presence with a mix of street-level uses, interesting building façades, many doors and windows on the street, careful design of lighting, awnings, signage and other elements that animate the pedestrian experience
- Promote variety in building design, character and expression; not one theme or building style, but a thoughtful integration of many design solutions
- Promote a variety of building types including a range of height, scale and proportion, that support an integrated mix of housing options, shopping destinations, entertainment venues, civic structures and other Town Center uses
- Encourage the use of high quality materials, suggesting a preference toward native materials and masonry elements, with respect for local building techniques
- Building location is as important as building style; special architectural elements, character, transparency and a higher level of materials and detailing should be used to highlight key streets (corridors) and important crossroads (nodes) throughout the Town Center
- Buildings should always be located at all four corners of intersections

Examples

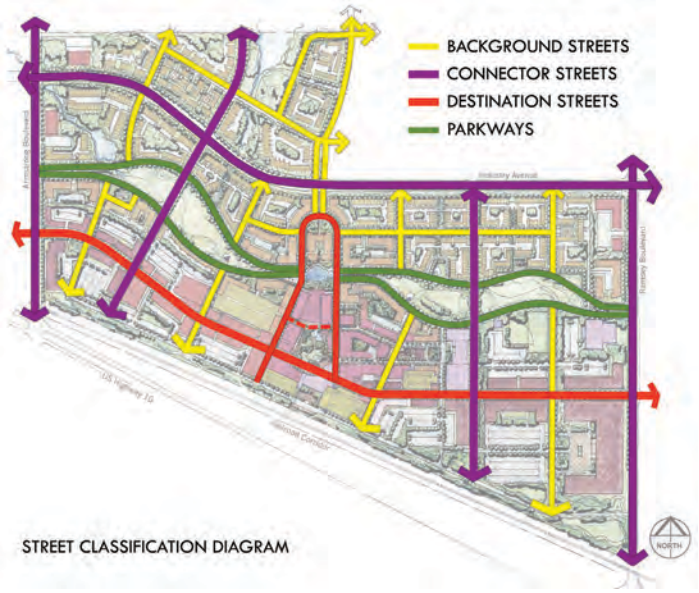
Providing a creative mix of building types, scales and expressions are critical objectives to be met – photographs on this page (and throughout these guidelines) suggest some of the many possibilities.

Overall Guidelines - Streets and Blocks

Overview

The Master Plan defines a specific strategy for the layout of streets and blocks within, and around the Town Center. The size, type and configuration of this street hierarchy is based on a combination of projected traffic volume, level of service at intersections, proposed adjacent land use (destination commercial, residential, civic, recreation, etc.) and desired aesthetic character.

Great streets are essential components of an attractive and inviting public realm. These guidelines promote a street system that balances pedestrian and vehicular use. Providing streets that support traffic flow is important, but also creating ample space for street-side activities, gracious strolling promenades, pockets of green and other amenities is critical to the success of the Town Center. Streets will promote convenient access by car – to storefronts, to parking lots and ramps, to entertainment attractions – but will also encourage foot traffic as the primary way to move about and conduct business in the core area.



STREET CLASSIFICATION DIAGRAM

Background Street – quiet residential neighborhood, parking one side

Destination Street – active shopping district with streetscape amenities

Connector Street – equally inviting for both pedestrians and cars

Guideline Recommendations

The proposed street and block pattern reflects a compact urban character, not allowing dead end streets or cul-de-sacs, in favor of a traditional grid pattern and connected streets including the following:

- Provide a street network that distributes pedestrian and vehicular traffic throughout the various districts in the Town Center and encourages a more dispersed and less congested traffic flow (many choices or travel paths)
- Provide a clear hierarchy of streets resulting in a simple and understandable system for movement – easy access and convenient circulation throughout the Town Center
- Convert primary perimeter streets (arterials such as Ramsey, Armstrong and Bunker Lake Boulevards) to urban street sections, providing sidewalks and street trees to replace roadside ditches
- Promote improvements that invite pedestrian and bicycle use including wide sidewalks, streetscape amenities and designated bicycle trails (both on and off-street)

Objectives

Creative design solutions for public realm improvements should reflect these basic street classifications (street hierarchy) including:

- Destination street – signature addresses for shopping, entertainment, services, work place and other primary amenities (Sunwood Drive is an example)
- Connector street – primary routes that link various districts within the Town Center, usually providing the most direct means of getting from point A to point B (Rhinestone Street is an example)
- Background street – neither destination nor primary connector routes, these streets provide much of the rest of the street grid throughout the Town Center (residential streets are an example)
- Parkway – premier 'green streets' adjacent to primary public park / green space (Town Center Parkway is an example)
- Service – still considered public streets, service corridors provide important access to delivery areas, parking lots/ramps and maintenance functions (Civic Center Drive is anexample)

Overall Guidelines - Parking

Overview

Balancing the realities of car-related necessities (streets, parking and so on) with future transit service and the desired character of the Town Center is a significant challenge. The goal is to provide adequate parking, both quantity and location, while promoting new strategies that support the overall needs of the Town Center. Parking will be provided through a combination of on-street spaces, off-street surface lots, underground lots and structured ramps to support the mix of uses at the core.

Parking structures should contribute to the overall character and image of the Town Center. Ramp design should include elements, colors and materials that reflect, or complement surrounding buildings. Liner stores or other street-level uses should be integrated into ramp design along important street frontages.

Parking ramp design (building on the right) includes awnings, arched openings and similar materials to reflect character of adjacent building.

Guideline Recommendations

Parking guidelines encourage the following:

- Locate off-street surface parking lots away from the major streets, either behind or to the side of primary buildings
- Provide a combination of fencing, landscaping and landform to screen parking areas from major streets and important views
- Create strategies for shared parking between adjacent uses, taking advantage of peak and off-peak cycles, business hours, nighttime activities, special events and other needs
- Provide alternative surfaces for secondary (less frequently used) parking areas including porous pavements, green pavements and so on
- Provide facilities or services that respond to and connect with future transit to reduce required parking, including shuttle/circulator bus, bicycle lockers
- Work with the City to review existing standards to provide flexibility including hours for on-street parking, security and enforcement practices, permit or metering
- Provide parallel parking on both public and private streets throughout the Town Center, to add parking and create a traffic calming, pedestrian buffer
- Explore options to integrate stormwater management requirements into parking area design
- Explore various landscape approaches to soften parking area edges, provide shade, integrate native plantings, offset islands and other ideas to reduce to 'sea of parking' image

Objectives

The primary objective is to provide a balance of surface lots, on-street and structured parking, with ample quantities and close proximity to serve the mix of uses in the Town Center. In addition to providing adequate space, excellent design is a major factor as well. Guidelines for the Town Center encourage creativity, innovation, quality and attention to detail in every aspect of project development, including parking solutions. Photographs on this page (and throughout these guidelines) suggest some of the many possibilities.

Surface parking lot located to the side and behind grocery store, also illustrates walkway edge improvements including ornamental fence and plantings.

Structured parking (see entrance sign mid-block) imbedded within mixed-use development that includes ground level commercial and residential above.

This photo shows both on-street parking and parking lot edge improvements that together provide a safe and inviting pedestrian walkway.

Overall Guidelines - Transit

Overview

The Town Center is designed to be 'transit ready' in a variety of ways that go beyond providing a walkable public realm and connected street grid. The Master Plan also includes a multi-modal transit station, with dedicated commuter parking, integrated with other uses at the heart of the retail, restaurant and entertainment district. This station functions as a hub where local circulator transit comes together with regional transit service and the Northstar Corridor. This station is designed to meet the short term needs of the Northstar Commuter Coach service, and also the long term objectives for proposed commuter rail service in the future. Transit components include the following:

- North Star Commuter Coach service provides peak period, peak direction bus service between downtown Minneapolis and Elk River
- North Star Commuter Rail will provide train service between St. Cloud and downtown Minneapolis
- 400 park and ride parking spaces are provided for commuters adjacent to the transit station
- Pedestrian and bicycle connections are emphasized in the Master Plan as major links between the transit station, various districts within the Town Center and into the surrounding neighborhoods
- The Town Center can accommodate Metro Mobility, citywide circulator bus or town trolley connections as part of local and regional service to the transit station

The Town Center also uses a Travel Demand Management (TDM) program to both assist and encourage residents and visitors to take advantage of the various modes available for their commuting and travel needs. This TDM program draws from incentives and services available through Anoka County and Metro Commuter Services that match riders with carpools and vanpools, provide discounted transit passes and manage work hours among other functions. The Town Center will use a coordinator to manage the delivery of these services and to promote and market the TDM program.

Guideline Recommendations

Transit is an important component of the overall plan, with expectations for more ridership, using a greater range of transit options as they become available. More people, together with the mix of activities and amenities in the Town Center, encourages better designed, better connected transit service. It is a shared responsibility between city, county and developer to promote transit use, with both policy and bricks-and-mortar attention to the following guidelines:

- Understand and take advantage of opportunities to use existing and proposed transit components
- Provide transit related facilities specifically linked to uses and character within each Town Center district, including signage and lighting for way-finding and bicycle amenitiess

Objectives

The primary objective is to provide a balance of transit service, bicycle and pedestrian connections and lanes to move traffic. Guidelines for the Town Center promote public transportation as part of the solution and suggest a variety of street improvements and other amenities to invite increased use. Photographs on this page (and throughout these guidelines) suggest some of the many possibilities.

Overall Guidelines - Utilities

Overview
The Master Plan, together with detailed engineering drawings for site improvements, defines a network of utilities that will serve the Town Center. While understanding the location, size and characteristics of sanitary sewer, storm sewer and water system components is important, development proposals must also acknowledge awareness of the Town Center's relationship to the city water supply – specifically, its relationship to the regional aquifer. New development projects have a responsibility to use best practices for proper connection to utilities, monitor flow of materials into storm sewer and provide recommendations for landscape and pavement maintenance in an effort to reduce, or eliminate, potential pollution sources.

The Town Center will also be served by a full complement of utility connections including cable, fiber optic, electric, telephone and so on. As always call for location of all site utilities prior to construction.

Guideline Recommendations
An important part of the Master Plan, utility guidelines promote the idea of balancing quality service, adequate capacity and the physical needs of site development with the more qualitative issues of aesthetics, proper maintenance and environmental health. These guidelines encourage the following:

- Subscribe to, and implement best management practices as the benchmark for utility design and maintenance
- Electrical service, and other utilities as appropriate, should be buried underground or located along service corridors and other 'back of house' locations

Objectives
Not easily photographed (mostly underground), the intent is to suggest that even site utilities have a role in the overall success of the Town Center.

Part Two: Subdistrict Guidelines

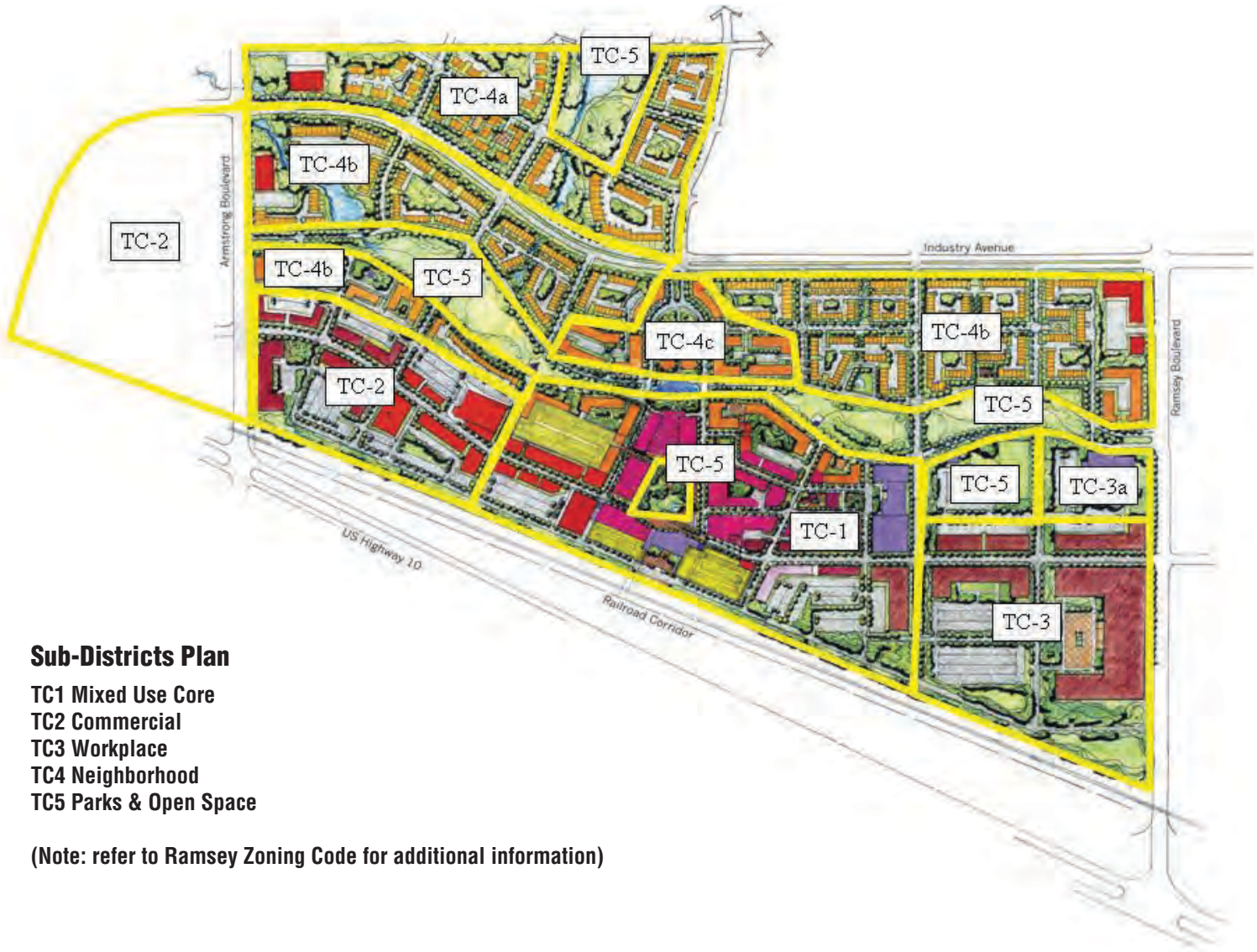
Overview
The Master Plan and Zoning Code identify five distinct, but overlapping sub-districts within the Town Center. Each of these sub-districts (outlined on the plan below) is defined by a unique mix of uses, specific site development patterns and perhaps a distinctive character or image. The sub-districts complement one another as part of the overall plan. They include:

- **TC1 Mixed Use Core** – provides the broadest variety, highest density and greatest intensity of development, encouraging both vertical and horizontal mixed use
- **TC2 Commercial** – provides a location for larger scale retail and other auto-orientated commercial uses
- **TC3 Workplace** – provides a location for uses with high concentrations of employees, such as medical/ technology related office, and other corporate or institutional uses
- **TC4 Neighborhood** – provides opportunities for a range of housing types from small lot single family to townhouse, to high density senior or rental apartment
- **TC5 Parks and Open Space** – preserves environmental features and provides neighborhood/community amenities throughout the Town Center

Development plans must respond to the overall Town Center guidelines described in Part One of this document, but also must address the following detailed guidelines for each sub-district. To further clarify and illustrate proposed features in the Master Plan, these sub-district guidelines are organized under the following categories:

- Public Realm / Streetscape Guidelines
- Site Development Guidelines
- Architectural Guidelines

In all cases, the sub-district guidelines must be applied in harmony with the overall Town Center guidelines and with other existing city, county, state codes, design criteria, plans and studies that support broader goals for regional growth and development.



Sub-Districts Plan

TC1 Mixed Use Core
TC2 Commercial
TC3 Workplace
TC4 Neighborhood
TC5 Parks & Open Space

(Note: refer to Ramsey Zoning Code for additional information)

Public Realm/Streetscape Guidelines

Public realm/streetscape guidelines define the visual character and physical improvements for all public spaces within the Town Center. These guidelines also provide the general framework and examples for design of proposed quasi-public and private space located within each development parcel. Public realm/streetscape guidelines focus on the following elements:

- Parks, plazas and other public gathering spaces
- Street/sidewalk character and streetscape elements
- Bicycle/pedestrian connections (on-street and off-street)
- Residential courts, pocket parks and other private green space

The goal is to foster a safe and interesting public realm that will invite pedestrian activity, promote traffic calming, increase transit use and encourage community gathering. Street trees, lighting and decorative fencing provide the backbone for streetscape improvements. Added detail, such as special pavements, street furniture, public art and layered plantings will highlight specific nodes or uses. Materials, colors and intensity of improvements can vary for each sub-district, but should also reflect the desired character and identity of the entire Town Center.

Site Development Guidelines

Site development guidelines describe the relationship between building edge and public space. These guidelines imply a strong link between architecture and site - how buildings define, or are defined by the spaces around them, and the visual and physical connections between the private and public realm. Site development guidelines focus on the following elements:

- Land Use – proposed mix of uses defined in the Zoning Code
- Building Placement – street frontage, set back and orientation all contribute to a continuous edge, while providing some flexibility to add interest with recessed or projected elements
- Parking Strategies – district parking solutions to support a mix of uses

Issues related to density, land use, safety and security, access, public space and views inform decisions about building placement, scale and massing. Various combinations of these pieces come together to define the unique character and identity of each sub-district within the Town Center.

Architectural Guidelines

Architectural guidelines describe the character, quality and design direction for proposed buildings within each sub-district. Architectural guidelines focus on the following elements:

- Building design, character and expression – buildings should not imitate historic examples, but rather promote the integration of both traditional and contemporary styles
- Scale – provide emphasis and detailing to create interest and promote 'human scale' experience for the pedestrian
- Proportion – provide a harmonious relation of one part to another (or parts to the whole)
- Massing – include a variety of building forms, building types and building heights
- Materials – maintain regional traditions and local building techniques with a preference toward masonry and other natural materials
- Windows and doors – emphasize transparency of streetside façade
- Street presence – buildings should be placed parallel to the street, should contribute to the vitality of the street scene, should minimize blank walls along the public right of way and should consider all street frontage (including buildings at corners) as primary elevations

These architectural guidelines suggest an important balance between design continuity, desirable variety and the notion that buildings should complement, and perhaps contrast, but not compete with one another. The lasting appeal of the final outcome must be grounded in the authenticity of the design and the acceptable level of 'messiness' that comes with creating a real downtown over time; 'faux' second floors, stage set or themed solutions, and large faceless buildings are not acceptable.

Sub-District Guidelines - TC1 Mixed Use Core

Public Realm / Streetscape

Overview
Public realm and streetscape improvements define the character of the Town Center and create a memorable signature for the Mixed Use Core sub-district. Great parks and great streets, encourage intensified levels of activity, support the proposed mix of uses, invite community gathering and accommodate special events throughout the year. Public realm and streetscape guidelines include the following:

TC1 Parks, plazas and other public gathering spaces
Public spaces in the Mixed Use Core should:

- Blend both contemporary and traditional motifs with a focus on pedestrian use
- Encourage a balance of hardscape with landscape; a mix of pavements with plantings.
- Promote an overall landscape character that tends toward a more urban park or plaza feel, with structured spaces and highly maintained gardens
- Provide a variety of opportunities to capture different microclimates with many choices for seating- including movable chairs- and access to both sun and shade
- Provide a variety of levels or elevations to add interest to the ground plane and to provide informal steps for sitting
- Promote safety and security in all design solutions, including landscape lighting, open views into the site, and accessibility
- Provide seasonal interest and color; promote high quality materials and finishes
- Provide opportunities and specific sites for public art, performances and markets

TC1 Street/sidewalk dimensions and streetscape elements
Destination streets (like Sunwood) and connector streets (like Rhinestone) must balance a high level of service for the automobile with attractive and inviting amenities for the pedestrian (see street/sidewalk diagram) including:

- Provide gracious sidewalk width to support intensity of pedestrian traffic in the core
- Install street trees to frame the street and provide shade
- Provide street lighting that meets all safety standards and design criteria, while creating a signature character for this district
- Explore street light spacing, height and a mix of fixture types to support the increased intensity of uses and activities in the core, (note however, that too much light is as bad as too little)
- Explore a range of options for streetscape improvements including special pavements, interesting concrete tinting or scoring patterns, additional plantings, ornamental fencing and other features (note, however, that simpler is better and too much clutter is a negative)

TC1 Bicycle/pedestrian connections (on-street and off-street)
The Town Center Master Plan describes a network of bicycle/pedestrian trails and walkways (both on and off-street) that connect adjacent sub-districts to the Mixed Use Core. As you approach the core, these connections tend to become part of the shared right of way along the major streets, or become part of the urban park spaces (specifically Civic Square and Downtown Commons). Bicycle riders may choose to share the street with vehicular traffic, or dismount and walk their bicycles along with the other pedestrians using the sidewalks. Providing and maintaining these bicycle and pedestrian connections should be a key component for all development projects in the core.

TC1 Residential courts, pocket parks and other private green space
Along with proposed public parks and great streets, there are many opportunities to integrate private courtyards and pocket parks within this sub-district. These small-scale greens provide important 'breathing space', contribute to stormwater management and offer additional recreational amenities (tot lot, sitting areas) to serve specific building tenants or residents. Back gardens, auto-courts and other options should be considered as part of residential and commercial development plans in the core.

Sub-District Guidelines - TC1 Mixed Use Core

Site Development

Overview

Guidelines that address building location, organization of space and parking options tend to focus on what can be measured – dimensions, setbacks, number of spaces and so on. But in addition to these issues, site development guidelines must also describe the aesthetic qualities and design character of a preferred 'urban form' for the Mixed Use Core. The compact and higher density blocks that define this sub-district encourage a mix of uses, with a continuous built edge along street frontage. Innovative parking strategies support this mix, providing easy access to destination shopping, restaurant and entertainment venues. Together these elements will promote the core area as the center of activity – the place to see and be seen within the Town Center. Site development guidelines include the following:

TC1 Land Use

- Encourage both vertical mixed use (within each building) and horizontal mixed use (within each block) throughout this district
- Promote housing density at the core, specifically targeting locations along Sunwood Drive, Town Center Drive, along park edges and above street-level uses around the Civic Square and Downtown Commons
- Include a mix of housing, civic, retail, restaurant, entertainment, performance and other uses that encourage a variety of activities throughout the day.

TC1 Building Placement

- Generally, buildings should be located at the street right-of-way line (zero setback), but also allow recessed space for outdoor dining and other street level activities providing some minor deviation for variety
- Greater emphasis should be given to architectural elements, materials and other design features for buildings located at primary intersections, for example, at Sunwood and Town Center Drives, or where streets intersect with parks, such as the streets that front on or end near the Civic Square. These locations can often be seen from several directions, perhaps terminate a view from a distance down the street or sit at a prominent node; They will likely become future landmarks or helpful orientation/wayfinding icons as the Town Center develops
- Minimize openings between buildings, although limited driveway access and some provision for pedestrian connections through blocks are encouraged – gaps between buildingsto accommodate surface parking lots, greater building setbacks or other purposes are discouraged
- Encourage recessed entries and windows to create street-level interest, variety and enhance pedestrian scale along street frontage

TC1 Parking Strategies

- Provide parking spaces for typical daily use, satisfying both quantity and location needs through a mix of on-street, small surface lot, underground and ramped parking solutions
- Provide options for additional/overflow parking to support holiday traffic and special events including porous pavements, turf parking areas (Netlon and other soil amendments) or shuttle service from nearby parking areas
- Encourage shared parking solutions that target around the clock shifts in destination, audience or take advantage of peak/off-peak hours of operation for various uses within the core area
- Promote municipal parking ramps as the primary facility to meet public parking needs within the core area
- Minimize surface parking lots in favor ofother solutions including underground parking to serve residential buildings, on-street parking to serve retail shops and parking ramps
- Locate surface parking lots away from the major streets, either behind or to theside of primary buildings; surface parking lots along major street frontage are not allowed in the core area
- Discourage driveway access to parking facilities along Sunwood Drive in favor of side streets or Civic Center Drive

Architecture

Overview

Buildings in the Mixed Use Core will play a major role in defining the overall character of the Town Center. The proposed mix of uses for this signature destination suggests the potential for a variety of building types, demanding creativity and innovation to highlight unique architecture, while knitting the entire sub-district together as a coherent whole. Overall building design is an important consideration, but emphasis on first floor façade treatments is essential to encourage street-level activity and enhance the pedestrian experience. Architecture to be '4-sided' at all locations visible to public areas. Emphasis to be on great design along public street frontage. Architecture guidelines include the following:

TC1 Building Design, Character and Expression

- Provide a variety of building types and styles, expressed both in large scale (overall building) and small scale (design details)
- Emphasize transparency at street level to encourage two way viewing – both window shopping and 'eyes on the street'
- Promote interesting, animated architectural features without being thematic or artificial – faux decorative elements are discouraged
- Avoid large, unarticulated façades
- Emphasize important intersections and other nodes by placing distinctive architectural elements or interesting façades at these prominent locations
- Provide a variety of front elevations for rows of buildings along any given block

TC1 Scale, Proportion and Building Height

- Provide a variety of building heights along any given block, perhaps related to changes in use or at demising walls
- Articulate front façades with projections and recesses
- Encourage increased building height, higher density and larger scale buildings adjacent to the Civic Square and Downtown Commons
- Promote multiple stories as the norm in this sub-district, but occasional single story buildings are acceptable; single story buildings should not dominate any street frontage and should be a minimum of 20 feet to the roofline

TC1 Street Presence

- Emphasize pedestrian experience with architectural features at street level – canopies, decorative light fixtures andmaterial detail
- Encourage variety of color, texture and materials to complement other streetscape elements
- Conceal service entries, loading facilities and mechanical services fromview along public streets
- Create a continuous building edge along street frontage, visually connecting adjacent buildings with complementary façade treatments

TC1 Windows and Doors

- Maximize glass openings for all ground level, street front façades – especially for retail, restaurant and other commercial uses – recommend 50% minimum of total ground level façade, or demonstrate great design through other means
- Provide real window openings for all street facing façades above ground level – recommend 40% minimum of total façade
- Provide recessed entries wherever possible
- Use clear or lightly tinted glass for all windows and doors – mirrored, reflective or highly tinted glazing is not acceptable
- Provide primary access doors facing public streets

TC1 Materials

- Provide a diverse mix of materials, applied in a variety of proportions, exposures and detailing within a block, or along a street
- Encourage durable, high quality materials - local sources if available
- Siding is not allowed (vinyl, metal, wood) except as a complimentary use
- Encourage the use of mostly brick or comparable alternative; minimum requirement of 50% of non-glazed wall area
- Metal and wood components are acceptable as a complimentary use
- Encourage overhead projections, either as a specific building component or as permanent/temporary canopies
- Select materials that relate to the building use, not artificially contrived or themed
- Avoid overly complex or arbitrary use of materials
- Include smaller scale elements, variety of materials and careful detailing to support street level activities and enhance the pedestrian experience

Sub-District Guidelines - TC2 Commercial

Public Realm / Streetscape

Overview
While the Commercial Sub-district encourages a mix of large and small floor plates, accommodating auto-oriented uses, this suggests even greater attention be paid to public realm and streetscape improvements that not only accommodate vehicles, but also invite bicycle and pedestrian traffic. Surface parking lots provide convenient access to storefronts, but present an additional challenge to the overall visual character and aesthetic appeal of this area. While no large public parks are identified for this sub-district, small pocket parks, squares or other gathering spaces are encouraged. A consistent, attractive streetscape is also essential. Public realm and streetscape guidelines include the following:

TC2 Parks, plazas and other public gathering spaces
Public spaces in the Mixed Use Core should:

- Blend both contemporary and traditional motifs with a focus on pedestrian connections and small group sitting areas
- Encourage a balance of hardscape with landscape; a mix of pavements with plantings.
- Provide small urban parks or plazas integrated with building entries or taking advantage of shared space between buildings
- Promote safety and security in all design solutions, including landscape lighting, views into the site, and accessibility
- Provide seasonal interest and color; promote high quality materials and finishes
- Provide opportunities and specific sites for public art

TC2 Street/sidewalk dimensions and streetscape elements
Destination streets (like Sunwood) and connector streets (like Zeolite) must balance a high level of service for the automobile with attractive and inviting amenities for the pedestrian including:

- Provide gracious sidewalk width to invite pedestrian traffic
- Install street trees to frame the street and provide shade
- Provide street lighting that meets all safety standards and design criteria, while creating a unique character for this district
- Explore street light spacing, height and a variety of fixture type that would support proposed mix of uses and activities (note, however, that too much light is as bad as too little)
- Explore a range of options for streetscape improvements including special pavements, interesting concrete tinting or scoring patterns, additional plantings, ornamental fencing and other features (note, however, that simpler is better and too much clutter is a negative)

TC2 Bicycle/pedestrian connections (on-street and off-street)
The Town Center Master Plan describes a network of bicycle/pedestrian trails and walkways (both on and off-street) that connect adjacent sub-districts to one another. These connections tend to become part of the shared right of way along the major streets. Bicycle riders may choose to share the street with vehicular traffic, or dismount and walk their bicycles along with the other pedestrians using the sidewalks. However, providing and maintaining these bicycle and pedestrian connections should be a key component for all development projects.

TC2 Residential courts, pocket parks and other private green space
As previously mentioned, there are many opportunities to integrate privately owned and maintained courtyards and pocket parks within this sub-district. These small-scale greens provide important 'breathing space', contribute to stormwater management and offer additional amenities (sitting areas) to serve specific building tenants and adjacent uses. Back gardens, auto-courts and other options should also be considered as part of residential and commercial development plans in this sub-district.

Sub-District Guidelines - TC2 Commercial

Site Develpment

Overview

Site development guidelines for this sub-district focus on a unique opportunity to recast typical commercial development patterns into a contemporary and innovative strategy that responds to overall objectives for the Town Center. Specifically this suggests that the majority of buildings front on the primary through streets, with parking and service areas on the side or in the back, away from view. A mix of uses within individual blocks, including retail, restaurant and residential, further enhances this model, addresses design character/aesthetics and promotes activity throughout much of the day and evening hours. Site development guidelines include the following:

TC2 Land Use

- Encourage mixed use (within specific blocks) throughout this district
- Promote housing in close proximity to retail uses, specifically targeting locations along the edge of Town Center Park
- Include a mix of large floor plate variety stores, service and convenience uses (grocery, drug and hardware stores), specialty shops and other destination retailers
- Emphasize Sunwood Drive as the commercial 'Main Street'

TC2 Building Placement

- Generally, buildings should be located at the street right-of-way line (zero setback), allowing recessed space for outdoor dining and other sidewalk activities; no more than 40% of building beyond maximum setback
- Generally, buildings should be located parallel to the street they face
- Buildings should be placed at all four corners of key intersections
- Reduce the scale and mass (street side visual impacts) of large floor plate buildings by including liner stores or break up building façades into smaller sections
- Large, blank walls along any public street are unacceptable
- Greater emphasis should be given to architectural elements, materials and other design features for buildings located at primary intersections, for example, at Sunwood and Zeolite, or at key development entries, for example, at Sunwood and Armstrong – frequently these locations can be seen from several directions, from a distance, or sit at prominent crossroads and will likely become future landmarks as the Town Center develops
- Minimize openings between buildings where storefronts line the street, although limited driveway access (one per block along destination streets) and some provision for pedestrian connections through blocks are encouraged – large gaps in the building wall along street frontage to accommodate surface parking lots, greater building setbacks or other purposes are discouraged

- No more than 25% of street frontage can be utilized for surface parking lots

TC2 Parking Strategies

- Provide parking spaces for typical daily use satisfying both quantity and location needs through a combination of on-street and surface lot parking solutions
- Provide options for additional/overflow parking to support holiday traffic and special events including porous pavements, turf parking areas (Netlon and other soil amendments) or shuttle service from nearby parking areas
- Encourage shared parking solutions that target around the clock shifts in destination, audience or take advantage of peak/off-peak hours of operation for various uses within thesub-district
- Minimize surface parking lots fronting on primary streets, locate surface parking lots away from the major streets, either behind or to the side of buildings

Sub-District Guidelines - TC2 Commercial

Architechture

Overview
Buildings in the Commercial Sub-district make a significant contribution to first impressions of the Town Center. Buildings form gateways at the major entries into the site, architectural elements and choice of materials convey a certain character and the scale or massing of structures begins to define the feel or experience of this place. These are not just 'commodity' buildings, but instead should raise the bar in terms of overall design and specific details that make the Town Center unique, inviting and memorable. Architecture to be '4-sided' at all locations visible to public areas. Emphasis to be on great design along public street frontage. Architecture guidelines include the following:

TC2 Building Design, Character and Expression

- Provide a variety of building types and styles, expressed both in large scale (overall building) and small scale (design details)
- Emphasize transparency at street level to encourage two way viewing – both window shopping and eyes on the street
- Promote interesting, animated architectural features without being thematic or artificial – faux decorative elements are discouraged
- Avoid large, unarticulated façades
- Emphasize important intersections and other nodes by placing distinctive architectural elements or interesting façades at these prominent locations
- Provide a variety of front elevations for rows of buildings along any given block

TC2 Scale, Proportion and Building Height

- Provide a variety of building heights along any given block, perhaps related to changes in use or at demising walls – commercial buildings should express 12 foot first floor height
- Articulate front façades with projections and recesses
- Encourage increased building height and larger scale buildings adjacent to the railroad corridor, Armstrong Boulevard and as you approach the core sub-district
- Promote multiple stories in this sub-district, but single story buildings are acceptable; continuous height rooflines should not dominate any street frontage and should be a minimum of 18 feet to the roofline

TC2 Street Presence

- Emphasize pedestrian experience with architectural features at street level – canopies, decorative light fixtures and material details
- Encourage variety of color, texture and materials to complement other streetscape elements
- Conceal service entries, loading facilities and mechanical services from view along public streets as much as possible
- Create a continuous building edge for the majority of street frontage, visually connecting adjacent buildings with complimentary façade treatments – in limited areas where gaps occur, architectural treatments, windows and detailing of side façades should match front façade

TC2 Windows and Doors

- Maximize glass openings for all ground level, street front façades - especially for retail, restaurant and other commercial uses – recommend 535% minimum of total ground level façade, or demonstrate great design through other means
- Provide real window openings for all street facing façades
- Provide recessed entries wherever possible
- Use clear or lightly tinted glass for all windows and doors – mirrored, reflective or highly tinted glazing is unacceptable; faux windows are not allowed
- Provide primary access doors facing public streets

TC2 Materials

- Provide a diverse mix of materials, applied in a variety of proportions, exposures and detailing within a block, or alonga street
- Encourage durable, high quality materials - local sources if available
- Siding is not allowed (vinyl, metal, wood) except as a complimentary use
- Encourage the use of mostly brick or comparable alternative; minimum requirement of 50% of non-glazed wall area
- Metal and wood components are acceptable as a complimentary use
- Accommodate changes in material as follows – return 8 foot minimum at side walls and avoid terminating in the same plane
- Encourage overhead projections, either as a specific building component or as permanent/temporary canopies
- Avoid overly complex or arbitrary use of materials
- Include smaller scale elements, variety of materials and careful detailing to support street level activities and enhance the pedestrian experience

Sub-District Guidelines - TC3 Workplace

Public Realm/Streetscape

Overview
The Workplace Sub-district also encourages a mix of large and small floor plate buildings, but instead of commercial or entertainment, this area of the Town Center is dominated by office and institutional uses. With opportunities for corporate or medical campus development comes the attendant auto-related infrastructure – easy access, bigger streets and large surface parking lots. Once again, this suggests that equal attention be paid to public realm and streetscape improvements that not only accommodate vehicles, but also invite bicycle and pedestrian traffic. South Park, an active, neighborhood scale, recreational play space has been proposed for this sub-district, but small pocket parks, squares or other gathering places are also encouraged. In addition, streetscape improvements provide an important public amenity and inviting pedestrian connection to adjacent sub-districts. Public realm and streetscape guidelines include the following:

TC3 Parks, plazas and other public gathering spaces
Public spaces in the Mixed Use Core should:

- Blend both contemporary and traditional motifs with a focus on pedestrian use
- Encourage a balance of hardscape with landscape; a mix of pavements with plantings.
- Promote an overall landscape character that tends toward a more urban park or campus feel, with structured spaces, open lawns and layered garden plantings
- Provide a variety of opportunities to capture different microclimates with many choices for seating and access to both sun and shade
- Promote safety and security in all design solutions, including landscape lighting, open views into the site, and accessibility
- Provide seasonal interest and color; promote high quality materials and finishes
- Provide opportunities and specific sites for public art

TC3 Street/sidewalk dimensions and streetscape elements
Destination streets (like Sunwood) and connector streets (like Rhinestone) must balance a high level of service for the automobile with attractive and inviting amenities for the pedestrian (see street/sidewalk diagram) including:

- Provide gracious sidewalk width to support intensity of pedestrian traffic
- Install street trees to frame the street and provide shade
- Provide street lighting that meets all safety standards and design criteria, while creating a signature character for this district
- Explore street light spacing, height and type of fixtures to support the uses and activities in this sub-district (note however that too much light is as bad as too little)
- Explore a range of options for streetscape improvements including special pavements, interesting concrete tinting or scoring patterns, additional plantings, ornamental fencing and other features (note however that simpler is better and too much clutter is a negative)

TC3 Bicycle/pedestrian connections (on-street and off-street)
The Town Center Master Plan describes a network of bicycle/pedestrian trails and walkways (both on and off-street) that connect adjacent sub-districts to one another. These connections tend to become part of the shared right of way along the major streets. Bicycle riders may choose to share the street with vehicular traffic, or dismount and walk their bicycles along with the other pedestrians using the sidewalks. There is no provision for dedicated bike lanes on any of the Workplace Sub-district streets at this time. However, providing and maintaining these bicycle and pedestrian connections should be a key component for all development projects.

TC3 Residential courts, pocket parks and other private green space
Along with proposed public parks and great streets, there are many opportunities to integrate private courtyards and pocket parks within this sub-district. These small-scale greens provide important 'breathing space', contribute to stormwater management and offer additional recreational amenities (tot lot, sitting areas) to serve specific building tenants or residents. Back gardens, auto-courts and other options should be considered as part of residential and commercial development plans in this sub-district.

Sub-District Guidelines - TC3 Workplace

Site Development

Overview

The mix of medical, office, institutional and other uses in this sub-district suggest the potential for a campus-like arrangement of buildings on some blocks. These blocks would tend to be more internally oriented than in other districts, with driveways, parking lots, courtyards and walkway connections in the center, ringed by buildings around the outside. Buildings would still face adjacent streets, with both primary and secondary entries provided to animate these important façades, particularly along Ramsey Boulevard, Sunwood Drive and Rhinestone Street. While the Workplace sub-district also encourages mixed use, this desired development objective will likely occur mostly within blocks, not within individual buildings as seen in other districts. Site development guidelines include the following:

TC3 Land Use

- Encourage horizontal mixed use (within each block) throughout this district, and explore potential for vertical mixed use (within each building) where possible
- Encourage residential development, perhaps targeting senior housing near the core sub-district and rental units above storefronts along Sunwood Drive or adjacent to the park
- Include a mix of office, medical, institutional, housing, food venues and other uses that encourage a variety of activities throughout the day.

TC3 Building Placement

- Generally, buildings should be located at the street right-of-way line (zero setback), allowing recessed areas for building entries; no more than 60% of building beyond maximum setback
- Buildings should be placed at all four corners of key intersections
- Greater emphasis should be given to architectural elements, materials and other design features for buildings located at primary intersections, for example, at Sunwood and Rhinestone, or where streets intersect with parks, for example the streets that front on South Park – frequently these locations can be seen from several directions, perhaps terminate a view from a distance down the street or sit at a prominent activity node and will likely become future landmarks or helpful orientation/wayfinding icons as the Town Center develops
- Minimize openings between buildings, although limited driveway access (one per block along destination streets) and some provision for pedestrian connections through blocks are encouraged – gaps in the building wall along street frontage to accommodate large surface parking lots, greater building setbacks or other purposes are discouraged
- Encourage recessed entries and windows to create street-level interest, variety and pedestrian scale along street frontage
- No more than 25% of street frontage can be utilized for surface parking lots

TC3 Parking Strategies

- Provide parking spaces to support typical daily use, satisfying both quantity and location needs through a mix of on-street, surface lots internal to the block, underground and ramped parking solutions
- Encourage shared parking solutions that support special events or around the clock shifts in destination, audience – take advantage of peak/off-peak hours of operation for various uses within this, and adjacent sub-districts
- Locate surface parking lots away from the major streets, either behind or to the side of primary buildings; large surface parking lots along major street frontage are not allowed
- Discourage driveway access to parking facilities along Sunwood Drive in favor of side streets or along Civic Center Drive

Sub-District Guidelines - TC3 Workplace

Architecture

Overview
Buildings in the Workplace Sub-district also make a significant contribution to first impressions as people enter the Town Center via Highway 10, Ramsey Boulevard and Sunwood Drive. Buildings form gateways at the major entries into the site, architectural elements and choice of materials convey quality and permanence, and the scale or massing of structures begins to define the feel and character of this place. The proposed mix of uses within this subdistrict suggest a variety of potential building types – blending medical campus with small office, storefront and some housing demands design creativity and innovation to highlight unique architecture, and knit the entire sub-district together as a coherent whole. Architecture to be '4-sided' at all locations visible to public areas. Emphasis to be on great design along public street frontage. Architecture guidelines include the following:

TC3 Building Design, Character and Expression
- Provide a variety of building types and styles, expressed both in large scale (overall building) and small scale (design details)
- Emphasize transparency at street level to encourage two way viewing – both window shopping and eyes on the street
- Promote interesting, animated architectural features without being thematic or artificial – faux decorativeelements are discouraged
- Avoid large, unbroken façades
- Emphasize important intersections and other nodes by placing distinctive architectural elements or interesting façades at these prominent locations
- Provide a variety of front elevations for rows of buildings along any given block

TC3 Scale, Proportion and Building Height
- Provide a variety of building heights along any given block, perhaps related to changes in use or at demising walls
- Articulate front façades with projections and recesses
- Encourage increased building height, higher density and larger scale buildings adjacent to the Civic Square and Downtown Commons
- Promote multiple stories in this sub-district, but occasional single storybuildings are acceptable; continuous height rooflines and single story buildings should not dominate any street frontage and should be a minimum of 18 feet to the roofline

TC3 Street Presence
- Emphasize pedestrian experience with architectural features at street level – canopies, decorative light fixtures and material detail
- Encourage variety of color, texture and materials to complement other streetscape elements
- Conceal service entries, loading facilities and mechanical services from view along public streets
- Create a continuous building edge along street frontage, visually connecting adjacent buildings with complimentary façade treatments

TC3 Windows and Doors

- Maximize glass openings for all ground level, street front façades – especially for retail, restaurant and other commercial uses – recommend 35% minimum of total ground level façade, or demonstrate great design through other means
- Provide real window openings for all street facing façades above ground level – recommend 40% minimum of total façade
- Provide recessed entries wherever possible
- Use clear glass for all windows and doors – mirrored, reflective or highly tinted glazing is discouraged
- Provide primary access doors facing public streets

TC3 Materials

- Provide a diverse mix of materials, applied in a variety of proportions, exposures and detailing within a block, or along a street
- Encourage durable, high quality materials - local sources if available
- Siding is not allowed (vinyl, metal, wood) except as a complimentary use
- Encourage the use of mostly brick or comparable alternative; minimum requirement of 35% of non-glazed wall area
- Encourage overhead projections, either as a specific building component or as permanent/temporary canopies
- Avoid overly complex or arbitrary use of materials
- Include smaller scale elements, variety of materials and careful detailing to support street level activities and enhance the pedestrian experience

Public Realm/Streetscape

Overview

Two prominent public parks supply much of the informal green space for the Town Center, and more specifically, provide the valuable park frontage and mix of amenities needed to support housing development within the Neighborhood Sub-district. North Park surrounds an existing wetland and provides open space for year-round activities including a proposed sledding hill. Town Center Park cuts through the heart of the property and is characterized by wetlands, ponds and a meandering stream channel surrounded by gently sloping hills. Other park features include active and passive recreation areas, natural and manicured landscapes, education and interpretation opportunities, pedestrian and bicycle trails and many other amenities. Tree-lined streets connect these parks to surrounding residential neighborhoods and to nearby parks and amenities throughout the Town Center. Public realm and streetscape guidelines include the following:

TC4 Parks, plazas and other public gathering spaces

Public spaces in the Neighborhood Sub-district should:

- Blend both contemporary and traditional motifs with a focus onpedestrian and bicycle use, large and small group gatherings
- Emphasize informal green space, but also include a balance of hardscape with landscape; some paved areas integrated with plantings.
- Promote an informal or natural landscape appearance – this does not mean it isn't mown and maintained, but instead reflects the idea of soft landforms, groves of trees, meandering walks and other less structured elements
- Integrate stormwater management practices and features into park design as described in overall guidelines
- Take advantage of different microclimates, including sun and shade, orientation (north, south, east, west), top of slope/bottom of slope, water's edge
- Promote safety and security in all design solutions, including landscape lighting, open views into the site, and accessibility
- Provide seasonal interest and color; promote high quality materials and finishes
- Provide opportunities and specific sites for public art, special events, performance

TC4 Street/sidewalk dimensions and streetscape elements

Destination streets (like Town Center Parkway) and connector streets (like Rhinestone) should not only work for the automobile, but should also provide a safe, attractive and inviting experience for the pedestrian (see street/sidewalk diagram) including:

- Provide ample walk widths to support intensity of pedestrian use and bicycle traffic – recommend 6 foot minimum for pedestrian walks and 10 foot minimum for bicycle paths
- Provide urban streetscape solutions (sidewalks, boulevard plantings, curb and gutter) along Ramsey, Armstrong and Bunker Lake Boulevards, replacing the existing rural road sections (road shoulder, drainage ditch)
- Install street trees to frame the street and provide shade
- Provide street lighting that meets all safety standards and design criteria, creates a signature for this sub-district and compliments overall lighting design for the Town Center
- Explore street light spacing, height and type of fixtures that fit with residential use (note, however, that too much light is as bad as too little)
- Explore a range of options for streetscape improvements including special pavements, interesting concrete tinting or scoring patterns, additional plantings, ornamental fencing and other features (note, however, that simpler is better and too much clutter is a negative)

TC4 Bicycle/pedestrian connections (on-street and off-street)

The Master Plan describes a network of bicycle/pedestrian trails and walkways (both on and off-street) that connect sub-districts to various amenities within the Town Center and to the rest of the City. Proposed park improvements include off-street pedestrian and bicycle paths including grade-separated crossings through Town Center Park at Rhinestone and Zeolite Streets. Bicycle riders may choose to share the street with vehicular traffic, but there is no provision for dedicated bike lanes on any of the Town Center streets at this time. Providing and maintaining bicycle and pedestrian connections should be a key component for all development projects in this sub-district.

TC4 Residential courts, pocket parks and other private green space

Along with proposed public parks and great streets, there are many opportunities to integrate private courtyards and pocket parks within the Neighborhood Sub-district. These small-scale greens provide important 'breathing space', contribute to stormwater management and offer additional recreational amenities (tot lot, sitting areas) to serve specific building tenants or residents. Back gardens, auto-courts and other options should be considered as part of every residential site development plan.

Site Development

Overview

The Neighborhood Sub-district emphasizes residential development. To support the proposed mix of housing, a framework of streets and blocks, based on the traditional grid system, encourages compact development patterns with increasing densities closer to the heart of the Town Center. Typical blocks either front onto signature parks or include some private green space within the site; many blocks have both. The major streets that frame this property, including Ramsey, Armstrong and Bunker Lake Boulevards, provide an important 'face' for this sub-district. Residential front doors will connect with public walks along each of these streets promoting the urban character of the Town Center. Site development guidelines include the following:

TC4 Land Use

- Provide a mix of housing types, styles and price range including a variety of unit and building types within each block
- Promote increased density closer to the Mixed Use Core Sub-district and along major streets, specifically targeting locations along Town Center Parkway and the surrounding boulevard streets

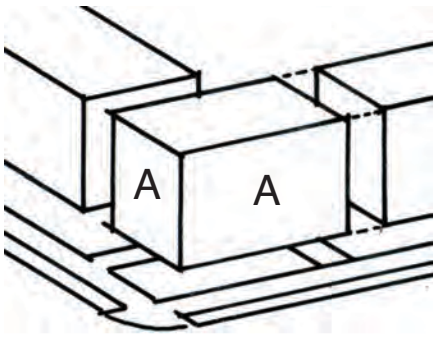
TC4 Building Placement

- Building setbacks are based on three factors – housing type, street width and the combination of desired public streetscape improvements and private 'garden' spaces
- Special consideration should be given to architectural elements, materials and other design features for buildings located at primary intersections, for example, at Bunker Lake Boulevard and Town Center Drive
- Special attention should be given where streets intersect with parks, for example many of the streets that front on or end near Town Center Park
- No more than 25% of building beyond maximum setback

- Minimize openings between buildings, although limited driveway access and some provision for pedestrian connections through blocks are encouraged – gaps in the building wall along street frontage to accommodate surface parking lots, greater building setbacks or other purposes are discouraged
- Build to corners of each block, maintaining the building wall at street intersections

TC4 Parking Strategies

- Incorporate surface parking lots into the center of blocks, screened from public streets with landscape, fencing and other ornamental elements
- Locate majority of visitor parking on-street
- Locate garage doors away from public view; garage doors fronting on public streets are not allowed
- Avoid long stretches of garage doors in the same plane – recesses and projections, landscape features and other site elements will provide some relief to this building face



- Build to corners
- Treat both sides as fronts

Architecture

Overview

The largest in terms of overall acreage, the Neighborhood Sub-district will define the character and quality of the entire northern half of the Town Center property. With prominent street frontage along most of the major thoroughfares that serve this site, the variety of choices for building type, architectural style and design detailing are crucial decisions that together will promote a safe and attractive residential neighborhood. Integrating contemporary and traditional styles is also an important consideration, central to the notion that a unique and creative model for housing development will be a signature for the Town Center. Architecture to be '4-sided' at all locations visible to public areas. Emphasis to be on great design along public street frontage. Architecture guidelines include the following:

TC4 Building Design, Character and Expression

- Provide a variety of building types and styles, expressed both inlarge scale (overall building) and small scale (design details)
- Express residential character through definition and identification of individual units within larger buildings
- Vary roof styles along street fronts including some recesses and setbacks
- Promote interesting, animated architectural features without being thematic or artificial – faux decorative elements are discouraged
- Avoid large, unbroken façades, specifically at 'side elevations' facing streets
- Emphasize important intersections and other nodes by placing distinctive architectural elements or interesting façades at these prominent locations
- Provide distinctly different front elevations for each building type along any given block

TC4 Scale, Proportion and Building Height

- Provide a variety of architectural elements of different heights along any given block that serve to break up the predominant building mass including porches, entry canopies, bay extensions and other features
- Emphasize individual building and unit entries through changes in height, scale and massing
- Minimize single story portions of any façade along street frontage
- Encourage increased building height, higher density and larger scale buildings along major streets, along park frontage and close to the core sub-district

TC4 Street Presence

- Locate building and unit entrances on primary façade; articulate entrances to ensure easy visibility and access
- Provide public / visitor access doors on building façades that face streets having on-street parking; buildings facing streets without on-street parking should treat the street-side elevation as the primary façade including covered porches, canopies, recesses and projections
- Provide windows and other architectural features for end units to enhance building character; blank walls are not allowed
- Address both street-facing elevations for corner buildings; treat both façades equally as primary elevations
- Provide outdoor living space (garden,terrace) along all public streets

TC4 Windows and Doors

- Maximize window area and design diversity along street front façades
- Provide windows into below grade levels that extend more than 3 feet above grade
- Provide recessed entries wherever possible
- Use clear glass for all windows and doors – mirrored, reflective or highly tinted glazing is discouraged
- Provide primary access doors facing public streets

TC4 Materials

- Provide a diverse mix of materials, applied in a variety of proportions, exposures and detailing within a block, or along a street
- Encourage durable, high quality materials - local sources if available
- Encourage the use of brick, stone and a variety of high quality materials
- Discourage the use of vinyl siding; large expanses of continuous siding is discouraged
- Include smaller scale elements, variety of materials and careful detailing that appeal to pedestrian activities; material or color changes should occur at these elements

- Horizontal material changes should only occur at inside corners or should return 8' of any wall
- 35% of non-glazed street front wall are should be brick unless building design is enhanced through other means such as covered porch areas, broken roof lines, articulated façade and material or color changes.

Site Development

Overview

The Town Center Master Plan illustrates a strong armature of green, including a mix of public parks, destination amenities, courtyards, commons and other features. As a key component of the overall plan, this integrated system of parks, trails and open space provides the framework around which all other land uses are organized. Placemaking and connectivity are important site development considerations, linking each block and each sub-district with major public spaces nearby and with many other amenities and attractions in the Town Center. Site development guidelines include the following:

TC5 Land Use

- Encourage connections to proposed public parks via streets, walkways andtrails as part of every development plan
- Encourage the creation of additional park space, perhaps mostly private or sem-public greens, as part of every development plan
- Include park features and recreational amenities specifically related to surrounding land use, sub-district character and defined needs of adjacent buildings
- Uses, structures and events, other than those specifically related to parksand recreational programs and activities, are not allowed

TC5 Building Placement

- Locate park structures within reasonable viewing distance from adjacent streets, or park walkways and trails, for easy access and visual surveillance
- Locate park structures near primary intersections, pedestrian crosswalks and bridge crossings to create visual markers and interesting objects within the park landscape – frequently these locations can be seen from several directions, perhaps terminate a view from a distance down the street or sit at a prominent activity node and will likely become future landmarks

TC5 Parking Strategies

- Provide on-street parking spaces adjacent to all public and private parks
- Provide options for additional/overflow parking on park property to support holiday traffic and special events including porous pavements and turf parking areas (Netlon and other soil amendments)
- Minimize surface parking lots on park property whenever possible to maximize green space
- Locate surface parking lots away from the major streets and provide adequate screening that includes plantings, fencing, earth berms or other attractive solutions

Architecture

Overview

There are numerous opportunities to include buildings and other structures as significant design features within the proposed parks, trails and open space system for the Town Center. These could range from simple picnic shelters and landscaped arbors to more complex park buildings that might contain meeting rooms, rest rooms, storage areas and other facilities. Design of these important buildings should respond to the specific setting and landscape features in each park, and complement the overall character and quality of buildings located within surrounding blocks. Architecture guidelines include the following:

TC5 Building Design, Character and Expression

- Create structures that reflect, and perhaps blend qualities of both the natural landscape and the unique urban form of various sub-districts and specific blocks within the Town Center
- Provide structures that add character, comfort and support proposed uses within each park
- Provide structures that are unique, highly detailed and durable
- Provide structures that heighten the overall design character and quality of the Town Center, where park buildings, as a separate category, distinguish themselves as great architecture

TC5 Scale, Proportion and Building Height

- Emphasize intimate scale to support street level activities and promote pedestrian comfort
- Emphasize scale and proportion that will complement, not compete, with surrounding character of park space

TC5 Materials

- Provide a diverse mix of materials, applied in a variety of proportions and design details
- Encourage the use of durable, high quality materials, including brick and stone, together with woods and metals to promote the idea of permanence

Public Realm/Streetscape

Overview

The overall structure of the Town Center is based on a system of linked parks, trails and open space. This includes existing and proposed parks and trails defined in city and regional parks plans, joined with new parks and trails within the Town Center. Of equal importance is the contribution from each block and each development project to this green structure, adding a variety of private, semi-private and perhaps some additional public space throughout each sub-district. Great strolling streets provide connections between commercial, workplace, entertainment and residential neighborhoods and encourage shared use for cars, pedestrians and bicycles. Public realm and streetscape guidelines include the following:

TC5 Parks, plazas and other public gathering spaces

Public spaces throughout the Town Center should:

- Blend both contemporary and traditional motifs with a focus on pedestrian use
- Encourage a balance of natural/informal landscapes with formal/urban plazas and squares; a mix of pavements and plantings, promenades and meandering trails
- Integrate stormwater management practices and features into every park design
- Provide a variety of opportunities to capture different microclimates with many choices for seating - including movable chairs, fixed benches, open lawn - and access to both sun and shade
- Provide a variety of levels or elevations to add interest to the ground plane and to provide informal steps, or lawn terraces for sitting
- Promote safety and security in all design solutions, including landscape lighting, open views into the site, and accessibility
- Provide seasonal interest and color; promote high quality materials and finishes
- Provide opportunities and specific sites for public art, special events, performance and markets

TC5 Street/sidewalk dimensions and streetscape elements

Destination streets (like Sunwood), connector streets (like Rhinestone), and background streets (like many of the residential neighborhood streets) all front on public parks and all contribute to the desired connectivity throughout this new community. While each street must provide a defined level of service for the automobile, creating attractive and inviting amenities for pedestrian and bicycle use is equally important. Streets adjacent to public parks in the Town Center will include the following:

- Provide gracious sidewalk width to support intensity of pedestrian traffic in the various sub-districts
- Provide off-street bicycle trails wherever possible
- Install street trees to frame the street and provide shade
- Provide street lighting that meets all safety standards and design criteria, while creating a signature character for each sub-district
- Explore street light spacing, height and type of fixtures to support uses and activities (note, however, that too much light is as bad as too little)
- Explore a range of options for streetscape improvements including special pavements, interesting concrete tinting or scoring patterns, additional plantings, ornamental fencing and other features (note, however, that simpler is better and too much clutter is a negative)

TC5 Bicycle/pedestrian connections (on-street and off-street)
The Master Plan describes a network of bicycle/pedestrian trails and walkways (both on and off-street) that connect sub-districts to various amenities within the Town Center and to the rest of the City. Proposed park improvements include off-street pedestrian and bicycle paths including grade-separated crossings through Town Center Park at Rhinestone and Zeolite Streets. Bicycle riders may choose to share the street with vehicular traffic, but there is no provision for dedicated bike lanes on any of the Town Center streets at this time. Providing and maintaining bicycle and pedestrian connections should be a key component for all development projects in this sub-district.

TC5 Residential courts, pocket parks and other private green space
Along with proposed public parks and great streets, there are many opportunities to integrate private courtyards and pocket parks within the Neighborhood Sub-district. These small-scale greens provide important 'breathing space', contribute to stormwater management and offer additional recreational amenities (tot lot, sitting areas) to serve specific building tenants or residents. Back gardens, auto-courts and other options should be considered as part of every residential site development plan.

Ramsey
Town Center,
L.L.C.

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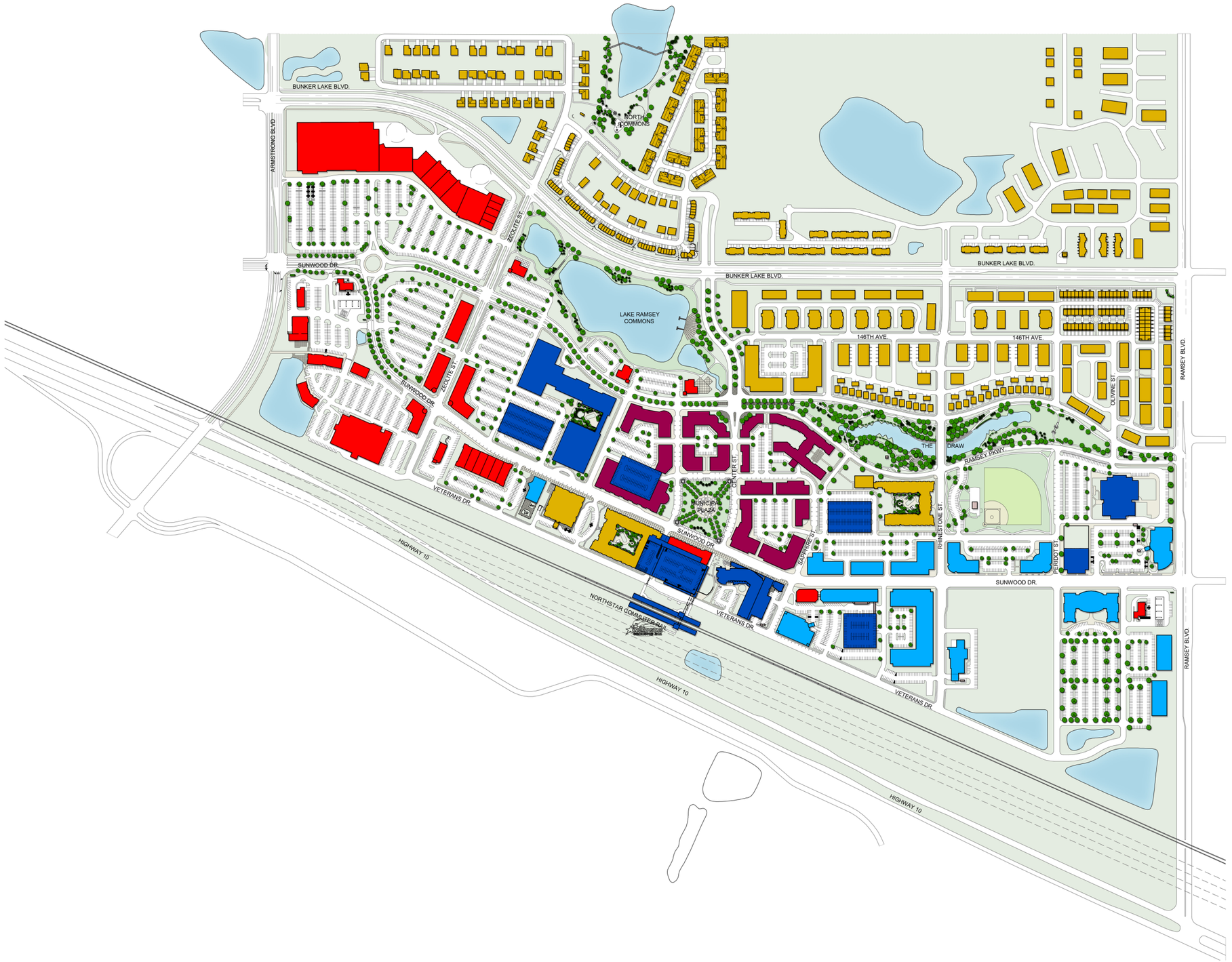
DEVELOPMENT STATUS:

- Existing Development
- Proposed Development



DEVELOPMENT LAND USE:

- Commercial (retail, restaurant)
- Office (office, medical, hotel, day-care center)
- Public/Institutional (government, school, church, parking structure)
- Residential (condo, apartment, senior housing, townhomes, single family)
- Mixed Use (residential, commercial, office)

Design Framework

THE COR

AT RAMSEY

February 28, 2012

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Design Framework – The COR

Purpose

The primary purpose of Design Framework is to set basic parameters, describe preferences and illustrate design intent. These framework standards serve as a framework within which creative design can and should occur – there is no one solution, but many options that meet the basic requirements of this document.

Application

The format and content of this framework are specifically tailored for use as a supplement to the Zoning Ordinance. This document is organized into two sections. The first section outlines issues and recommendations that apply to the entire COR. The second section highlights specific framework that apply to each sub-district within The COR. The City of Ramsey has adopted Development Plan 5.03 as the Master Plan for The COR. This master plan provides illustrative guidance for building locations and orientation. Any changes to this approved master plan must be reviewed and approved by the City Council as part of the development application. This Development Plan will be updated by the City as changes are approved.

Implied Responsibility

All participants in the development of The COR recognize the local and regional impacts of this project and the various systems that play an important role. Each parcel and each building must fit within the context of the entire plan. Individual projects must complement, not compete with, adjacent development in terms of public green space, walk and trail connections, stormwater management solutions, street layout, parking strategies, land use mix and building design.

Part One: Overall Framework

There are a number of framework standards that apply to the entire COR, including recommendations for stormwater management, parks, streets, land use, parking, transit and other development components. Many of these overall COR framework standards overlap, or are integrated with one another. For ease of discussion they are categorized according to the same list of 'layers' that formed the basic structure for the Master Framework:

- Context – local, city, regional
- Street Hierarchy--access, circulation, arrangement
- Streetscape—preferred design, location
- Parking -- quantity, location, type
- Building Design-- preferred uses, horizontal/vertical mixed use, built form, character of development
- Signage—design, location, quantity, type
- Stormwater Management-- surface water features, stormwater management
- Parks/Public Spaces – parks, trails and open space

It is essential that proposed design solutions for development projects and other improvements within The COR demonstrate an understanding of the interplay between these layers.

Overall Framework - Context

Overview

The COR is a unique area within the City; but it is a part of, and connected with, a variety of local, city-wide and regional systems (See Figure 1: Development Master Plan 5.03). Each development project, whether a single building, one lot, or a series of blocks, must provide reasonable links to these systems as a primary design objective.

Guideline Recommendations

To ensure that The COR takes full advantage of local and regional systems, development should:

- Provide safe, easily recognized connections to city, county and state trail corridors
- Make provisions for city and regional transit service and amenities (including the Northstar Line) and encourage their use
- Tie into, and improve, the Ramsey utility network
- Integrate with and complement the existing (and future) street framework
- Become an integral part of the city and county drainage/stormwater management plan

Objectives

- Overall COR design (and all new private development within The COR) will accommodate stormwater from new projects and from off-site, and highlight stormwater features as an amenity
- Bikeways and pedestrian routes into The COR from adjacent neighborhoods must be designed for safety and ease of access, suggesting that a person on a bicycle has an equally accessible route to downtown.
- Parks and open space will be easily accessible to all COR residents, visitors, people who work here and also for the citizens of Ramsey and the surrounding area. This connected green system is reminiscent of the world renowned 'Grand Rounds' of Minneapolis.

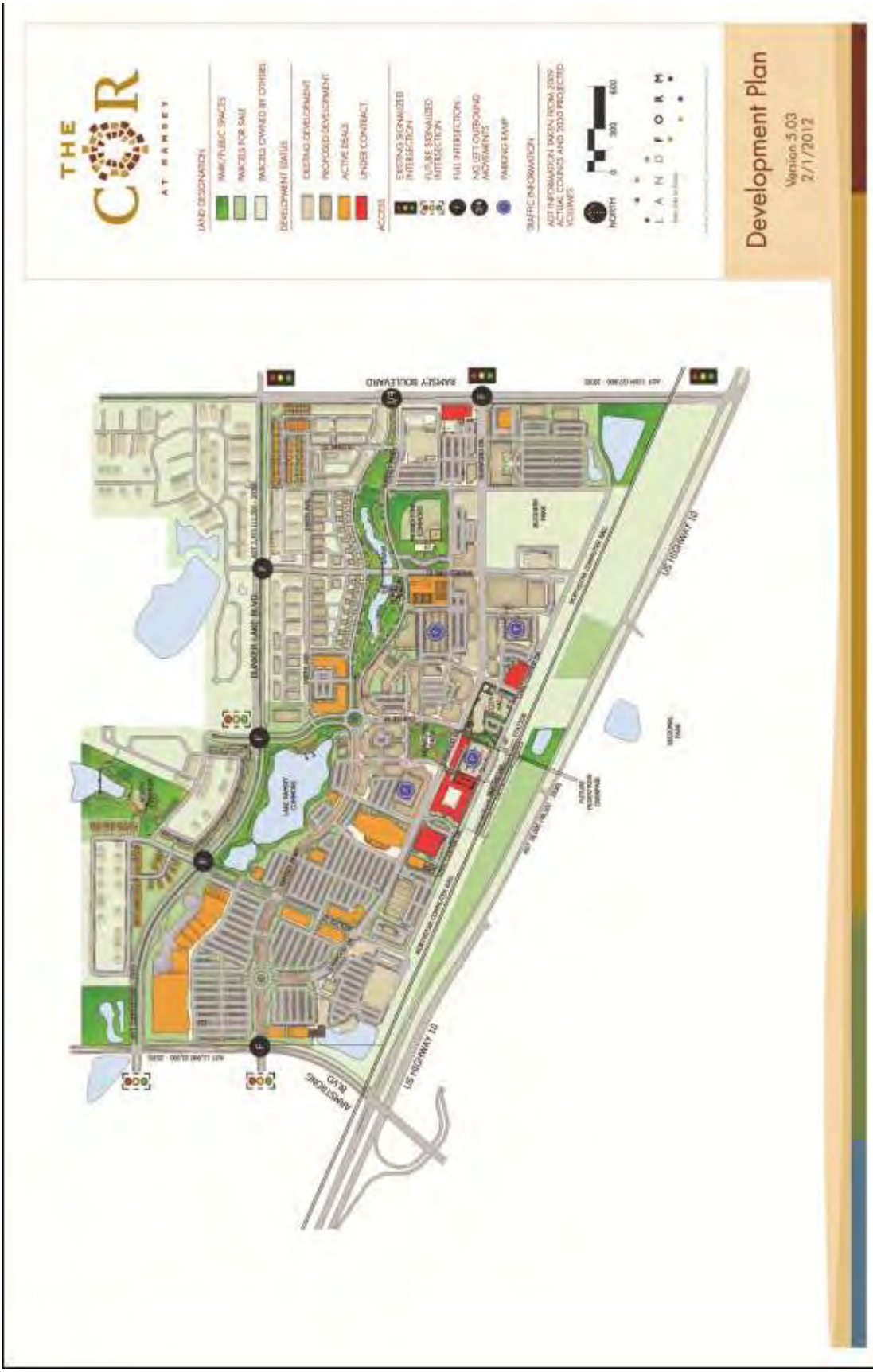


Figure 1: Development Master Plan 5.03

Overall Framework – Street Hierarchy

Overview

The Development Master Plan defines a specific strategy for the layout of streets and blocks within, and around The COR. The size, type and configuration of this street hierarchy (See Figure 2: Street Hierarchy) is based on a combination of projected traffic volume, level of service at intersections, proposed adjacent land use (destination commercial, residential, civic, recreation, etc.) and desired aesthetic character.

Great streets are essential components of an attractive and inviting public realm. These guidelines promote a street system that balances pedestrian and vehicular use. Providing streets that support traffic flow is important, but also creating ample space for street-side activities, strolling promenades, pockets of green and other amenities is critical to the success of The COR. Streets will promote convenient access by car – to storefronts, to parking lots and ramps, to entertainment attractions – but will also encourage foot traffic as a primary way to move about and conduct business in the core area.

Guideline Recommendations

The proposed street and block pattern reflects a compact urban character, not allowing dead end streets or cul-de-sacs, in favor of a traditional grid pattern and connected streets including the following:

- Provide a street network that distributes pedestrian and vehicular traffic throughout the various districts in The COR and encourages a more dispersed and less congested traffic flow (many choices or travel paths).
- Provide a clear hierarchy of streets resulting in a simple and understandable system for movement – easy access and convenient circulation throughout The COR.
- Work with Anoka County to convert primary perimeter streets (arterials such as Ramsey, Armstrong and Bunker Lake Boulevards) to urban street sections, providing sidewalks and street trees to replace roadside ditches.
- Promote improvements that invite pedestrian and bicycle use including wide sidewalks, streetscape amenities and designated bicycle trails (both on and off-street).

Objectives

Creative design solutions for public realm improvements should reflect these basic street classifications (street hierarchy) including:

- Arterial street – these streets provide the boundary of The COR and all access into The COR will be from one of these three streets:
  - Bunker Lake Boulevard
  - Armstrong Boulevard
  - Ramsey Boulevard
- Destination street – signature addresses for shopping, entertainment, services, work place and other primary amenities
  - Sunwood Drive

- Parkway – premier 'green streets' adjacent to primary public park / green space, with more landscaping than other streets in The COR
  - Ramsey Parkway
  - Center Street (north of the roundabout)
- Connector street – primary routes that link various districts within The COR, usually providing the most direct means of getting from point A to point B
  - Rhinestone Street
  - Zeolite Street
  - Veterans Drive
- Downtown street – the most urban of street sections where high pedestrian traffic is intended and traffic calming measures such as on street parking, bump outs and other methods will be employed
  - Center Street (south of the roundabout)
  - Sapphire Street (north of Sunwood)
  - Other streets as shown on the Street Hierarchy Map
- Local street – neither destination nor primary connector routes, these streets provide much of the rest of the street grid throughout The COR.

These street hierarchy classifications are intended to provide guidance regarding the streetscape, but it should be noted that within a street classification, there may be construction or design distinctions, based on the sub-district classification. For example, Sunwood Drive is defined as a destination street throughout The COR, but the design may be different between the COR1 and COR2 sub-districts. The Master Streetscape Map will provide design direction.

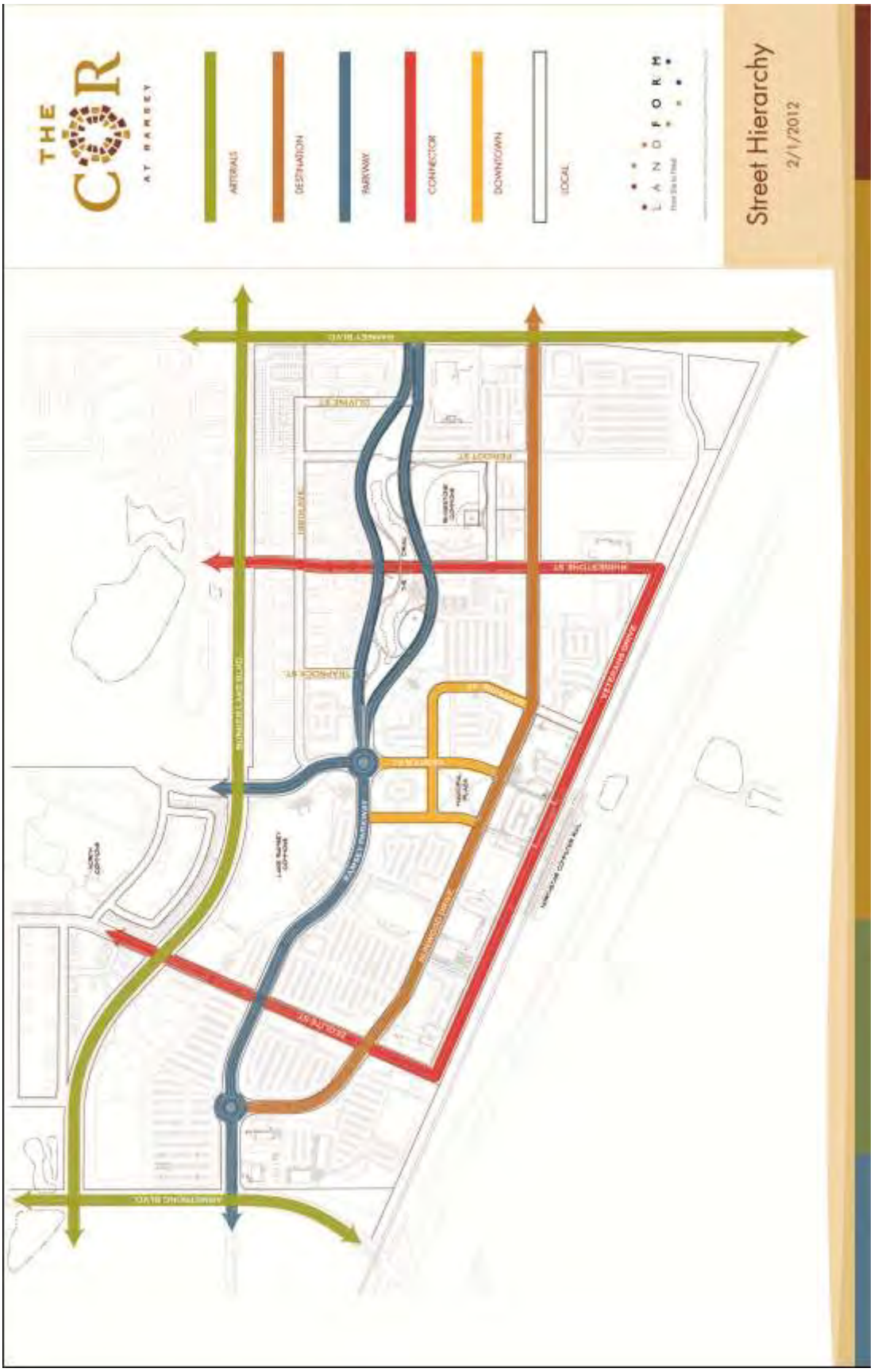


Figure 2: Street Hierarchy Map

Transit Overview

The COR is designed to be a Transit Oriented Development (TOD) in a variety of ways that go beyond providing a walkable public realm and connected street grid. The Master Plan also includes a multimodal transit station, with dedicated commuter parking, integrated with other uses at the heart of the retail, restaurant and entertainment district. This station functions as a hub where local circulator transit comes together with regional transit service and the Northstar Corridor. The COR is the Twin Cities' first and only transit-oriented development along the new Northstar Commuter Rail Line. Ramsey Station at The COR will open for riders boarding the train in November 2012. As Northstar's most visible station, The COR will immediately bolster the ridership on the line and continue to build recognition for this regional service.

Transit components include the following:

- Ramsey Star Express service provides peak period, peak direction bus service between downtown Minneapolis and Ramsey until the Northstar Commuter Rail station stop is complete
- Northstar Commuter Rail provides train service between Big Lake and downtown Minneapolis
- 350 park and ride parking spaces are provided for commuters adjacent to the transit station
- Pedestrian and bicycle connections are emphasized in the Master Plan as major links between the transit station, various districts within The COR and into the surrounding neighborhoods
- The COR can accommodate Metro Mobility, citywide circulator bus or town trolley connections as part of local and regional service to the transit station

The COR also encourages developers to participate in a Travel Demand Management (TDM) program to both assist and encourage residents and visitors to take advantage of the various modes available for their commuting and travel needs. The TDM program draws from incentives and services available through Anoka County and Metro Commuter Services that match riders with carpools and vanpools, provide discounted transit passes and manage work hours among other functions.

- Developers shall submit a TDM plan with their site plan application for new development and work with the City to implement their plans.

Transit Guideline Recommendations

Transit is an important component of the overall plan, with expectations for more ridership, using a greater range of transit options as they become available. More people, together with the mix of activities and amenities in The COR, encourages better designed, better connected transit service. It is a shared responsibility between city, county and developer to promote transit use, with both policy and bricks-and-mortar attention to the following framework:

- Understand and take advantage of opportunities to use existing and proposed transit components

- Provide transit related facilities specifically linked to uses and character within each COR district, including signage and lighting for way-finding and bicycle amenities
- Building future Northstar Commuter Rail riders through the Ramsey Star Express bus service

Transit Objectives

The primary objective is to provide a balance of transit service, bicycle and pedestrian connections and lanes to move traffic. The framework for The COR promotes public transportation as part of the solution and suggests a variety of street improvements and other amenities to invite increased use. Photographs throughout the framework suggest some of the many possibilities.

Overall Framework - Streetscape

Overview

The Master Plan defines a specific strategy for the layout of streets and blocks within and around The COR. The amenities within the public right-of-way -and immediately adjacent -play an important role in the aesthetics of The COR. Great streets are essential components of an attractive and inviting public realm. Developing a streetscape that is comfortable and inviting to pedestrians is important to realizing the vision for The COR. The framework will encourage interesting and inviting places for the public.

The Streetscape framework defines the visual character and physical improvements for all public spaces within The COR. The document also provides the general framework and examples for design of proposed quasi-public and private space located within each development parcel.

Public realm/streetscape framework focus on the following elements:

- Parks, plazas and other public gathering spaces
- Street/sidewalk character and streetscape elements
- Bicycle/pedestrian connections (on-street and off-street)
- Residential courts, pocket parks and other private green space

The goal is to foster a safe and interesting public realm that will invite pedestrian activity, promote traffic calming, increase transit use and encourage community gathering. Street trees, lighting and decorative fencing provide the backbone for streetscape improvements. Added detail, such as special pavements, street furniture, public art and layered plantings will highlight specific nodes or uses. The City has developed a series of street cross -sections to illustrate these design expectations. Typical street sections are provided in Appendix A as a reference.

Destination and Connector streets must balance a high level of service for the automobile with attractive and inviting amenities for the pedestrian including:

- Provide gracious sidewalk width to support intensity of pedestrian traffic in the core
- Install street trees to frame the street and provide shade
- Provide street lighting that meets all safety standards and design criteria, while creating a signature character for this district
- Explore a range of options for streetscape improvements including special pavements, interesting concrete tinting or scoring patterns, additional plantings, ornamental fencing and other features (note, however, that simpler is better and too much clutter is a negative)

The COR includes a network of bicycle/pedestrian trails and walkways (both on and off-street) that connect adjacent sub-districts to the Mixed Use Core. As you approach the core, these connections tend to become part of the shared right of way along the major streets, or become part of the urban park spaces. Bicycle riders may choose to share the street with vehicular traffic, or dismount and walk their bicycles along with the other pedestrians using the sidewalks. Providing and maintaining these bicycle and pedestrian connections should be a key component for all development projects in the core.

Figure 3: Master Lighting Plan

Guideline Recommendations

The proposed street and block pattern reflects a compact urban character, including the following:

- Bike racks interspersed throughout The COR to encourage cycling as an alternative mode of transportation.
- Benches on the public sidewalks to encourage people to linger in The COR
- Trees and planters along the streets to create an inviting space
- Wide sidewalks and both on- and off-street bicycle trails
- Kiosks and other way finding tools for visitors and residents in The COR
- Outdoor dining is encouraged on the street side of buildings within all districts.
- Public plaza space is strongly encouraged to be located adjacent to the streets

Objectives

Creative design solutions for streetscape improvements should include:

- Streetscape improvements that provide traffic calming, particularly along Destination and Downtown streets
- Inviting streets that draw you into and through The COR
- A marriage of building design and streetscape design that encourages active spaces near the streets

Street Trees and Plantings

Street trees and planter boxes are a critical element in the unique character of The COR and will be used to help distinguish between different street types and sub-districts within The COR. However, there may be variety within the same street when the street crosses into sub-districts.

- Street trees will be chosen to ensure that the species allow for clear pedestrian access along the streets and require minimal maintenance.
- Along Destination, Downtown, Parkway and Local streets, where regularly spaced blocks exists, one (1) tree species shall be provided per block. In order to provide variety and protect against disease, adjacent blocks shall not be allowed the same street tree. Initial development along a block shall establish the tree species for that block, subject to City review and approval.
- Along streets without regular block space or longer blocks, such as Connector and Arterial streets, the City may approve groupings of 3-6 trees of one (1) species in lieu of the regular block spacing.
- Alternatives to the above mentioned planting plan shall be subject to review and approval by the City Council.

Destination Street Trees:

- Autumn Blaze Maple (*Acer x freemanii* 'Jeffersed')
- Bicolor Oak (*Quercus bicolor*)
- Sienna Glenn Maple (*Acer x freemanii* 'Sienna')
- Skyline Honeylocust (*Gleditsia triacanthos var. inermis* 'Skyline')
- Ginko (*Gingko biloba)*
- Accolade Elm (*Ulmus x '*Accolade')

Parkway Street Trees:

- Valley Forge Elm (*Ulmus americana* 'Valley Forge')
- Bitternut Hickory (*Carya cordiformis)*
- Siouxland Poplar (*Populus deltoides* 'Siouxland')
- Sienna Glen Maple (*Acer x freemanii* 'Sienna')
- Boulevard Linden (*Tilia americana* 'Boulevard')
- Northern Catalpa (*Catalpa speciosa)*
- Spring Snow Crabapple (*Malus* 'Spring Snow')
- Kelsey Crabapple (*Malus* 'Kelsey')
- Korean Mountain Ash (*Sorbus alnifolia)*
- Ohio Buckeye (*Aesculus glabra)*
- Ginkgo (*Gingko biloba)*

Connector Street Trees:

- Bicolor Oak (*Quercus bicolor*)
- Northern Red Oak (*Quercus rubra)*
- Princeton Elm (*Ulmus americana* 'Princeton')
- Accolade Elm (*Ulmus x* 'Accolade')
- Autumn Blaze Maple (*Acer x freemanii* 'Jeffersed')
- Skyline Honeylocust (*Gleditsia triacanthos var. inermis* 'Skyline')
- Kentucky Coffeytree (male) (*Gymnocladus dioicus)*
- River Birch (single stem) (*Betula nigra)*
- Black Alder (*Alnus glutinosa)*
- Black Cherry (*Prunus serotina)*
- Spring Snow Crabapple (*Malus* 'Spring Snow')
- Kelsey Crabapple (*Malus* 'Kelsey')
- Japanese Tree Lilac (*Syringa reticulate)*
- Thornless Cockspur Hawthorne (*Crataegus crus-galli* var. inermis)

Downtown Street Trees:

- Princeton Elm (*Ulmus americana* 'Princeton')
- Accolade Elm (*Ulmus x* 'Accolade')
- Autumn Blaze Maple (*Acer x freemanii* 'Jeffersed')
- Skyline Honeylocust (*Gleditsia triacanthos var. inermis* 'Skyline')
- Kentucky Coffeytree (male) (*Gymnocladus dioicus)*
- River Birch (single stem) (*Betula nigra)*
- Black Alder (*Alnus glutinosa)*
- Black Cherry (*Prunus serotina)*
- Spring Snow Crabapple (*Malus* 'Spring Snow')
- Kelsey Crabapple (*Malus* 'Kelsey')
- Japanese Tree Lilac(*Syringa reticulate)*
- Thornless Cockspur Hawthorne (*Crataegus crus-galli* var. inermis)

Local and Arterial Street Trees:

Local and Arterial Street trees may be chosen from any species on the above lists.

Planter Beds/Boxes/Tree Grates

- Planter beds, tree grates and planters shall be as shown on the Streetscape Master Plan. Details and specification shall be added to Appendix A as developed and approved by the City. Appendix A shall be amended as needed.
- Irrigation shall be provided to ensure survival of plant materials. The City shall provide irrigation systems along the Parkway and Destination streets. Unless otherwise approved, all other irrigation shall be the responsibility of the landowner.

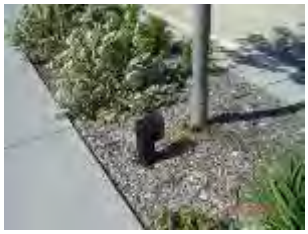
Street Furniture

Bike racks, trash enclosures and benches are encouraged on all streets, but will be required on Destination, Connector and Parkways and other streets as shown conceptually on the Streetscape Master Plan.

Bike racks shall be the standard bike rack (see Appendix A for specifications).

Trash enclosures shall be the standard trash enclosures (see Appendix A for specifications).

Benches shall be the standard bench (See Appendix A for specifications). Benches shall be grouped in twos that face each other and provide an opportunity for an outdoor conversation space.



Alternative bike rack, trash enclosures and bench designs will be considered on a case-by-case basis. The City will review alternative designs as part of the site plan review and will evaluate these alternatives based on the following:

- Does the design maintain the character of the district?
- Does the alternative design maintain the quality of the standard feature?
- Does the design provide a relationship between the public elements of the streetscape and the building that would not otherwise be possible?

Sidewalks and Boulevard

In the design framework, the term “boulevard” is defined as “the space between the sidewalk and the curb.” The boulevard area provides the required space for public features such as street lights, benches, fire hydrants, street signs, etc. The boulevard will have different characteristics based on the street hierarchy.

The street width and layout within different zones may affect the ability of a particular development to provide the minimum boulevard width and the minimum sidewalk width within the existing public right-of-way. In those cases, the landowner shall provide a permanent public easement over the portion of the sidewalk that is located on private property.

Street Lights

Street lights are owned and installed by Connexus Energy. The streetlight design was developed in conjunction with the City of Ramsey and Connexus (See Figure 3: Master Lighting Plan). The standard street lights are designed to accommodate banner arms should banner signage be desired. The banner arms should be the manufacturer's standard break-away banner arms to ensure safety and minimize maintenance costs. Connexus provides street light maintenance for the City. Connexus bills the City of Ramsey for the cost of installation and maintenance.

The choice of street light was intended to emphasis the pedestrian scale of The COR. Light poles within the public right-of-way should be planned to accommodate banners, flowers, hanging artwork and electrical outlets.

There are three (3) different streetlight types within The COR:

- 24-foot high poles at intersections
- 14-foot high poles at mid-block
- 12-foot high poles at The Draw

The City will ensure that the appropriate streetlights are installed on all public streets as described by the Design Framework. Private developers shall provide parking lot or other project lighting that retains these design objectives. All lighting shall comply with City Code performance standards for lighting. All lighting shall be reviewed by City staff to ensure compliance with the Design Framework and City Code standards described above.

Standards for Outdoor Dining.

Outdoor dining is encouraged as an attractive addition to a pedestrian- and retail-friendly, vital COR. Such dining is encouraged subject to the standards in Section 117-118 of the Zoning Ordinance.

Overall Framework - Parking

Overview

Balancing the realities of car-related necessities (streets, parking and so on) with future transit service and the desired character of The COR is a significant challenge. The goal is to provide adequate parking; both quantity and location, while promoting new strategies that support the overall needs of The COR. Parking will be provided through a combination of on street spaces, off-street surface lots, underground lots and structured ramps to support the mix of uses at the core.

Parking structures should contribute to the overall character and image of The COR. Ramp design should include elements, colors and materials that reflect, or complement surrounding buildings. Liner stores or other street level uses should be integrated into ramp design along important street frontages. The City also encourages developers to wrap the ramp with multi-story uses that will provide commercial and residential opportunities and help to define the street edge.

Guideline Recommendations

Parking guidelines encourage the following:

- Locate surface parking lots away from the major streets, either behind or to the side of primary buildings; surface parking lots along major street frontage are not allowed in the core area
- Minimize surface parking lots in favor of other solutions including underground parking to serve residential buildings, on-street parking to serve retail shops and parking ramps
- Provide a combination of fencing, landscaping and landform to screen parking areas from major streets and important views, soften parking area edges, provide shade, integrate native plantings, offset islands and reduce to 'sea of parking' image
- Create strategies for shared parking between adjacent uses, taking advantage of peak and off-peak cycles, business hours, nighttime activities, special events and other needs
- Provide alternative surfaces for secondary (less frequently used) parking areas including porous pavements, green pavements and so on
- Provide facilities or services that respond to and connect with future transit to reduce required parking, including shuttle/circulator bus, bicycle lockers
- Provide flexibility including hours for on-street parking, security and enforcement practices, permit or metering
- Provide parallel parking on both public and private streets throughout The COR, to add parking and create a traffic calming, pedestrian buffer; Bumpouts are encouraged as a traffic calming measure on all streets within the COR.
- Explore options to integrate stormwater management requirements into parking area design
- Provide parking spaces for typical daily use, satisfying both quantity and location needs through a mix of on street, small surface lot, underground and ramped parking solutions
- Provide options for additional/overflow parking to support holiday traffic and special events including porous pavements, turf parking areas (Netlon and other soil amendments) or shuttle service from nearby parking areas
- Encourage shared parking solutions that target around the clock shifts in destination, audience or take advantage of peak/off-peak hours of operation for various uses within the core area

- Promote municipal parking ramps as the primary facility to meet public parking needs within the core area
- Discourage driveway access to parking facilities along Arterial, Destination and Parkway streets, in favor of side streets.

Objectives

The primary objective is to provide a balance of surface lots, on-street and structured parking, with ample quantities and close proximity to serve the mix of uses in The COR. The Design Framework anticipates the construction of a total of 3 parking structures in COR1 to serve the needs of the area by providing structured parking that can be shared among users, allow developers to maximize the development on each individual lot. As discussed later in this section, sizing and timing of the structured parking will be finalized as the area develops and parking demand grows. In addition to providing adequate space, excellent design is a major factor as well. The framework for The COR encourages creativity, innovation, quality and attention to detail in every aspect of project development, including parking solutions. Photographs throughout the Design Framework suggest some of the many possibilities.

Figure 4: Streetscape Master Plan

Figure 5: Parking District Map

Minimum Standards

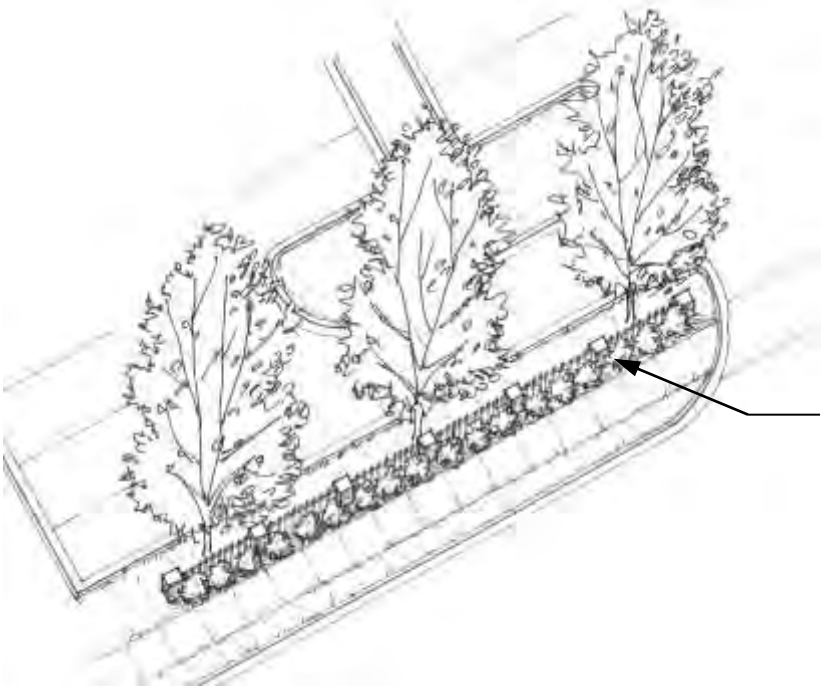
Parking in The COR is intended to be shared to the greatest extent practicable in all mixed-use areas. The parking standards are intended to provide a practical basis for providing adequate parking within the COR District through a careful analysis of uses, shared parking arrangements, use of public street parking and reduction allowances for the proximity to the transit station. A parking plan has been prepared to identify the planned number, location, sharing arrangements and public use (see Figure 4: Streetscape Master Plan and Figure 5: Parking District Map). The parking plan provides information that can be used to help address longer term parking arrangements where the possibility of use conversion or building expansion exists. Parking shall be provided under any of the following arrangements:

A. No parking shall be located between the front of the principal structure and the street on parcels abutting Destination and Downtown streets in COR1.

B. Not more than fifty (50%) percent of the parking shall be located in front of the principal structure and the street on parcels abutting Arterial, Parkway, Connector and Local streets.

    1. In the COR2 district, developments may be allowed more than fifty (50%) percent parking in the front yard, provided all other design standards have been met, including the use of a wall, railing, hedge or combination to create a street edge and screen parking.

C. Wherever a surface parking area faces a street frontage, such frontage shall be screened with a decorative wall, railing, hedge, or a combination of these elements, to a minimum height of three feet (3') and a maximum height of four and one-half feet ($4^1/_2$') above the level of the parking lot, at the build-to line required for the property. The amount of required screening may vary by sub-district and street frontage and is described in Part Two of this document.



Landscaped edge that combines fence with trees, low shrubs and ground cover for parking lot screening and buffering along sidewalk to screen parking

D. No parking spaces shall be located on corner lots at the point of street intersections.

E. Shared parking in COR1 will be accomplished through a Parking Use and Maintenance Agreement (PUMA).

F. Off-street parking in the COR2 and COR3 sub-districts shall be secured for public use through parking easements and other appropriate conveyances. Shared parking arrangements between nearby uses are encouraged in both sub-districts.

1. The City may approve joint parking for one or more businesses where the total number of parking stalls provided for joint use is less than the sum of the total required for each business should they provide them separately. The applicant must demonstrate the feasibility of the arrangement in a written report. Such a permit shall not be granted except when the following conditions are found to exist:
    i. Proximity. The building or use for which application is being made to utilize the off-street parking facilities provided by another building or use shall be located within three hundred (300') feet of such parking facilities, excluding public rights-of-way.
    ii. Conflict in Hours. The applicant shall demonstrate in documented fashion that there is no substantial conflict in the principal operating hours of the two (2) buildings or uses for which joint use of off-street parking facilities is proposed.
    iii. Written Consent and Agreement. A legally binding instrument, executed by the parties concerned, for joint use of off-street parking facilities, duly approved as

to title of grantors or lessors, and in a form and manner of execution approved by the City Attorney, shall be filed with the City Clerk and recorded with the Anoka County Recorder or Registrar of Titles, and a certified copy of the recorded document shall be filed with the City within sixty (60) days after approval of the joint parking use by the City or the interim use permit shall be considered null and void.

G. On-street parking adjacent to buildings shall not be used for the purposes of calculating parking requirements.

H. Within the COR-4 sub-district, parking on individual parcels serving individual uses may be provided if designated and approved as part of the master plan.

I. Within all sub-districts, a minimum driveway length of twenty-five (25') feet is required to limit conflicts between vehicles parked in the driveway and street or sidewalk users.

J. In order to ensure the pedestrian orientation of the COR Districts, minimum/maximum on-site parking standards are set based on the following table:

Table 1

Use		Minimum number of parking stalls	Maximum number of parking stalls*
Retail		2 per 1,000 sq. ft.	4 per 1,000 sq. ft.
Restaurants		3 per 1,000 sq. ft.	5 per 1,000 sq. ft.
Offices		2 per 1,000 sq. ft.	3 per 1,000 sq. ft.
Medical offices, clinics		2 per 1,000 sq. ft.	4 per 1,000 sq. ft.
Health clubs		3 per 1,000 sq. ft.	5 per 1,000 sq. ft.
Theaters, places of assembly		1 per 5 seats	1 per 3 seats
Residential			
	Attached or detached	1 per unit	2 per unit
	Multifamily units	1 per unit	2 per unit

*If a parking structure is provided on site, maximum parking stalls do not apply.

K. Non-Specified Uses. For uses not specifically listed above, off-street parking requirements shall be computed by the Zoning Administrator on the same basis as required for the most similar listed uses. In such cases, the Zoning Administrator shall also consult off-street parking reference materials including, but not limited to, manuals prepared by the American Planning Association and Institute of Transportation Engineers.

L. Handicap Parking. The size, number, and location of stalls reserved for handicapped parking shall be provided and identified as required by applicable regulations. These spaces are included in the computation for the minimum parking space requirement.

M. Change in Land Use. When the site intensity or use of a building and/or property is increased with consequential effect upon the parking requirements as prescribed in this Section, the

parking requirements as prescribed herein shall be used to provide for such increase in the site intensity and/or use.

N. Use of required parking spaces. Required parking spaces must be available for the use of residents, customers or employees of the use. Fees may be charged for the use of required parking spaces. Required parking spaces may not be assigned in any way to a use on another site, except for joint parking situations. Also, required parking spaces may not be used for the parking of equipment or storage of goods or inoperable vehicles.

O. Transit Service Reduction. The minimum number of parking stalls required on site may be reduced by 10% for any parcel located within ¼ mile of a transit stop. To qualify for this reduction, the transit stop must provide regular service on all days of the week and direct pedestrian access must be provided between the building and the transit stop.

P. Bike Racks. In addition to the bike racks provided as part of the streetscape, individual businesses are encouraged to provide bike racks for customers. Bike rack locations will be reviewed and approved by the City as part of the site plan review.

Q. Increase to Maximum Required Parking. If additional parking is sought to exceed these maximum requirements, a conditional use permit can be sought to increase maximums up to twenty-five (25%) percent.

    1. In the COR-2 sub-district, an increase of twenty-five (25%) percent in the maximum number of parking stalls is permitted without the issuance of a conditional use permit if approved as part of the site plan.

R. In the COR1 sub-district, a PUMA (Parking Use and Maintenance Agreement) shall be applied to all development as follows:

    1. It is the City's intent to maximize development on individual lots. In order to help landowners accomplish this goal, the City will develop public parking ramps, which will be available for public parking within The COR. In order to minimize the amount of the site required for parking, the landowner may choose to enter into the PUMA for utilization of the public parking ramps to meet all or a portion of their minimum parking requirements.

    2. Each development shall be subject to a PUMA that specifies that each property in the COR1 shall be financially responsible for its proportionate share of a shared parking facility. The proportionate share shall be determined on the basis of the property's off-street parking needs, as determined by the parking requirements of Item J above.

3. The City shall establish fees by ordinance. The developer shall be responsible for payment in an amount equal to the value of the required parking on a per-stall price basis for ramp parking through the PUMA. The City will determine the appropriate contribution.

4. Funds collected by the City shall be deposited in a special fund used only to acquire and/or develop off-street parking facilities for the COR. Financial responsibility shall cover the construction and continuing maintenance of the parking facility.

5. The parking facility may be constructed and maintained by the City or by a private management entity acceptable to the City.

Private Streets

Private streets may be allowed within residential subdivisions, subject to the standards in Section 117-112 (e)3.b. of the Zoning Ordinance.

Loading Areas

A. Loading areas and docks shall be located in the rear of the building.

B. Loading areas shall not be located in the front yard and shall be fully screened from public streets, public parks and residential areas through landscaping and building design measures.

Overall Framework – Building Design

Overview

The COR Development Plan 5.03 identifies the preferred mix and approximate location of a variety of land use types. Together with the Zoning Code, this Design Framework focuses on the following overall objectives:

- Promote vertical and horizontal mixed use (within a building, within a block, within a district)
- Provide a variety of housing types, styles, pricing
- Encourage increased density in and around the central core area
- Promote an interesting mix of building styles, scales and massing for each sub-district
- Support creative, innovative, high quality design solutions as the benchmark for success
- Integrate mix of uses with public green space within each district
- Provide a variety of commercial types
- Mix residential and commercial uses to promote street-level activity throughout the day

Guideline Recommendations

The mix of land uses in The COR will encourage activity during the day and into the evening and nighttime hours. As a focus of commerce, employment, recreation and housing, The COR resembles a small to medium size Midwestern downtown in scale and character. Land uses are intentionally mixed, to bring shoppers and workers into the area during the day and attract new residents and visitors to entertainment venues in the evening.

The civic component of The COR, anchored by City Hall, Police Station and variety of public spaces and squares, adds an important element to the land use mix and brings a level of authenticity to the district.

Objectives

- Encourage vertical mixed-use in the core with housing and office space over retail uses along the street, particularly in the center of the district.
- In residential districts, particularly closer to the core, a limited amount of retail uses will be encouraged to service residents and provide nearby places to gather.
- Promote innovative models for housing that include a mix of townhomes, flats and lofts within single buildings or on the same block.
- Accommodate larger, 'big box' retailing and auto-oriented uses within the COR2 sub-district only if innovative design approaches are used including two story buildings, use of liner stores facing the street, minimal blank walls, creative parking strategies, etc.
- Where similar uses create a 'family' or campus of buildings (e.g. medical campus), buildings should reinforce the street edge and parking should be set within the core of the block.
- Uses shall promote pedestrian friendly streets, contributing to street level activities and overall visual character of each district.
- All uses should reinforce the street edge.

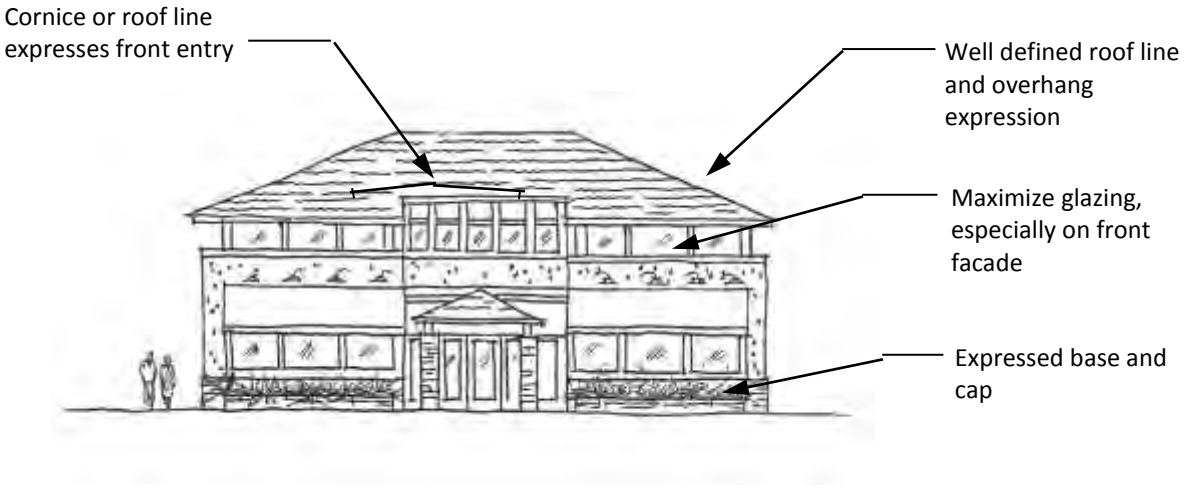
Architectural Overview

High quality architecture is an essential component in fulfilling the objectives of the Design Framework. Rather than prescribing a particular style, these architectural guidelines are intended to encourage an integration of both traditional and contemporary design. Architectural designs should provide a consistent quality, measured, to a great degree, by the pedestrian experience along the street and by an architectural expression that provides character without being thematic, obtrusive, or artificial. Architectural character should strive to be authentic and varied, but not 'thematic'.

Architecture Recommendations

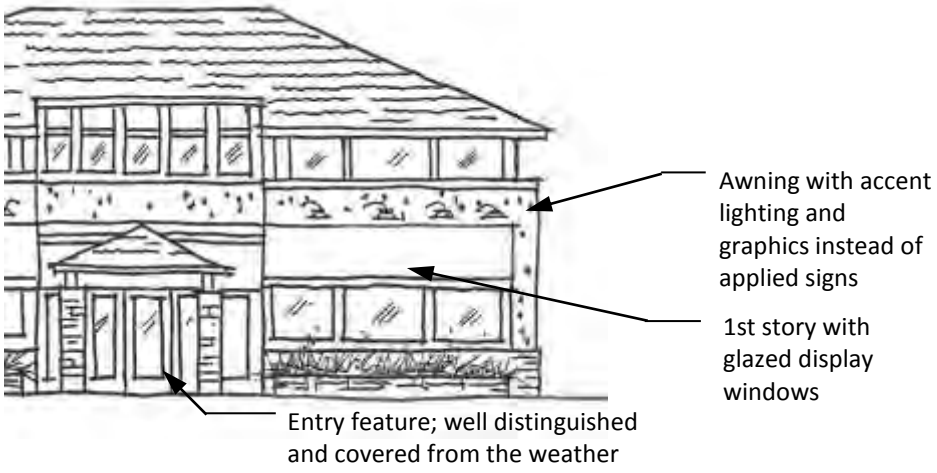
Of all the layers that combine to form The COR Development Plan, architecture will typically be the most prominent development component. Both visually and physically, architecture will play a major role in defining the overall design character and mix of uses for The COR. It is crucial that the design and location of buildings address these architectural guidelines, with specific emphasis on the following:

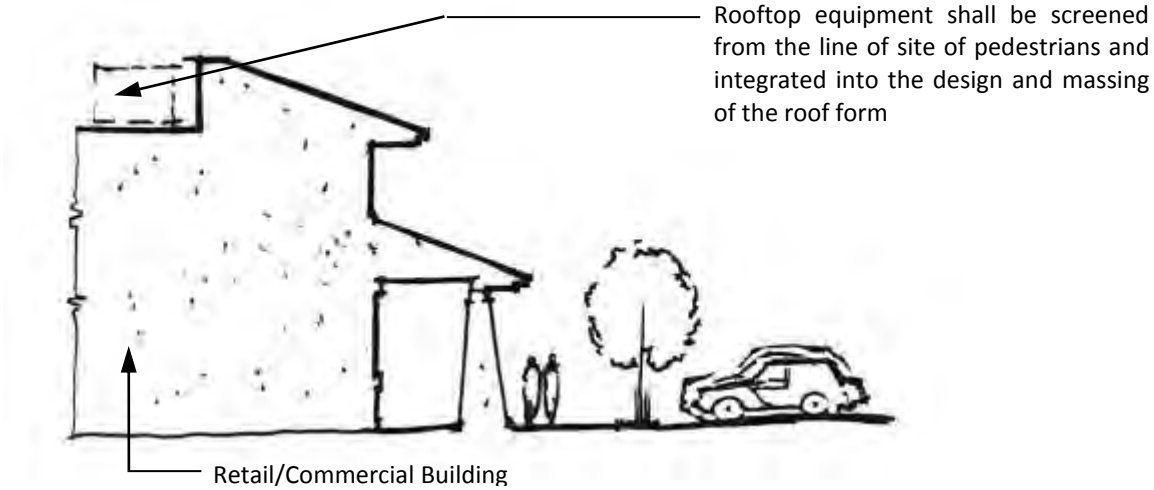
- An animated street presence with a mix of street-level uses, interesting building façades, many doors and windows on the street, careful design of lighting, awnings, signage and other elements that animate the pedestrian experience



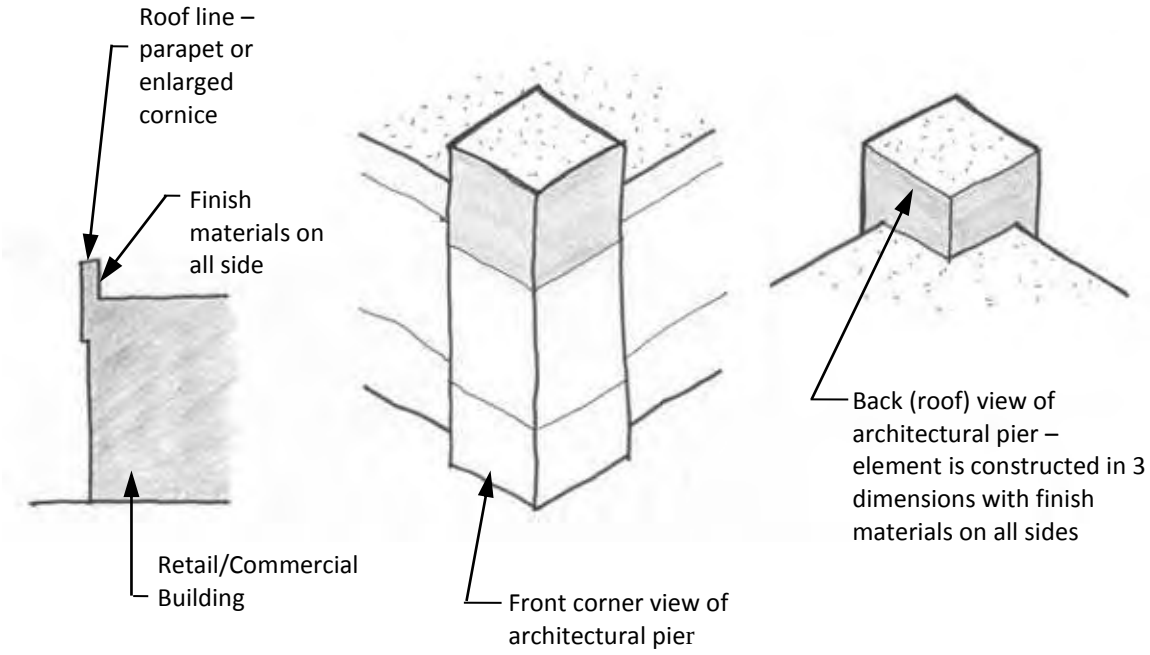
- Variety in building design, character and expression; not one theme or building style, but a thoughtful integration of many design solutions
- Variety of building types including a range of height, scale and proportion, that support an integrated mix of housing options, shopping destinations, entertainment venues, civic structures and other COR uses
- Use of high quality materials, suggesting a preference toward native materials and masonry elements, with respect for local building techniques
- Building location is as important as building style; special architectural elements, character, transparency and a higher level of materials and detailing should be used to highlight key streets and important crossroads throughout The COR
- Buildings should always be located at all four corners of intersections.
    - In the COR2 sub-district, if the City finds that there are unique circumstances where buildings cannot be located on the corner, the City may approve the use of fences, walls or other design elements to create that "street edge"

- Buildings will be located at the street right-of-way line (zero setback), but also allow recessed space for outdoor dining and other street level activities providing some minor deviation for variety
- Greater emphasis should be given to architectural elements, materials and other design features for buildings located at primary intersections, or where streets intersect with parks, such as the streets that front on or end near the Municipal Plaza. These locations can often be seen from several directions, perhaps terminate a view from a distance down the street or sit at a prominent node; They will likely become future landmarks or helpful orientation/wayfinding icons as The COR develops
- Encourage both vertical mixed use (within each building) and horizontal mixed use (within each block) throughout this district
- Include a mix of housing, civic, retail, restaurant, entertainment, performance and other uses that encourage a variety of activities throughout the day.
- Minimize openings between buildings, although limited driveway access and some provision for pedestrian connections through blocks are encouraged – gaps between buildings to accommodate surface parking lots, greater building setbacks or other purposes are discouraged
- Use recessed entries and windows to create street-level interest, variety and enhance pedestrian scale along street frontage





- Equipment, mechanical systems, transformers, etc. must be screened from view in a way that is integral to the architecture of the building. Screening should be accomplished with materials similar to or compatible with materials used on the main structure; metal fencing or mechanical vent screens alone are not sufficient.
- Roof lines and cornice details shall be completed in a 3-dimensional manner so that the back of roof features or similar unfinished areas are not visible.



Overall Framework - Signage

Overview

Signage within The COR should provide a system for clear wayfinding for all modes of transportation and should ensure successful business operation while maintaining the design aesthetic of this unique project. These sign standards are intended to allow flexibility and creativity while maintaining the design concepts of The COR. Due to the distinctive nature of The COR, the sign standards from the City Code are not applicable and signage shall be allowed as prescribed by the Design Framework. A Master Sign Plan identifies the location of key sign locations (see Figure 6: Signage Plan).

Guideline Recommendations

The COR development manager shall prepare a Master Sign Plan for the public elements of the project, which are in compliance with the design framework and will be adopted by reference. The Master Sign Plan will specifically address public signs including:

- The three (3) off-site community signs
- Banner signs on light poles
- Signage for public parks
- Signage for public parking ramps
- Signage for public buildings
- Community kiosks

Objectives

Signage should be used as a tool to help identify businesses and neighborhoods with The COR and should have elements that are focused on the pedestrian nature of The COR as well as the signage needs for businesses.

- Signage and lighting which is integrated into the design of the building is encouraged.

Definitions

Awning Sign means a sign incorporated into or attached to an awning.

Community sign means an off-site sign identifying the development name and key tenants. Community signs may also include public information. Reader boards are allowed to be incorporated into community signs within The COR.

Temporary Sign means a sign which is erected or displayed for a limited period of time and not affixed to a Minnesota State Building Code approved structure.

Project sign means a freestanding area identification sign which identifies a single-family or multifamily residential subdivision, a commercial development or an industrial park or office park and which is located on the same parcel as the development it identifies.

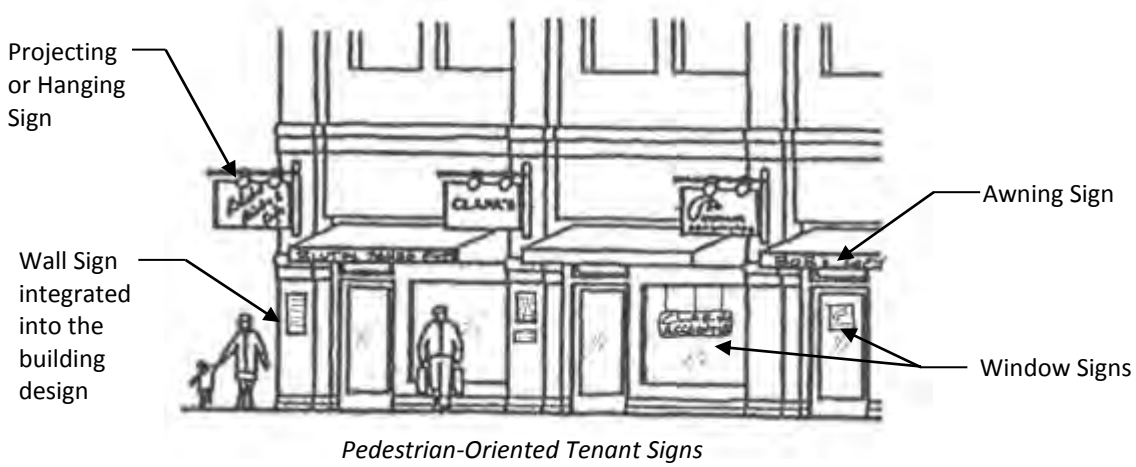
Projecting sign means any sign, all or any part of which extends beyond the surface of the building or wall by more than 16 inches.

Public Realm/Streetscape sign means any sign erected and maintained by public officials or public agencies, or approved and authorized for use by state or local governmental authorities.

*Sandwich Board Sign*s means a self-supporting, freestanding temporary sign with only two (2) sides that are situated adjacent to a business with the intent to attract pedestrian traffic to businesses. Sandwich board signs are not meant to be read by vehicular traffic.

Wall sign means any sign which is affixed to a wall of any building. This definition includes individual letter signs and signs on mansards.

Window sign means a sign installed inside a window, or any sign placed within a building for the purpose of being visible from the public right-of-way. This does not include merchandise on display.



Pedestrian-Oriented Tenant Signs

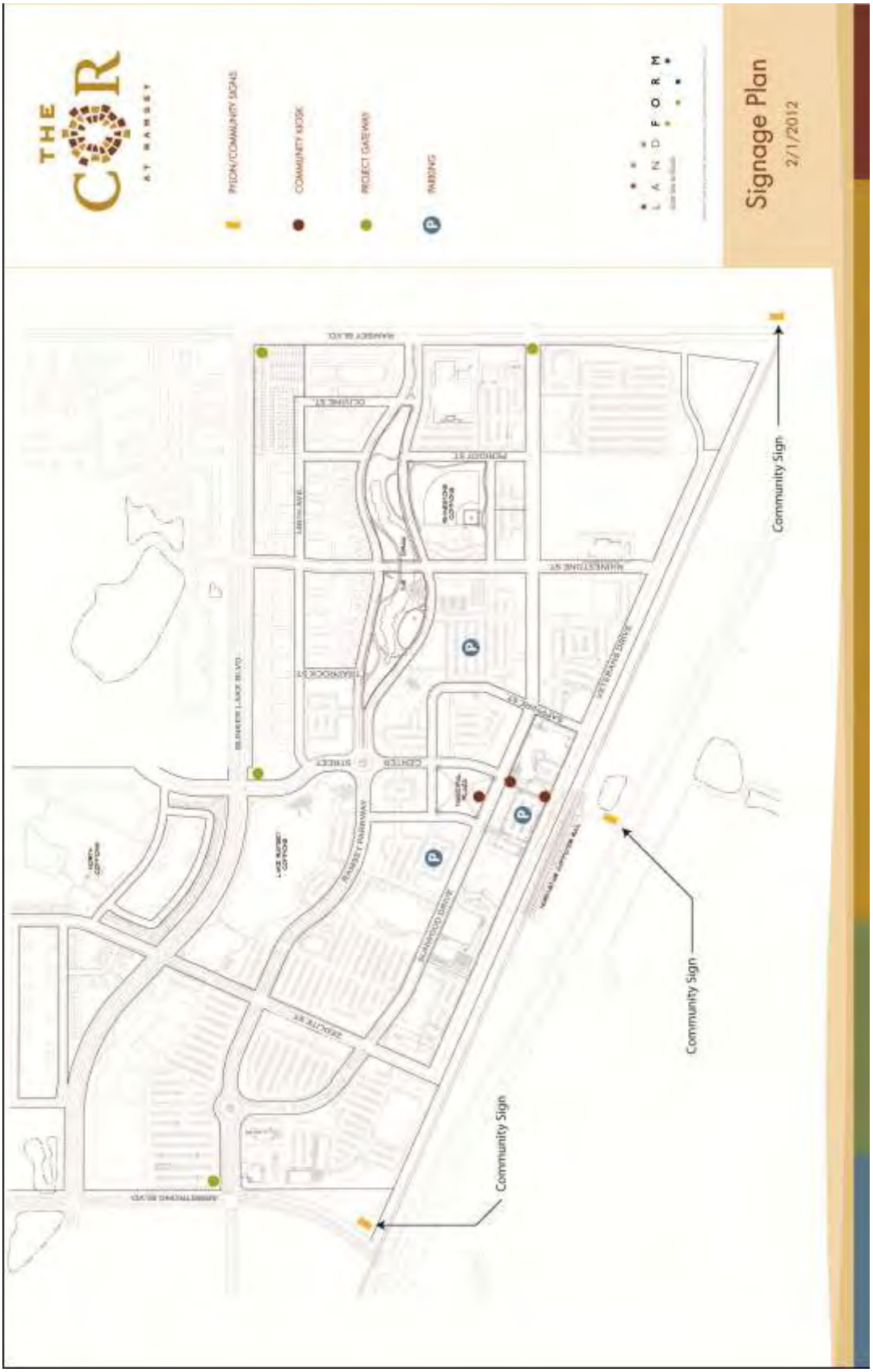


Figure 6: Signage Plan

Standards

Public Realm/Streetscape Signs

The pedestrian oriented nature of The COR requires unique signage the will build on the design concepts for The COR. These types of signs in include banner signs on the streetlights, kiosks, street signs, wayfinding signs, signage for public parking ramps, etc. As the design concept for The COR has been refined, so has the signage plan. The COR development manager shall develop standards for these public realm signs as part of the Master Sign Plan. The Master Sign Plan shall be incorporated by reference and may be updated from time to time. Such signage shall be allowed on public spaces as needed to provide information and wayfinding. No advertising shall be allowed on Public Realm/Streetscape Signs except for community events.

Community signs

Community signs include are planned to include three (3) signs on Highway 10, as shown on the Signage Plan (see Figure 6: Signage Plan). The signs include the existing Community Sign near the future transit plaza, the sign at the northwest corner of Highway 10 and Ramsey Boulevard and the planned sign at the northwest corner of Highway 10 and Armstrong Boulevard.

These off-site signs are allowed as shown on the signage plan and shall have consistent materials and colors. The Master Sign Plan shall detail the materials, colors and standards for these three (3) community signs. The Master Sign Plan shall include standards for which tenants shall be allowed on the community signs.

Desirable signs are designed to be architecturally compatible with buildings within the development and other signage within the development

Project Signs

Project signs are permitted within all COR sub-districts.

One (1) freestanding sign is allowed per building, provided that the following standards are met:

A. The building in which the advertising business is located, shall be set back a minimum of six (6) feet from a public street right-of-way.

B. The area of each face of the signboard shall not exceed six (6) square feet and the signboard shall not have more than two (2) readable faces

C. The height of the top of the signboard, or of any posts, brackets, or other supporting elements shall not exceed six (6') feet from the ground.

D. The signboard shall be constructed of wood, acrylic, aluminum or metal and shall be architecturally compatible with the style, composition, materials, colors and details of the building.

E. No part of the sign shall encroach on the right-of-way and its location shall not interfere with pedestrian or vehicular circulation.

F. Limited to one (1) sign per building and shall not be in addition to wall-mounted, applied letter or projecting signs.

G. The readable faces of the sign shall be perpendicular to the adjacent street.

In the COR2 District, the following signage shall be allowed:

A. Ground sign. There shall not be more than one (1) ground sign for each parcel. The gross surface area of a ground sign shall not exceed one hundred (100) square feet for each exposed face nor exceed an aggregate gross surface area of two hundred (200) square feet.

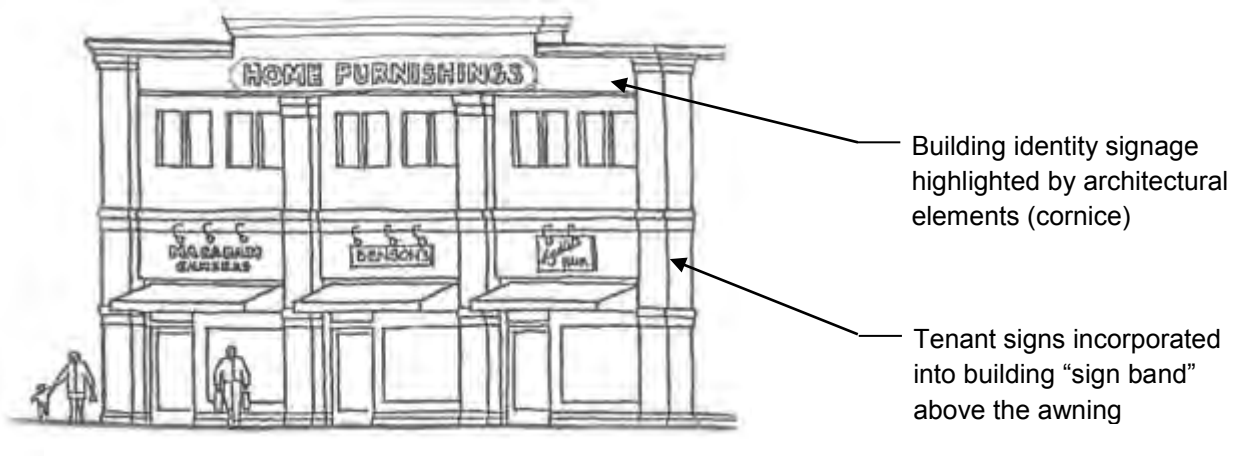
B. Menu board. One (1) on-site menu board per drive-up or walk-up lane of a drive-in restaurant up to a maximum of thirty-two (32) square feet each and a maximum height of three (3) feet. Menu boards are allowed a message on one (1) side only and cannot contain an advertising message.

C. Directional signs.

1. Directional or instructional signs are permitted in accordance with Section 117-463(l).

2. Parking lot directional signs designating parking area entrances and exits are limited to one (1) sign for each entrance and/or exit and shall not exceed four (4) square feet for each exposed face. Parking lot directional signs shall not project higher than five feet (5') in height, as measured from the established grade of the parking area to which such signs are accessory.

3. Parking lot instructional signs designating the conditions of use or identification parking areas shall not exceed eight (8) square feet and shall not project higher than ten (10) feet in height for wall signs and seven (7) feet in height for ground signs, as measured from the established grade of the parking area to which such signs are accessory.



Wall Signs

Wall signs are permitted within all COR sub-districts.

Wall signs shall be permitted on one (1) wall, except that lots with frontage on more than one (1) street may have signage on one (1) wall per street frontage.

Within the COR1, COR3, COR4 and COR5 districts, the following standards apply:

A. Wall-mounted or painted signs, provided the following standards are met:

1. The sign shall be affixed to the front facade of the building, and shall project outward from the wall to which it is attached no more than six inches (6").

2. Single Tenant Buildings. Each building shall be allowed one (1) wall sign per street frontage. Signage must be located on the street elevation. The area of the sign shall not exceed five (5%) percent of the ground floor building facade area or fifty (50) square feet, whichever is less.

3. Multi-Tenant Buildings.

    a. Each building shall be allowed wall signage on the street frontage elevation. For buildings with multiple street frontages, the allowable signage is per street frontage. Signage must be located on the street elevation.
    b. Each building is allowed wall signage that shall not exceed 5% of the wall area of the building façade adjacent to the street or 50 square feet, whichever is less.
    c. Tenant signage must be located on the tenant lease space.
    d. At least fifty (50%) percent of the allowed signage must be allocated to ground floor tenants and located on the ground floor.
    e. Signage is limited to a maximum of one (1) sign per business/tenant, except that tenants with frontage on multiple streets may be permitted to have signage on each street frontage.
    f. Multi-tenant buildings must have wall signs of similar design. Sign permits for tenants in multi-tenant buildings shall only be permitted by the City after the

building owner has submitted a comprehensive sign plan approved by the Zoning Administrator. The comprehensive sign plan for the building shall include similar design standards including sign material, color, style, spacing and size.

4. Signs for buildings facing Highway 10. Single or multi-tenant buildings that have frontage on Highway 10 or are separated from Highway 10 only by other public right-of-way, shall be allowed to have signage on that street elevation that is up to five (5%) percent of the wall area of that building façade with no maximum square footage.

B. Wall-mounted building directory signs identifying the occupants of a commercial building, including upper story business uses, provided the following standards are met:

1. The sign is located next to the entrance.

2. The sign shall project outward from the wall to which it is attached no more than six inches (6”).

3. The sign shall not extend above the parapet, eave, or building facade.

4. The area of the signboard shall not exceed three (3) square feet, with each tenant limited to one (1) square foot.

5. The height of the lettering, numbers, or graphics shall not exceed four inches (4”).

6. One (1) such sign is allowed per public building entrance and is allowed in addition to other permitted wall signage.

C. Applied letters may substitute for wall-mounted signs, if constructed of painted wood, painted cast metal, bronze, brass, acrylic or black anodized aluminum. The height of applied letters shall not exceed 12 inches.

D. Logos are considered signs and shall be included in the maximum allowable sign area.

E. Window or door signs, provided that the following standards are met:

1. The sign shall not exceed ten percent of the window or door area or four (4) square feet, whichever is less.

2. The sign shall be silk screened, hand painted, applied letters/graphics, neon tubing or other sign technologies that meet these standards.

3. Limited to one (1) sign per business, applied on either the window or the door, but not on both.

4. The sign shall not have an opaque backing of any type although smoked glass is allowed.

5. Window signage (includes graphics) shall be permitted on the same building walls that have, or are allowed to have, wall signage pursuant to Item A above. Window signage shall be deducted from the allowable wall signage area.

Within the COR2 district, where more conventional suburban development is expected, rather than the neo-traditional development planned for the other COR sub-districts, the following standards apply:

A. Wall, canopy or marquee sign. Total sign area may not exceed 15 percent of the front building facade. At least 50 percent of the signage area must be placed on the measured wall with remaining signage area, if desired, distributed on any other wall. Sign height shall not exceed the top of the parapet wall or, if no parapet wall, sign height shall not exceed the height of the eaves. The gross surface area of a wall, canopy or marquee sign may be increased by ten percent if such wall sign:

   1. Consists only of individual, outlined alphabetic, numeric and/or symbolic characters without background except that provided by the building surface to which the sign is to be affixed;

   2. Illumination, if any, is achieved through shielded illumination, shielded silhouette lighting, or shielded spot lighting but not any lighting where the light source is visible or exposed on the face or sides of the characters; and

   3. A wall, canopy or marquee sign may be located on the outermost wall of any principle building but shall not project more than 16 inches from the wall to which the sign is to be affixed. A wall sign shall not project higher than the parapet line of the wall to which the sign is to be affixed.

B. Window signs are restricted to 30 percent of the area of the window in which the sign is to be displayed.

In all COR sub-districts, restaurants and cafes shall be permitted one (1) wall-mounted display featuring the actual menu as used at the dining table, to be contained within a shallow wood or metal case and clearly visible through a glass front. The display case shall be attached to the building wall, next to the main entrance, at a height of approximately five feet (5'), shall not exceed a total area of two square feet, and may be lighted. This signage is allowed in addition to other permitted wall signage.

Projecting Signs

Projecting signs are permitted within all COR sub-districts.

Projecting signs, including graphics or icon signs, mounted perpendicular to the building wall, are encouraged in all sub-districts, provided the following standards are met:

A. The sign area shall not exceed six (6) square feet.

B. The distance from the ground to the lower edge of the signboard shall be ten feet or greater.

C. The height of the top edge of the signboard shall not exceed the height of the wall from which the sign projects, if attached to a single story building, or the height of the sill or bottom of any second story window, if attached to a multistory building.

D. The distance from the building wall to the signboard shall not exceed six inches (6”).

E. The width of the signboard shall not exceed three (3) feet.

F. Limited to one (1) sign per business. Projecting sign area shall be deducted from the allowable wall signage area.

G. Granted to ground floor commercial uses only.

Awning Signs

Awning signs are allowed in all COR sub-districts. Awning signs are allowed for ground floor uses only, provided that the following standards are met:

A. If acting as the main business sign, it shall not exceed 24 square feet in area, and the height of the lettering, numbers, or graphics shall not exceed 12 inches.

B. If acting as an auxiliary business sign, it shall be located on the valance only, shall not exceed four (4) square feet in area, and the height of the lettering, numbers, or graphics shall not exceed four inches (4”).

C. Limited to two such signs per business.

D. If acting as the main business sign, it shall not be in addition to a wall-mounted or applied letter sign.

Sandwich Board Signs

Sandwich board signs are permitted within all COR sub-districts.

A. One (1) sandwich board sign per business is permitted in any business, commercial and mixed use district and shall be located within five feet (5’) of the main building entrance to the business it advertises.

B. Sandwich board signs shall be displayed only during open business hours and must be removed daily.

C. Sandwich board signs shall be no more than a total of two feet (2’) in width and three feet (3’) in height

D. Sandwich board signs must leave a minimum of five feet (5') of clearance for pedestrian access if placed on a public or private sidewalk. Sandwich board signs may not hinder the ability of persons to access vehicles parked at the curb and/or access to a building.

E. Acceptable materials for sandwich board signs shall include the following: metal, wood synthetic materials such as a chalk board and whiteboard. Sandwich board signs shall not be illuminated, nor shall they contain moving parts, or have balloons, streamers, stringers, pennants or similar adornments attached to them. Sandwich board signs shall be maintained in a good appearance at all times.

F. No sandwich board sign shall be secured, tethered or installed on traffic devices, utility equipment, street furniture, street lights, or any other public fixture.

G. Sandwich board signs are temporary signs and shall not be counted towards the total sign area of the site for permanent signage.

Temporary Signs

Temporary signs are allowed per Section 117-465 (Temporary signs) of the Zoning Ordinance, except as noted below:

A. Freestanding temporary signs shall only be allowed in the COR1 District.

B. In all other COR districts, temporary signs shall be limited to temporary sandwich board signs or temporary wall signage.

Off-Site Signs

Off-site signs are prohibited except for wayfinding and community signage specifically allowed by the Design Framework.

Table 2

Sign Standards					
Development Standard	**COR1**	**COR2**	**COR3**	**COR4**	**COR5**
Project Signs					
Number of signs allowed	1*	1*	1*	1*	1*
Size of Sign (maximum)	6 sq. ft./6 feet high	100 sq. ft./6 feet high	6 sq. ft./6 feet high	6 sq. ft./6 feet high	6 sq. ft./6 feet high
Menu Board**	N/A	1 per drive-through/36 sq. ft. max.	N/A	N/A	N/A
Directional Sign	N/A	Per 117-463(I)	N/A	N/A	N/A
Wall Sign					
Number of signs allowed	1*	1*	1*	1*	1*
Size of Sign					
Single Tenant Building	50 sq. ft. or 5% of the ground floor façade area, whichever is less	15% of façade area	50 sq. ft. or 5% of the ground floor façade area, whichever is less	50 sq. ft. or 5% of the ground floor façade area, whichever is less	50 sq. ft. or 5% of the ground floor façade area, whichever is less
Multi-Tenant Buildings	50 sq. ft. or 5% of the façade area, whichever is less	15% of façade area	50 sq. ft. or 5% of the façade area, whichever is less	50 sq. ft. or 5% of the façade area, whichever is less	50 sq. ft. or 5% of the façade area, whichever is less
Building Facing Highway 10	5% of the façade area	15% of façade area	5% of the façade area	5% of the façade area	5% of the façade area
Window Sign					
Number of signs allowed	1	1	1	1	1
Size of Sign	10% of area of window or 4 sq. ft., whichever is less. Deducted from allowable wall sign area.	30% of area of window. Deducted from allowable wall sign area.	10% of area of window or 4 sq. ft., whichever is less. Deducted from allowable wall sign area.	10% of area of window or 4 sq. ft., whichever is less. Deducted from allowable wall sign area.	10% of area of window or 4 sq. ft., whichever is less. Deducted from allowable wall sign area.
Directory Sign					
Number of signs allowed	1 per building entrance	1 per building entrance	1 per building entrance	1 per building entrance	1 per building entrance
Size of Sign	3 sq. ft. maximum	3 sq. ft. maximum	3 sq. ft. maximum	3 sq. ft. maximum	3 sq. ft. maximum
Projecting Sign					
Number of signs allowed	1*	1*	1*	1*	1*
Size of Sign	6 sq. ft./3 feet wide	6 sq. ft./3 feet wide	6 sq. ft./3 feet wide	6 sq. ft./3 feet wide	6 sq. ft./3 feet wide
Awning Sign					
Number of signs allowed	2 per business	2 per business	2 per business	2 per business	2 per business
Size of Sign	24 sq. ft./max. letter height 12-inches for main business sign or 4 sq. ft./max letter height 4-inces if auxiliary. Area is deducted from allowable wall sign area.	24 sq. ft./max. letter height 12-inches for main business sign or 4 sq. ft./max letter height 4-inces if auxiliary. Area is deducted from allowable wall sign area.	24 sq. ft./max. letter height 12-inches for main business sign or 4 sq. ft./max letter height 4-inces if auxiliary. Area is deducted from allowable wall sign area.	24 sq. ft./max. letter height 12-inches for main business sign or 4 sq. ft./max letter height 4-inces if auxiliary. Area is deducted from allowable wall sign area.	24 sq. ft./max. letter height 12-inches for main business sign or 4 sq. ft./max letter height 4-inces if auxiliary. Area is deducted from allowable wall sign area.

*One (1) sign is allowed per street frontage (either wall or project)

**Restaurants and cafes in all districts are allowed one (1) wall mounted menu board not to exceed 2 sq. ft. in addition to other permitted wall signage.

Additional standards

A. Businesses with service entrances may identify these with one (1) wall-mounted or applied letter sign not exceeding two square feet.

B. One (1) directional sign, facing a rear parking lot. This sign may be any type of permitted sign other than a freestanding sign, but shall be limited to four (4) square feet in area.

Creative Sign Standards

A. *Purpose.* This section establishes standards and procedures for the design, review, and approval of creative signs. The purposes of this creative sign program are to:

1. Encourage signs of unique design, and that exhibit a high degree of thoughtfulness, imagination, inventiveness, and spirit; and

2. Provide a process for the application of sign regulations in ways that will allow creatively designed signs that make a positive visual contribution to the overall image of the city, while mitigating the impacts of large or unusually designed signs.

B. *Applicability.* An applicant may request approval of a sign permit for a creative sign to authorize onsite signs that employ standards that differ from the other provisions of this chapter but comply with the provisions of this section.

C. *Application Requirements.* A sign permit application for a creative sign shall include all information and materials required by the City.

D. *Procedure.* A sign permit application for a creative sign shall be subject to review and approval by the City as part of the Site Plan review process. When the creative sign is proposed after site plan review is complete, a creative sign may be approved by the Zoning Administrator when the proposed sign is fifty square feet or less, and shall be approved by the City Council when the sign is larger than fifty square feet.

E. *Design Criteria.* In approving an application for a creative sign, the review authority shall ensure that a proposed sign meets the following design criteria:
   1. Design Quality. The sign shall:
      a. Constitute a substantial aesthetic improvement to the site and shall have a positive visual impact on the surrounding area;
      b. Be of unique design, and exhibit a high degree of thoughtfulness, imagination, inventiveness, and spirit; and
      c. Provide strong graphic character through the imaginative use of graphics, color, texture, quality materials, scale, and proportion.

   2. Contextual Criteria. The sign shall contain at least one (1) of the following elements:
      a. Classic historic design style;
      b. Creative image reflecting current or historic character of the City;
      c. Inventive representation of the use, name, or logo of the structure or business.

3. Architectural Criteria. The sign shall:
    a. Utilize or enhance the architectural elements of the building; and
    b. Be placed in a logical location in relation to the overall composition of the building's façade and not cover any key architectural features and details of the façade.

4. Neighborhood Impacts. The sign shall be located and designed not to cause light and glare impacts on neighboring residential uses.

Prohibited signs

The following signs are prohibited:

A. Box signs or cabinet signs, whether on a wall, projecting or on canopies are prohibited except for logo signs permitted as part of an overall sign plan.

B. Signs employing mercury vapor, low pressure and high pressure sodium and metal halide lighting; plastic panel rear-lighted signs.

C. Signs on roofs, dormers, and balconies.

D. Billboards.

E. Signs painted or mounted upon the exterior side or rear walls on any principle or accessory building or structure, except as otherwise permitted hereunder.

F. Free standing pylon signs over six (6) feet in height, except community signs.

G. Back-lit awnings.

H. Interchangeable letter boards or panels.

I. Flashing signs.

J. Off-premises signs, except community signs.

Overall Framework – Stormwater Management

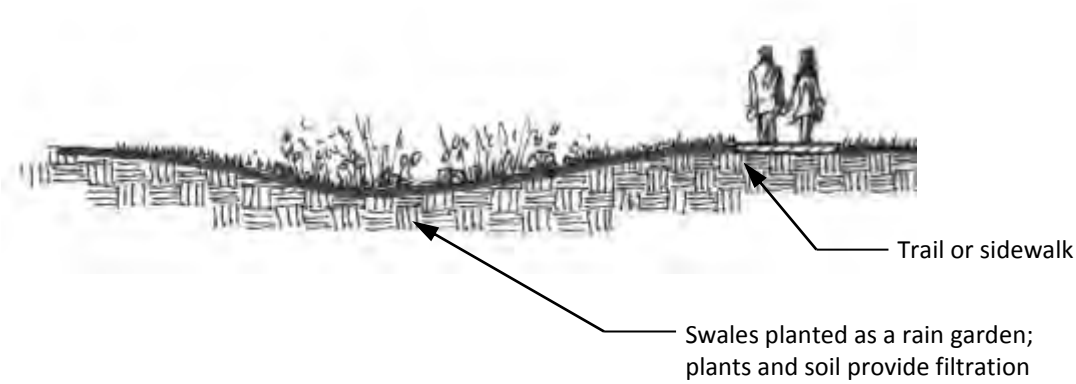
Overview

Water features and drainage systems are essential components of The COR Master Plan. The mix of ponds, streams, fountains and other water elements will provide focal amenities and year round activities within the framework of an environmentally responsible, visually pleasing strategy to manage stormwater. Because the Mississippi River is a restricted discharge water of the state, and because we are creating a new discharge from this development, each sub-district and each site has a responsibility to utilize 'best management practices' (BMP) to pretreat run-off, reduce erosion and encourage infiltration, with the understanding that regional treatment will be provided. Water elements are not intended to be separate stand-alone features, but instead should be integrated with the variety of parks, trails and public open space proposed for The COR. Water and landscape should be designed and utilized within multipurpose areas that accommodate both active and passive recreational use.

Objectives

Integration of water and landscape, design creativity, use of high quality materials and safety concerns are the critical objectives to be met – the following examples illustrate only a few of many possibilities:

- Innovative new products, such as special soil systems (Netlon, structural soils), pervious pavements for parking areas, storm ceptors, underground storage and other creative techniques should be used to BMP standards
- 'Green architecture', expressed through green roofs, gray water recycling and other techniques should be included to reduce the impact of new development on stormwater systems
- Water feature design should include both formal elements (such as reflecting pools or fountains) and natural/informal forms (such as ponds, streams, waterfalls) and should explore creative ways to integrate wetland/rain garden landscapes with active, urban spaces.



Guideline Recommendations

This framework not only defines the overall role and character of The COR, but also encourages each development parcel to address the following:

- **Create** signature water features (ponds, pools, fountains, waterfalls, etc.) as major visual amenities throughout The COR
- **Promote** high quality, creative and appealing aesthetics for all system elements
- **Integrate** stormwater management components (meeting both water quality and quantity requirements)

A great deal of time and effort has gone into the calculation and design of a 'watershed-based' stormwater management plan to support COR development. While this overall strategy addresses the water quantity issue for the entire COR by providing storage and conveyance facilities for storm events, individual development projects (block-by-block) have an equal responsibility to meet water quality standards as a primary goal. Each project should integrate a variety of techniques, materials and methods to promote multiple use, maximum flexibility, improved aesthetics for parking areas, park spaces, drainage swales and other site features.

Overall Framework – Parks/Public Spaces

Overview

The overall design framework of The COR is based on a system of linked parks, trails and open space. The City of Ramsey, Anoka County, and to some extent, the State of Minnesota all play a role in local and regional parks programming, design review, construction sequencing, implementation and ultimately maintenance and operation of key public spaces within this framework. The goal is to link existing and proposed parks and trails defined in regional park plans with proposed new parks and trails within The COR. Of equal importance is the contribution from each block and each development project to this network of green, adding a variety of private, semi-private, and perhaps some additional public space throughout The COR. Private development will share the responsibility to provide inviting, innovative and useable green space as integral parts of individual parcel site design.

Guideline Recommendations

The Design Framework encourages the following:

- Work with the City to create an integrated, comprehensive open space system that links with existing city and county trails and open space networks
- Encourage private development (block-by-block) to share in the responsibility to provide inviting, innovative and useable green space as integral parts of each development project
- Integrate stormwater management components (meeting water quality and quantity requirements) within both public / private park and open space improvements

Together, the system of public and semi-public green space will result in a welcoming public realm throughout the new community.

Objectives

Based on the Development Master Plan for The COR, a variety of public and private green space is proposed including:

- Each block and each project will provide intentional, creative, innovative, useable green areas as integral components of site development and building design.
- At the individual block scale, small squares and greens will provide places for gathering and relaxation, especially targeted to meet the demands of adjacent, or nearby buildings. Elements such as gardens, gazebos and fountains should characterize these more intimate public spaces.
- At the neighborhood scale, parks will provide space for more active recreation, and should be flexible enough to accommodate a variety of recreational activities.
- Playgrounds, game fields and park buildings are park amenities that will target a wider user demand from the surrounding community.

- The Municipal Plaza will connect with all other parks and open space elements, providing a focal point for activity and a sense of place. Gardens, public pavilions and shelters, play lots and open play fields are amenities that will provide built-in flexibility to meet the demands of both the local population and regional visitors to The COR.

Part Two: Sub-district Framework

Overview

The Master Plan and Zoning Ordinance identify five (5) distinct sub-districts within The COR. Each of these sub-districts is defined by a unique mix of uses, specific site development patterns and perhaps a distinctive character or image. The sub-districts complement one another as part of the overall plan. The sub-districts are shown the attached Sub-district Map (Figure 7: Sub-district Map). They include:

- **COR1 Mixed Use Core** – provides the broadest variety, highest density and greatest intensity of development, encouraging both vertical and horizontal mixed use
- **COR2 Commercial** – provides a location for larger scale retail and other auto-orientated commercial uses
- **COR3 Workplace** – provides a location for uses with high concentrations of employees, such as medical/technology related office, and other corporate or institutional uses
- **COR4 Neighborhood** – provides opportunities for a range of housing types from small lot single family to townhouse, to high density senior or rental apartment
- **COR5 Park and Open Space** – preserves environmental features and provides neighborhood/community amenities throughout The COR

Development plans must respond to the overall COR Design Framework described in Part One of this document, but also must address the following detailed framework standards for each sub-district. To further clarify and illustrate proposed features in the Master Plan, these sub-district guidelines are organized under the following categories:

- Public Realm / Streetscape Framework
- Site Design Framework
- Architectural Framework

In all cases, the sub-district framework must be applied in harmony with the overall COR framework and with other existing city, county, state codes, design criteria, plans and studies that support broader goals for regional growth and development. However, within each district, development standards shall be based, in part, on the street hierarchy established in The COR.

Public Realm/Streetscape

A. The developer shall be responsible for construction of all streetscape improvements along adjacent streets. These improvements include all hardscape improvements, such as trails, sidewalks, benches, bike racks, etc., as well as street trees and other greenscape.

B. The landowner shall be responsible for maintenance of the streetscape improvements along adjacent streets. Such maintenance may be managed as part of a Special Service District (SSD) or similar.

Plazas

A. All properties with principal buildings in excess of 30,000 square feet shall be required to have a public plaza space.

B. The public plaza space shall include benches, bike racks trash receptacles, lighting fixtures and other amenities to create a welcoming space for tenants of the building and members of the public.

C. These plaza spaces should be visible from the public street.

Architecture

These architectural framework standards provide an important balance between design continuity, desirable variety and the notion that buildings should complement, and perhaps contrast, but not compete with one another. The lasting appeal of the final outcome must be grounded in the authenticity of the design and the acceptable level of 'messiness' that comes with creating a real downtown over time; 'faux' second floors, stage set or themed solutions, and large faceless buildings are not acceptable.

Auto Versus Human Design: Providing rear alleys or side loaded garages enables the home to present itself to the street, which promotes sociability and walkability.

Minimum Standards

Definitions

Build to line: The line at which construction of a building facade is to occur on a lot. The build to line provides a maximum setback for all building facades from the right-of-way or inside edge of the sidewalk, whichever is greater. The build to line applies to all facades abutting a street right of way. Build to line standards are based on the sub-district the parcel is located and the street in which the building is located upon.

Setback: The minimum required distance between a parking lot or the vertical wall of a building and a lot line. Setbacks are typically more flexible than build to lines and allow a building to be set further back from the lot line and street right-of-way.

Requirements:

A. Additional development standards shall be defined within each sub-district.

B. Provide a diverse mix of materials, applied in a variety of proportions, exposures and detailing within a block, or along a street.

C. Buildings should be articulated to break up the mass of the building façade on all elevations. Large blank exterior walls shall be prohibited. Windows are encouraged to be used to break up the mass of the building. Rooflines and building elevations should be articulated to break up the mass of buildings. Buildings must be broken at a minimum of every fifty (50) feet. This variation can be accomplished through one (1) or more of the following:

1. Wall face variations (minimum depth of two (2) feet)
2. Pilasters or columns (minimum depth of two (2) feet)
3. Upper wall break in color and/or materials (minimum of 2/3 up the height of the wall)
4. Wainscot (minimum of four (4) feet high)
5. Canopies (minimum four (4) foot width)
6. Corner and demising wall or building separations

More Desirable

D. Each development application must list building materials, roofing materials and building colors on the plans. Building articulation, mechanical screening by architectural elements and design elements on all building elevations must be identified on the plans. The plans shall be subject to City review and approval to ensure that the design intent of the Framework has been met.

Less Desirable

E. Building materials shall be high-quality durable materials, such as glass, stone, brick, windows, canvas awnings, etc.
   1. Use local sources if available
   2. Siding is not allowed (vinyl, metal, wood) except as a complimentary use
   3. Use clear or lightly tinted glass for all windows and doors – mirrored, reflective or highly tinted glazing is not acceptable
   4. Metal and wood components are acceptable as a complimentary, not primary, building material
   5. COR1 sub-district buildings shall be primarily brick or a comparable alternative and shall comprise a minimum of fifty (50%) percent of the non-glazed wall area

F. Residential development should provide variety within the subdivision to avoid monotony. Developers will include front porches and windows that face all streets. Corner units shall have more than one (1) window per side of building to help create a sense of place in the community and promote safety on the street.

G. Garage forward or “snout houses” are highly discouraged on all residential development as they dominate the view from the street and sidewalk.

H. All sides of buildings shall have an equal finish in terms of materials and general design.

I. The main entrance of each principal building must face the street. On corner lots, the main entrance may face either of the streets or be oriented to the corner. With buildings that have more than one (1) main entrance, only one (1) entrance must meet this requirement.

J. Building massing shall be oriented parallel to the street frontage of the lot.

K. Trash and recycling areas shall be designed internal to the building.

L. Provide recessed entries wherever possible.

M. Buildings shall have a base and top to the architecture.

N. Multi-story buildings are preferred in the COR1 sub-district, but occasional single story buildings are acceptable; single story buildings should not dominate any street frontage and should be a minimum of twenty (20) feet to the roofline.

O. Maximize glass openings for all ground level, street front façades – especially for retail, restaurant and other commercial uses – fifty (50%) minimum of total ground level façade, or demonstrate great design through other means.

P. Provide real window openings for all street facing façades above ground level in all districts–a minimum of forty (40%) percent of total façade.

Residential uses in COR4 and COR5 must also comply with the following:

A. Location of main entrance

1. A building must include a front porch or covered balcony/patio at all main entrances that face a street. The porch or stoop shall adjoin the main entrance and the main entrance shall be accessible from the porch.
2. The main entrance of each principal building must face the street. On corner lots, the main entrance may face either of the streets or be oriented to the corner. With buildings that have more than one (1) main entrance, only one (1) entrance must meet this requirement.

B. *Porches*: Porches used to satisfy the design criteria shall comply with the following:

1. Porches shall be covered by a solid roof. The roof shall not be located more than 12 feet above the floor of the porch. If the roof of a required porch is developed as a deck or balcony, it may be flat.
2. The porch shall have minimum dimensions of 6 feet by 6 feet. (6' x 6'). For single-family detached dwelling units, the covered area provided by the porch must be at least

forty-eight (48) square feet and a minimum of eight (8) feet wide. If the main entrance is for more than one (1) dwelling unit, the covered area provided by the porch must be at least sixty-three (63) square feet and a minimum of nine (9) feet wide.

C. *Covered balconies/patio:* The covered area must be at least forty-eight (48) square feet, a minimum of eight (8) feet wide, and no more than fifteen (15) feet above grade. The covered area must be accessible from the interior living space of the house.

D. *Openings between porch floor and ground:* Openings of more than one (1) foot between the porch floor and the ground must be covered with a solid material or lattice.

E. Roofs

1. *Slope:* Principal structures must have a roof that is sloped, with a pitch that is no flatter than six (6) units of horizontal run to twelve (12) units of horizontal rise.
2. *Architectural features:* The roof of a principal structure shall include the following architectural details:
   a. At least one (1) dormer facing the street. If only one (1) dormer is included, it shall be at least five (5) feet wide and shall be centered horizontally between each end of the front elevation. If more than one (1) dormer is provided, a dormer at least four (4) feet wide must be provided on each side of the front elevation; or
   b. A gabled end, or a gabled end of a roof projection, facing the street.
3. *Roof eaves:* Roof eaves must project from the building wall at least twelve (12) inches, measured horizontally, on at least the front and side elevations.

Figure 7: Sub-district Map

Sub-District Framework - COR1 Mixed Use Core

Public Realm / Streetscape

Public realm and streetscape improvements define the character of The COR and create a memorable signature for the Mixed Use Core sub-district. This is the most urban of all sub-districts in The COR and will be developed with a very urban pattern. Great parks and great streets, encourage intensified levels of activity, support the proposed mix of uses, invite community gathering and accommodate special events throughout the year.

Site Development

Framework standards that address building location, organization of space and parking options tend to focus on what can be measured – dimensions, setbacks, number of spaces and so on. But in addition to these issues, the Design Framework also describes the aesthetic qualities and design character of a preferred 'urban form' for the Mixed Use Core. The compact and higher density blocks that define this sub-district encourage a mix of uses, with a continuous built edge along street frontage. Innovative parking strategies support this mix, providing easy access to destination shopping, restaurant and entertainment venues. Together these elements will promote the core area as the center of activity – the place to see and be seen within The COR.

Architecture

Buildings in the Mixed Use Core will play a major role in defining the overall character of The COR. The proposed mix of uses for this signature destination suggests the potential for a variety of building types, demanding creativity and innovation to highlight unique architecture, while knitting the entire sub-district together as a coherent whole. Overall building design is an important consideration, but emphasis on first floor façade treatments is essential to encourage street-level activity and enhance the pedestrian experience. Architecture to be '4-sided' at all locations visible to public areas. Emphasis will be on great design along public street frontage.

Table 3

COR1 Development Standards	Arterial Street	Destination Street	Parkway	Connector Street	Downtown Street	Local Street
Minimum lot size	None	None	None	None	None	None
Minimum lot width	20 feet	20 feet	20 feet	20 feet	20 feet	20 feet
Minimum lot depth	80 feet	80 feet	80 feet	80 feet	80 feet	80 feet
Allowable residential density in dwelling units per acre [1]	>15 DU/AC	>15 DU/AC	>15 DU/AC	>15 DU/AC	>15 DU/AC	>15 DU/AC
Minimum floor area ratio (FAR) for nonresidential uses/vertically mixed buildings/sites	.75	.75	.75	.75	.75	.75
Build to Line						
Front yard[4]	30 feet as measured from building front to right-of-way[2][3] (60% of front facade w/in max.)	5 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	5 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	5 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	5 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	5 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)
Side yard	no req.	no req.	no req.	no req.	no req.	no req.
Rear yard	no req.	no req.	no req.	no req.	no req.	no req.
Driveway length (minimum)	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units
Building height (min. - max.)	2 - 5 stories.	2 - 5 stories.	2 - 5 stories.	2 - 5 stories.	2 - 5 stories.	2 - 5 stories.
Planter Style	N/A	Planter Bed	Boulevard Sod	Boulevard Sod	N/A	Boulevard Sod
Tree Spacing (on center)	N/A	35 feet	35 feet	35 feet	35 feet	35 feet
Boulevard Width	N/A	6 feet	6 feet	6 feet	N/A	6 feet
Sidewalk Width	10 feet	10 feet	6 feet	10 feet	10 feet	10 feet

1. Residential density is based on the net area of the parcel in question for parcels. In the event that public open space that is not dedicated to the City is developed independently of any particular residential project, the land area of the open space shall be divided equally among those abutting projects for purposes of density calculations.
2. Build to line shall be measured from building front to edge of right-of-way, or edge of sidewalk easement as defined by the City and said sidewalk must be encumbered by a sidewalk easement recorded with the office of the Anoka County Recorder.
3. The City may approve up to a 60-foot setback if it finds that topography or other factors require that a building be set back further to achieve acceptable grades or buffer between the street, the site entrance and the building.
4. In order to address vision clearance standards on higher speed roadways, parcels that are located at an intersection with an arterial roadway are allowed a build-to line of 35 feet from both streets.

A. At least sixty (60%) percent of street frontage of any lot shall be occupied by building facades meeting this build-to-line. On lots with more than one (1) street frontage, the build to line shall apply on each side fronting a street. An enclosed open area plaza space or outdoor seating with a decorative wall with a minimum height of three feet (3') and a maximum of four and one-half feet (4 ½') can be used to meet the sixty (60%) percent street frontage requirement.

B. Screening Of Parking Areas: Wherever a surface parking area faces a street frontage, such frontage shall be screened with a decorative wall, railing, hedge, or a combination of these elements, to a minimum height of three feet (3') and a maximum height of four and one-half feet ($4^1/_2$') above the level of the parking lot, at the build-to line. This screening may be broken into sections along the street edge provided it meets the sixty (60%) percent required.

Sub-District Framework - COR2 Commercial

Public Realm / Streetscape

While the Commercial Sub-district encourages a mix of large and small floor plates accommodating auto-oriented uses, this suggests even greater attention be paid to public realm and streetscape improvements that not only accommodate vehicles, but also invite bicycle and pedestrian traffic. Surface parking lots provide convenient access to storefronts, but present an additional challenge to the overall visual character and aesthetic appeal of this area. While no large public parks are identified for this sub-district, small pocket parks, squares or other gathering spaces are encouraged. A consistent, attractive streetscape is also essential.

Site Development

Site Design Framework for this sub-district focus on a unique opportunity to recast typical commercial development patterns into a contemporary and innovative strategy that responds to overall objectives for The COR. Specifically, this suggests that the majority of buildings front on the primary through streets, with parking and service areas on the side or in the back, away from view. However, the market realities suggest that the types of auto-oriented users in this district will have the potential for larger parking fields and drive-throughs that will make a true urban model challenging. The City will hold all users to this design vision while modifying the COR2 standards slightly to accommodate these types of more typical suburban land uses. A mix of uses within individual blocks, including retail, restaurant and residential, further enhances this model, addresses design character/aesthetics and promotes activity throughout much of the day and evening hours.

Architecture

Buildings in the Commercial Sub-district make a significant contribution to first impressions of The COR. Buildings form gateways at the major entries into the site, architectural elements and choice of materials convey a certain character and the scale or massing of structures begins to define the feel or experience of this place. These are not just 'commodity' buildings, but instead should raise the bar in terms of overall design and specific details that make The COR unique, inviting and memorable. Architecture to be '4-sided' at all locations visible to public areas. Emphasis will be on great design along public street frontage.

Table 4

COR2 Development Standards	Arterial Street	Destination Street	Parkway	Connector Street	Downtown Street	Local Street
Minimum lot size	None	None	None	None	None	None
Minimum lot width	80 feet	80 feet	80 feet	80 feet	80 feet	80 feet
Minimum lot depth	100 feet	100 feet	100 feet	100 feet	100 feet	100 feet
Allowable residential density in dwelling units per acre [1]	>15 DU/AC	>15 DU/AC	>15 DU/AC	>15 DU/AC	>15 DU/AC	>15 DU/AC
Build to Line						
Front yard[4]	30 feet as measured from building front to right-of-way[2][3] (40% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (40% of front facade w/in max.)	30 feet as measured from building front to right-of-way[2][3] (40% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (40% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (40% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (40% of front facade w/in max.)
Side yard	no req.	no req.	no req.	no req.	no req.	no req.
Rear yard	no req.	no req.	no req.	no req.	no req.	no req.
Driveway length (minimum)	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units
Building height (min. - max.)	1-4 stories.	1-4 stories.	1-4 stories.	1-4 stories.	1-4 stories.	1-4 stories.
Planter Style	N/A	Boulevard Sod	Boulevard Sod	Boulevard Sod	N/A	Boulevard Sod
Tree Spacing (on center)	N/A	35 feet	35 feet	35 feet	35 feet	35 feet
Boulevard Width	N/A	6 feet	6 feet	6 feet	N/A	6 feet
Sidewalk Width	10 feet	6 feet	6 feet	10 feet	10 feet	10 feet

1. Residential density is based on the net area of the parcel in question for parcels. In the event that public open space that is not dedicated to the City is developed independently of any particular residential project, the land area of the open space shall be divided equally among those abutting projects for purposes of density calculations.
2. Build to line shall be measured from building front to edge of right-of-way, or edge of sidewalk easement as defined by the City and said sidewalk must be encumbered by a sidewalk easement recorded with the office of the Anoka County Recorder.
3. The City may approve up to a 60-foot setback if it finds that topography or other factors require that a building be set back further to achieve acceptable grades or buffer between the street, the site entrance and the building.
4. In order to address vision clearance standards on higher speed roadways, parcels that are located at an intersection with an arterial roadway are allowed a build-to line of 35 feet from both streets.

A. At least forty (40%) percent of street frontage of any lot shall be occupied by building facades meeting this build-to-line. On lots with more than one (1) street frontage, the build to line shall apply only to one (1) street frontage.
   1. An enclosed open area plaza space or outdoor seating with a decorative wall with a minimum height of three feet (3') and a maximum of four and one-half feet (4 ½') can be used to meet the forty (40%) percent street frontage requirement.
   2. The City may approve a variation from the required build to line if the applicant provides a street edge consisting of fencing, decorative wall and/or landscaping with a minimum height of three feet (3') and a maximum of four and one-half feet (4 ½') can be used to meet the forty (40%) percent street frontage requirement.

B. Screening Of Parking Areas: Wherever a surface parking area faces a street frontage, such frontage shall be screened with a decorative wall, railing, hedge, or a combination of these elements, to a minimum height of three feet (3') and a maximum height of four and one-half feet ($4^1/_2$') above the

level of the parking lot, at the build-to line. This screening may be broken into sections along the street edge provided it meets the forty (40%) percent required on all street frontages.

Sub-District Framework - COR3 Workplace

Public Realm/Streetscape

The Workplace Sub-district also encourages a mix of large and small floor plate buildings, but instead of commercial or entertainment, this area of The COR is dominated by office and institutional uses. With opportunities for corporate or medical campus development comes the attendant auto-related infrastructure – easy access, bigger streets and large surface parking lots. Once again, this suggests that equal attention be paid to public realm and streetscape improvements that not only accommodate vehicles, but also invite bicycle and pedestrian traffic. The Draw, an active, neighborhood scale, recreational play space has been included in this sub-district, but small pocket parks, squares or other gathering places are also encouraged. In addition, streetscape improvements provide an important public amenity and inviting pedestrian connection to adjacent sub-districts.

Site Development

The mix of medical, office, institutional and other uses in this sub-district suggest the potential for a campus-like arrangement of buildings on some blocks. These blocks would tend to be more internally oriented than in other districts, with driveways, parking lots, courtyards and walkway connections in the center, ringed by buildings around the outside. Buildings would still face adjacent streets, with both primary and secondary entries provided to animate these important façades, particularly along Ramsey Boulevard, Sunwood Drive and Rhinestone Street. While the Workplace sub-district also encourages mixed use, this desired development objective will likely occur mostly within blocks, not within individual buildings as seen in other districts.

Architecture

Buildings in the Workplace Sub-district also make a significant contribution to first impressions as people enter The COR via Highway 10, Ramsey Boulevard and Sunwood Drive. Buildings form gateways at the major entries into the site, architectural elements and choice of materials convey quality and permanence, and the scale or massing of structures begins to define the feel and character of this place. The proposed mix of uses within this sub-district suggest a variety of potential building types – blending medical campus with small office, storefront and some housing -- demands design creativity and innovation to highlight unique architecture, and knit the entire sub-district together as a coherent whole. Architecture to be ‘4-sided’ at all locations visible to public areas. Emphasis will be on great design along public street frontage.

Table 5

COR3 Development Standards	Arterial Street	Destination Street	Parkway	Connector Street	Downtown Street	Local Street
Minimum lot size	None	None	None	None	None	None
Minimum lot width	40 feet	40 feet	40 feet	40 feet	40 feet	40 feet
Minimum lot depth	80 feet	80 feet	80 feet	80 feet	80 feet	80 feet
Allowable residential density in dwelling units per acre [1]	none	none	none	none	none	none
Minimum floor area ratio (FAR) for nonresidential uses/vertically mixed buildings/sites	.25	.25	.25	.25	.25	.25
Build to Line						
Front yard[4]	30 feet as measured from building front to right-of-way[2][3] (60% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)	15 feet as measured from building front to right-of-way[2] (60% of front facade w/in max.)
Side yard	no req.	no req.	no req.	no req.	no req.	no req.
Rear yard	no req.	no req.	no req.	no req.	no req.	no req.
Driveway length (minimum)	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units
Building height (min. - max.)	2 - 4 stories.	2 - 4 stories.	2 - 4 stories.	2 - 4 stories.	2 - 4 stories.	2 - 4 stories.
Planter Style	N/A	Planter Bed	Boulevard Sod	Boulevard Sod	N/A	Boulevard Sod
Tree Spacing (on center)	N/A	35 feet	35 feet	35 feet	35 feet	35 feet
Boulevard Width	N/A	6 feet	6 feet	6 feet	N/A	6 feet
Sidewalk Width	10 feet	10 feet	6 feet	10 feet	10 feet	10 feet

1. Residential density is based on the net area of the parcel in question for parcels. In the event that public open space that is not dedicated to the City is developed independently of any particular residential project, the land area of the open space shall be divided equally among those abutting projects for purposes of density calculations.
2. Build to line shall be measured from building front to edge of right-of-way, or edge of sidewalk easement as defined by the City and said sidewalk must be encumbered by a sidewalk easement recorded with the office of the Anoka County Recorder.
3. The City may approve up to a 60-foot setback if it finds that topography or other factors require that a building be set back further to achieve acceptable grades or buffer between the street, the site entrance and the building.
4. In order to address vision clearance standards on higher speed roadways, parcels that are located at an intersection with an arterial roadway are allowed a build-to line of 35 feet from both streets.

A. At least sixty (60%) percent of street frontage of any lot shall be occupied by building facades meeting this build-to-line. On lots with more than one (1) street frontage, the build to line shall apply on each side fronting a street. An enclosed open area plaza space or outdoor seating with a decorative wall with a minimum height of three feet (3') and a maximum of four and one-half feet (4 ½') can be used to meet the sixty (60%) percent street frontage requirement.

B. Screening Of Parking Areas: Wherever a surface parking area faces a street frontage, such frontage shall be screened with a decorative wall, railing, hedge, or a combination of these elements, to a minimum height of three feet (3') and a maximum height of four and one-half feet ($4^1/_2$') above the level of the parking lot, at the build-to line. This screening may be broken into sections along the street edge provided it meets the sixty (60%) percent required.

Sub-District Framework - COR4 Neighborhood

Public Realm/Streetscape

Two prominent public parks supply much of the informal green space for The COR, and more specifically, provide the valuable park frontage and mix of amenities needed to support housing development within the Neighborhood Sub-district. North Commons surrounds an existing wetland and provides open space for year-round activities including a proposed sledding hill. The sub-district is adjacent to The Draw, which is characterized by wetlands, ponds and a meandering stream channel surrounded by gently sloping hills. Other park features include active and passive recreation areas, natural and manicured landscapes, education and interpretation opportunities, pedestrian and bicycle trails and many other amenities. Tree-lined streets connect these parks to surrounding residential neighborhoods and to nearby parks and amenities throughout The COR.

Site Development

The Neighborhood Sub-district emphasizes residential development. To support the proposed mix of housing, a framework of streets and blocks, based on the traditional grid system, encourages compact development patterns with increasing densities closer to the heart of The COR. Typical blocks either front onto signature parks or include some private green space within the site; many blocks have both. The arterial streets that frame this property, including Ramsey, Armstrong and Bunker Lake Boulevards, provide an important 'face' for this sub-district. Residential front doors will connect with public walks along each of these streets promoting the urban character of The COR.

Architecture

The largest in terms of overall acreage, the Neighborhood Sub-district will define the character and quality of the entire northern half of The COR property. With prominent street frontage along most of the major thoroughfares that serve this site, the variety of choices for building type, architectural style and design detailing are crucial decisions that together will promote a safe and attractive residential neighborhood. Integrating contemporary and traditional styles is also an important consideration, central to the notion that a unique and creative model for housing development will be a signature for The COR. Architecture to be '4-sided' at all locations visible to public areas. Emphasis will be on great design along public street frontage.

Table 6

COR4 Development Standards						
	Arterial Street	**Destination Street**	**Parkway**	**Connector Street**	**Downtown Street**	**Local Street**
Minimum lot size	None	None	None	None	None	None
Minimum lot width	20 feet	20 feet	20 feet	20 feet	20 feet	20 feet
Minimum lot depth	80 feet	80 feet	80 feet	80 feet	80 feet	80 feet
Allowable residential density in dwelling units per acre [(1)]	4-15 DU/AC	4-15 DU/AC	4-15 DU/AC	4-15 DU/AC	4-15 DU/AC	4-15 DU/AC
Minimum floor area ratio (FAR) for nonresidential uses/vertically mixed buildings/sites	.25	.25	.25	.25	.25	.25
Build to Line						
Front yard[(4)]	30 feet as measured from building front to right-of-way[(2)(3)] (60% of front facade w/in max.)	20 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	20 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	20 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	20 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	20 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)
Side yard	no req.	no req.	no req.	no req.	no req.	no req.
Rear yard	no req.	no req.	no req.	no req.	no req.	no req.
Driveway length (minimum)	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units	25 feet for residential units
Building height (min. - max.)	1-4 stories.	1-4 stories.	1-4 stories.	1-4 stories.	1-4 stories.	1-4 stories.
Planter Style	N/A	Planter Bed	Boulevard Sod	Boulevard Sod	N/A	Boulevard Sod
Tree Spacing (on center)	N/A	35 feet	35 feet	35 feet	35 feet	35 feet
Boulevard Width	N/A	6 feet	6 feet	6 feet	N/A	6 feet
Sidewalk Width	10 feet	10 feet	6 feet	10 feet	10 feet	10 feet

1. Residential density is based on the net area of the parcel in question for parcels. In the event that public open space that is not dedicated to the City is developed independently of any particular residential project, the land area of the open space shall be divided equally among those abutting projects for purposes of density calculations.
2. Build to line shall be measured from building front to edge of right-of-way, or edge of sidewalk easement as defined by the City and said sidewalk must be encumbered by a sidewalk easement recorded with the office of the Anoka County Recorder.
3. The City may approve up to a 60-foot setback if it finds that topography or other factors require that a building be set back further to achieve acceptable grades or buffer between the street, the site entrance and the building.
4. In order to address vision clearance standards on higher speed roadways, parcels that are located at an intersection with an arterial roadway are allowed a build-to line of 35 feet from both streets.

A. Screening Of Parking Areas: Wherever a surface parking area faces a street frontage, such frontage shall be screened with a decorative wall, railing, hedge, or a combination of these elements, to a minimum height of three feet (3') and a maximum height of four and one-half feet ($4^1/_2$') above the level of the parking lot, at the build-to line. This screening may be broken into sections along the street edge provided it meets the sixty (60%) percent required.

Sub-District Framework - COR5 Parks & Open Space

Public Realm/Streetscape

The overall structure of The COR is based on a system of linked parks, trails and open space. This includes existing and proposed parks and trails defined in city and regional parks plans, joined with new parks and trails within The COR. Of equal importance is the contribution from each block and each development project to this green structure, adding a variety of private, semi-private and perhaps some additional public space throughout each sub-district. Great strolling streets provide connections between commercial, workplace, entertainment and residential neighborhoods and encourage shared use for cars, pedestrians and bicycles.

Site Development

The COR Master Plan illustrates a strong framework of green space, including a mix of public parks, destination amenities, courtyards, commons and other features. As a key component of the overall plan, this integrated system of parks, trails and open space provides the framework around which all other land uses are organized. Placemaking and connectivity are important site development considerations, linking each block and each sub-district with major public spaces nearby and with many other amenities and attractions in The COR.

Architecture

There are numerous opportunities to include buildings and other structures as significant design features within the proposed parks, trails and open space system for The COR. These could range from simple picnic shelters and landscaped arbors to more complex park buildings that might contain meeting rooms, rest rooms, storage areas and other facilities. Design of these important buildings should respond to the specific setting and landscape features in each park, and complement the overall character and quality of buildings located within surrounding blocks. Additionally, limited retail is planned along the perimeter of the park.

Table 7

COR5 Development Standards	Arterial Street	Destination Street	Parkway	Connector Street	Downtown Street	Local Street
Minimum lot size	0.5	N/A	0.5	0.5	0.5	0.5
Minimum lot width	N/A	N/A	N/A	N/A	N/A	N/A
Minimum lot depth	N/A	N/A	N/A	N/A	N/A	N/A
Allowable residential density in dwelling units per acre [(1)]	N/A	N/A	N/A	N/A	N/A	N/A
Minimum floor area ratio (FAR) for nonresidential uses/vertically mixed buildings/sites	N/A	N/A	N/A	N/A	N/A	N/A
Build to Line						
Front yard[(4)]	30 feet as measured from building front to right-of-way[(2)(3)] (60% of front facade w/in max.)	N/A	10 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	10 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	10 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)	10 feet as measured from building front to right-of-way[(2)] (60% of front facade w/in max.)
Side yard	no req.	N/A	no req.	no req.	no req.	no req.
Rear yard	no req.	N/A	no req.	no req.	no req.	no req.
Driveway length (minimum)	25 feet	N/A	25 feet	25 feet	25 feet	25 feet
Building height (min. - max.)	1-2 stories.	N/A	1-2 stories.	1-2 stories.	1-2 stories.	1-2 stories.
Planter Style	N/A	N/A	Boulevard Sod	Boulevard Sod	N/A	Boulevard Sod
Tree Spacing (on center)	N/A	N/A	35 feet	35 feet	35 feet	35 feet
Boulevard Width	N/A	N/A	6 feet	6 feet	N/A	6 feet
Sidewalk Width	10 feet	N/A	6 feet	10 feet	10 feet	10 feet

1. Residential density is based on the net area of the parcel in question for parcels. In the event that public open space that is not dedicated to the City is developed independently of any particular residential project, the land area of the open space shall be divided equally among those abutting projects for purposes of density calculations.
2. Build to line shall be measured from building front to edge of right-of-way, or edge of sidewalk easement as defined by the City and said sidewalk must be encumbered by a sidewalk easement recorded with the office of the Anoka County Recorder.
3. The City may approve up to a 60-foot setback if it finds that topography or other factors require that a building be set back further to achieve acceptable grades or buffer between the street, the site entrance and the building.
4. In order to address vision clearance standards on higher speed roadways, parcels that are located at an intersection with an arterial roadway are allowed a build-to line of 35 feet from both streets.

A. Where commercial buildings are planned, at least sixty (60%) percent of street frontage of any lot shall be occupied by building facades meeting this build-to-line. On lots with more than one (1) street frontage, the build to line shall apply on each side fronting a street. An enclosed open area plaza space or outdoor seating with a decorative wall with a minimum height of three feet (3') and a maximum of four and one-half feet (4 ½') can be used to meet the sixty (60%) percent street frontage requirement.

B. Screening Of Parking Areas: Wherever a surface parking area faces a street frontage, such frontage shall be screened with a decorative wall, railing, hedge, or a combination of these elements, to a minimum height of three feet (3') and a maximum height of four and one-half feet ($4^1/_2$') above the level of the parking lot, at the build-to line. This screening may be broken into sections along the street edge provided it meets the sixty (60%) percent required.

Implementation

Introduction

This framework provides distinct strategies for guiding The COR's form and appearance. This framework's vision for the COR will take several years to implement. Successful implementation will require consistent application of the Design Framework by City staff. Zoning enforcement and design framework standards will not succeed without the cooperation and commitment of landowners, development interests, and the rest of the community.

Design Review

The Design Framework will be administered by staff as part of the development review process. Staff will incorporate design review to ensure compliance with the Design Framework as a standard step in the development review process.

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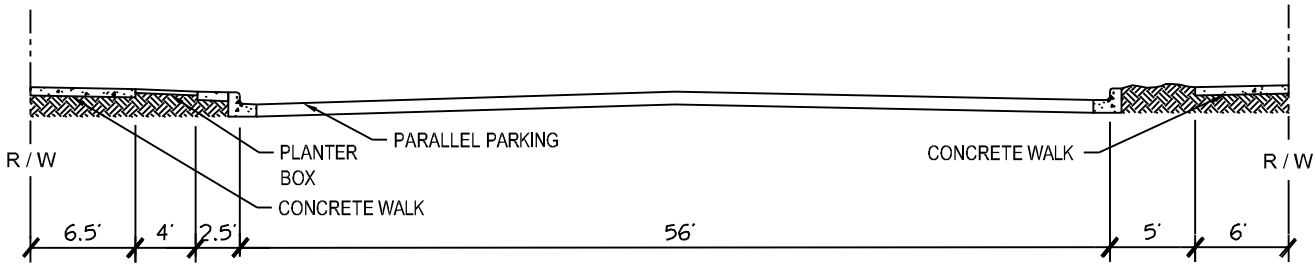
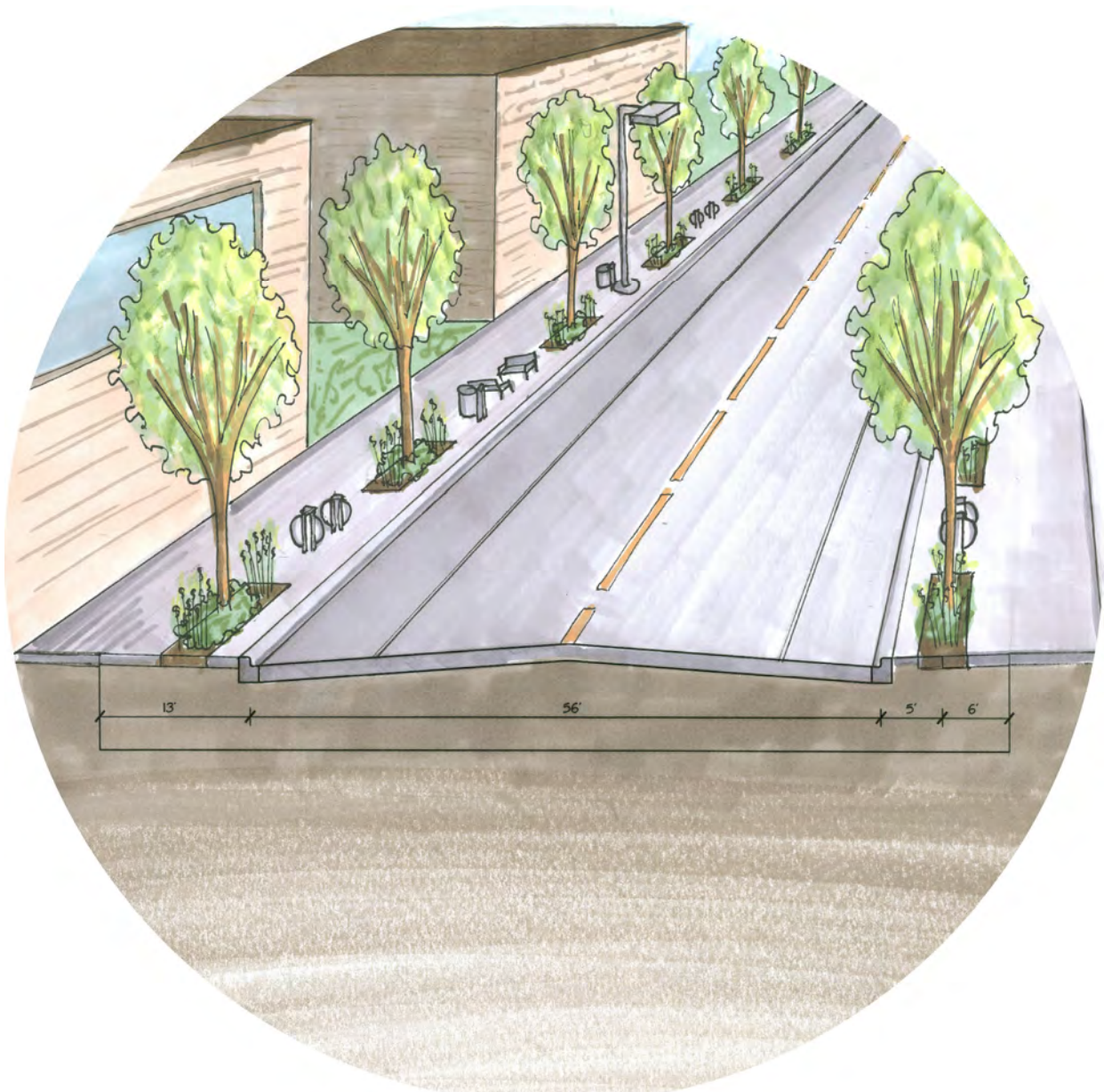
APPENDIX A:
SPECIFICATIONS AND DETAILS



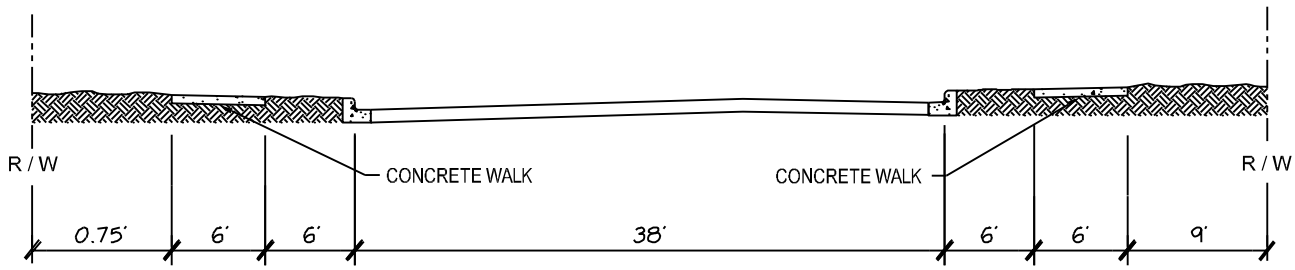


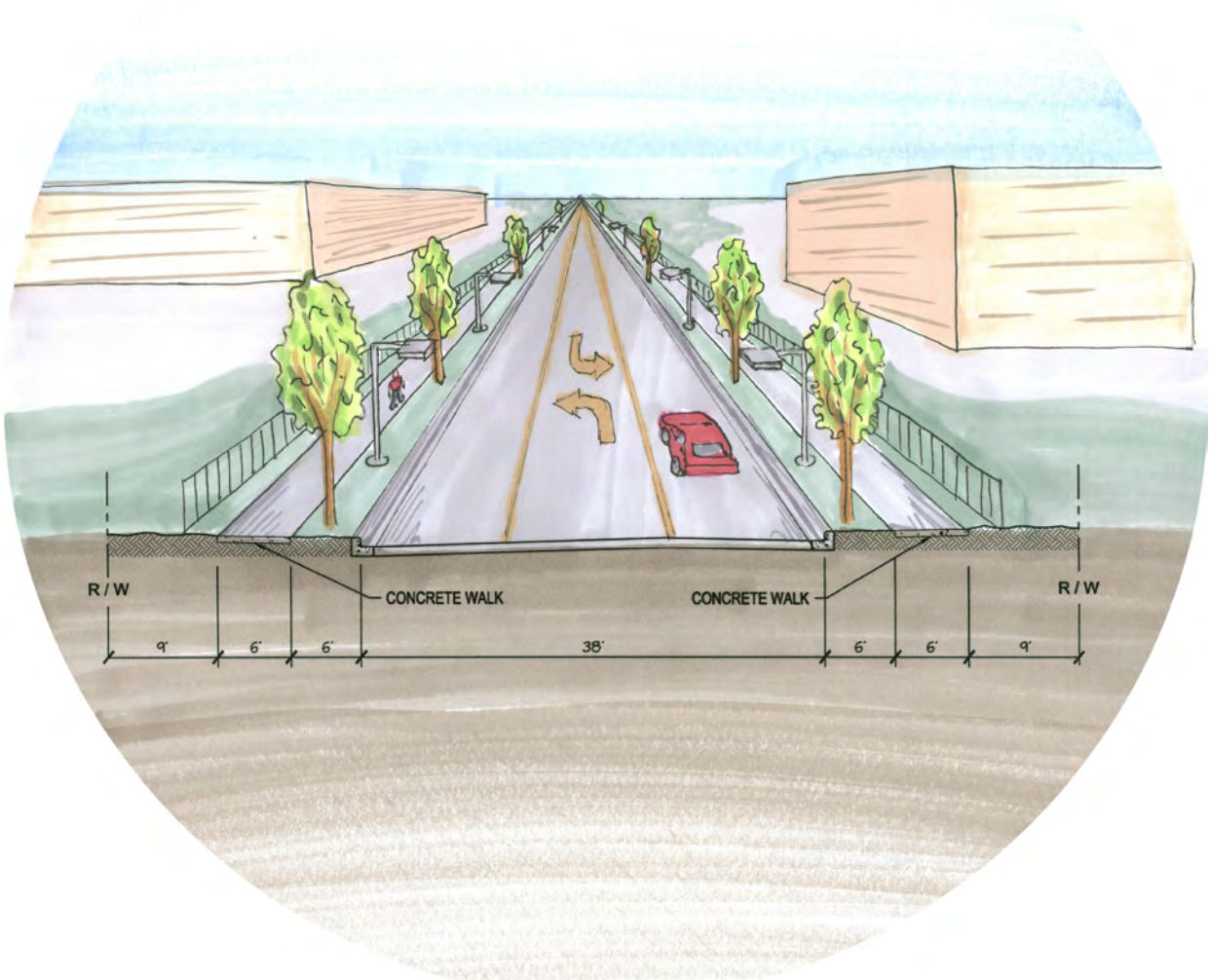
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #1
Sunwood Dr. East of Zeolite St.

THE COR
RAMSEY, MINNESOTA



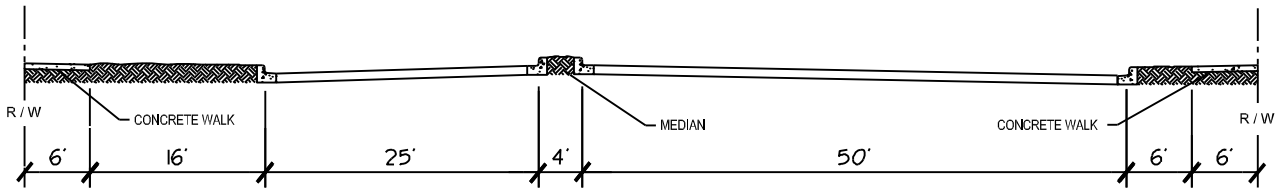


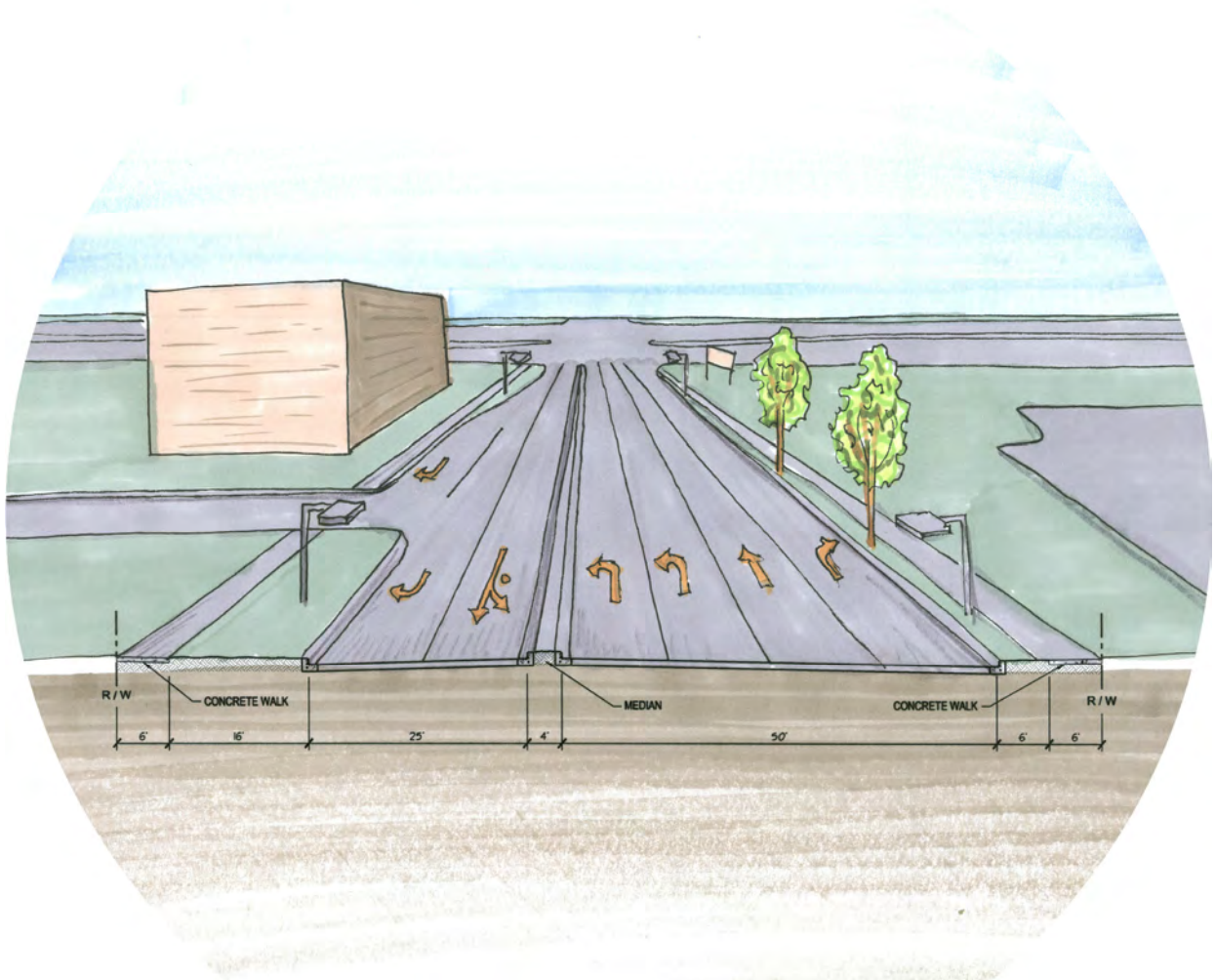
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #2
Sunwood Dr. West of Zeolite St.

THE COR
RAMSEY, MINNESOTA



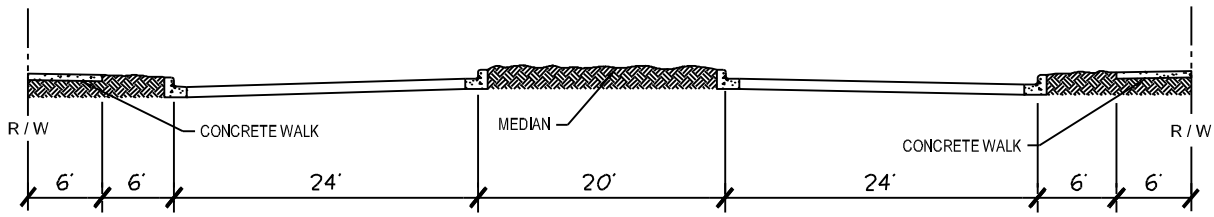


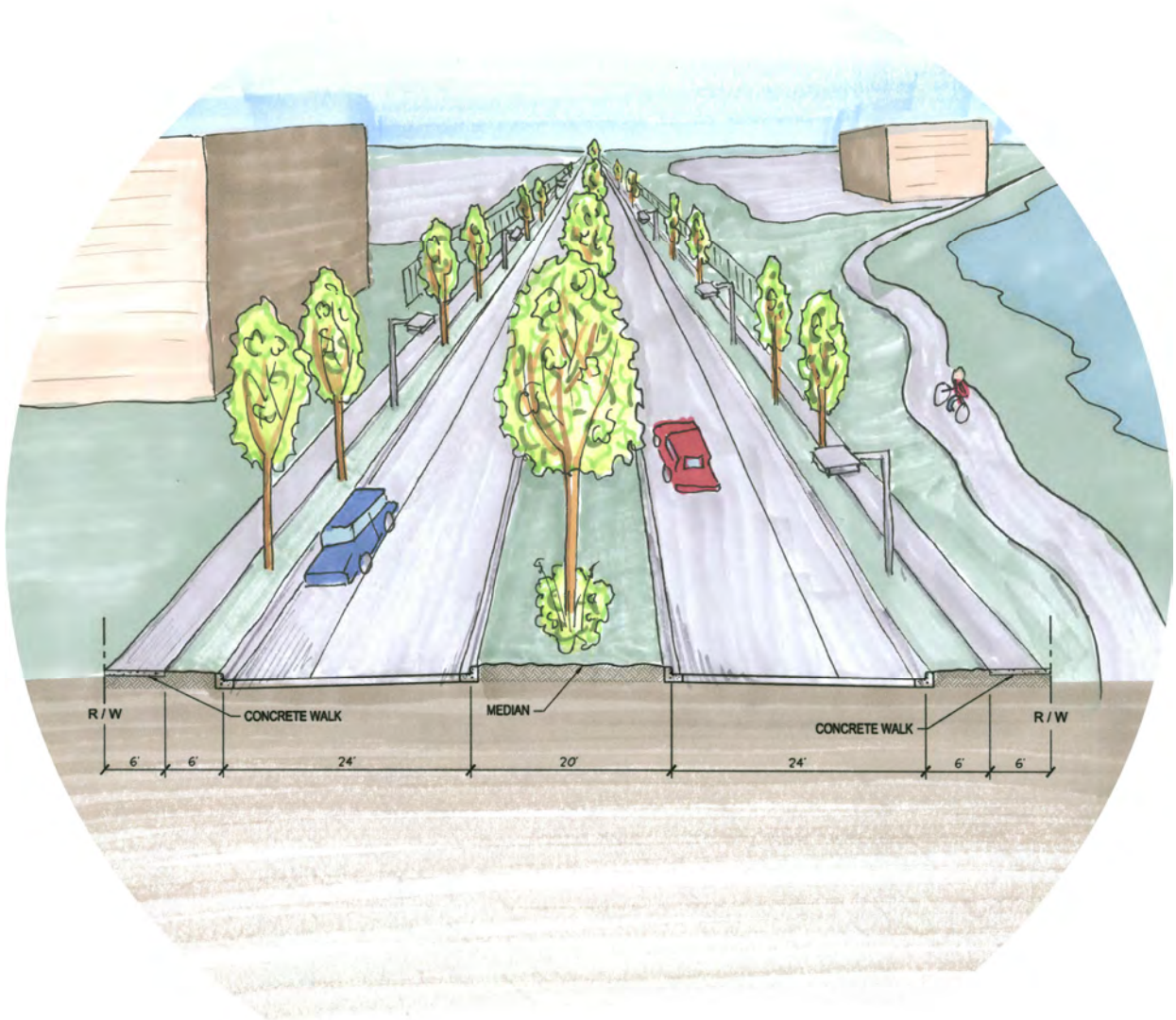
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #3
Ramsey Pkwy. West of Roundabout

THE COR
RAMSEY, MINNESOTA



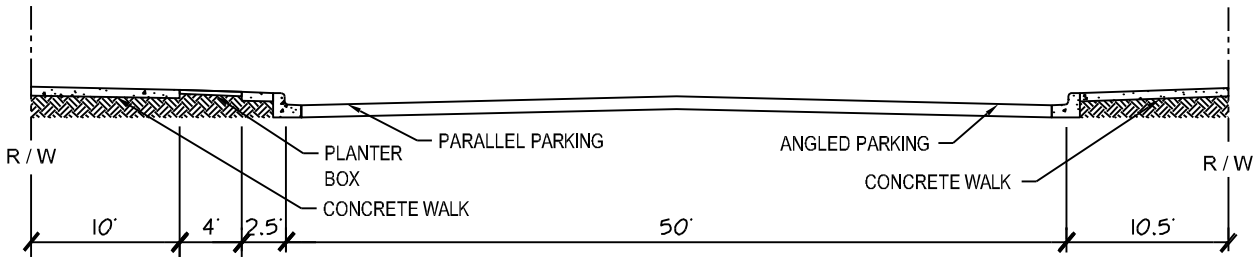


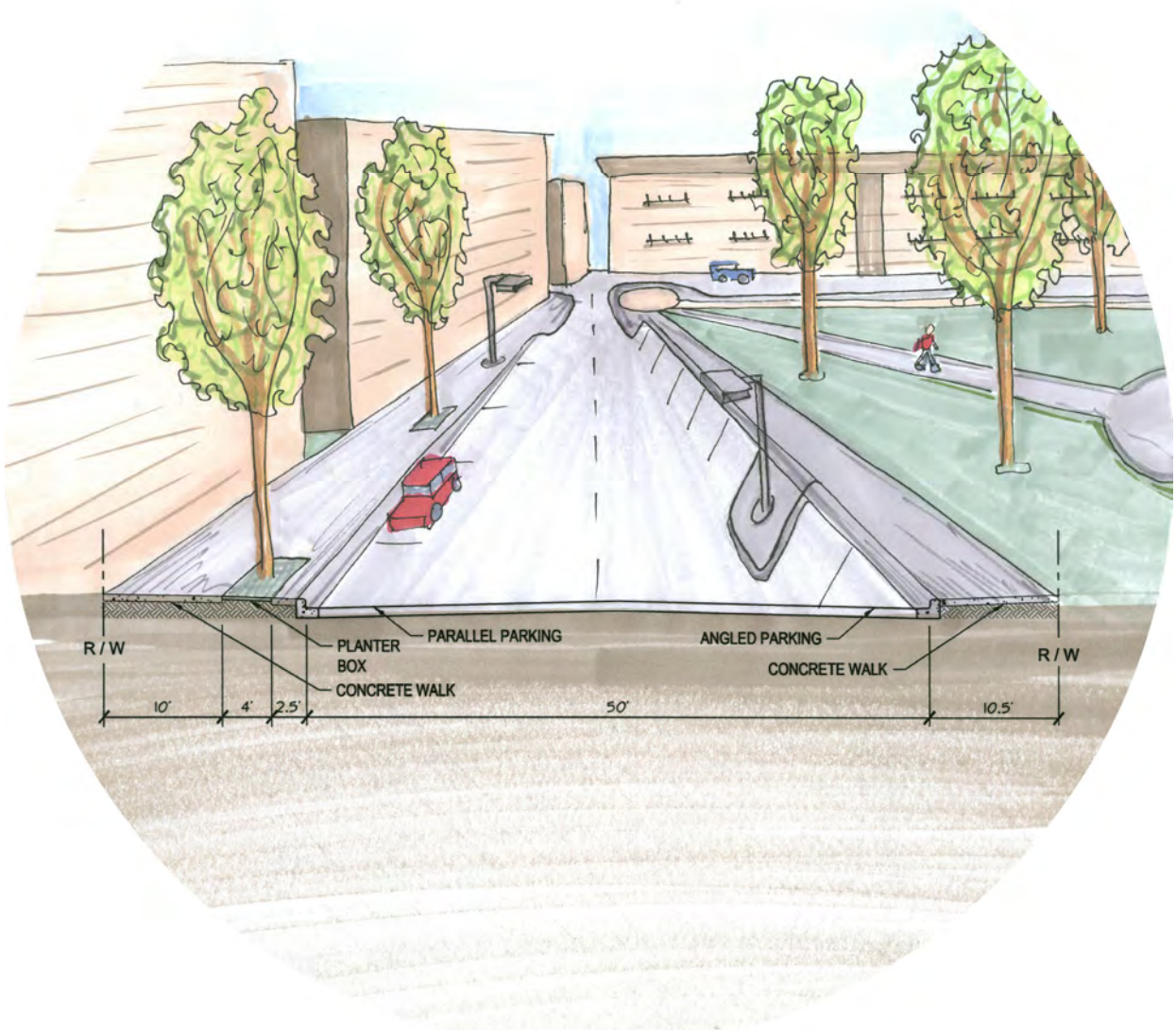
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #4
Ramsey Pkwy. East of Zeolite St.

THE COR
RAMSEY, MINNESOTA



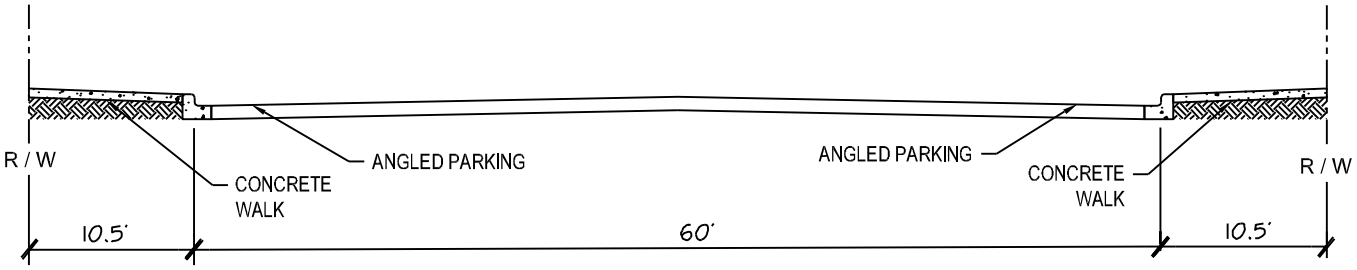


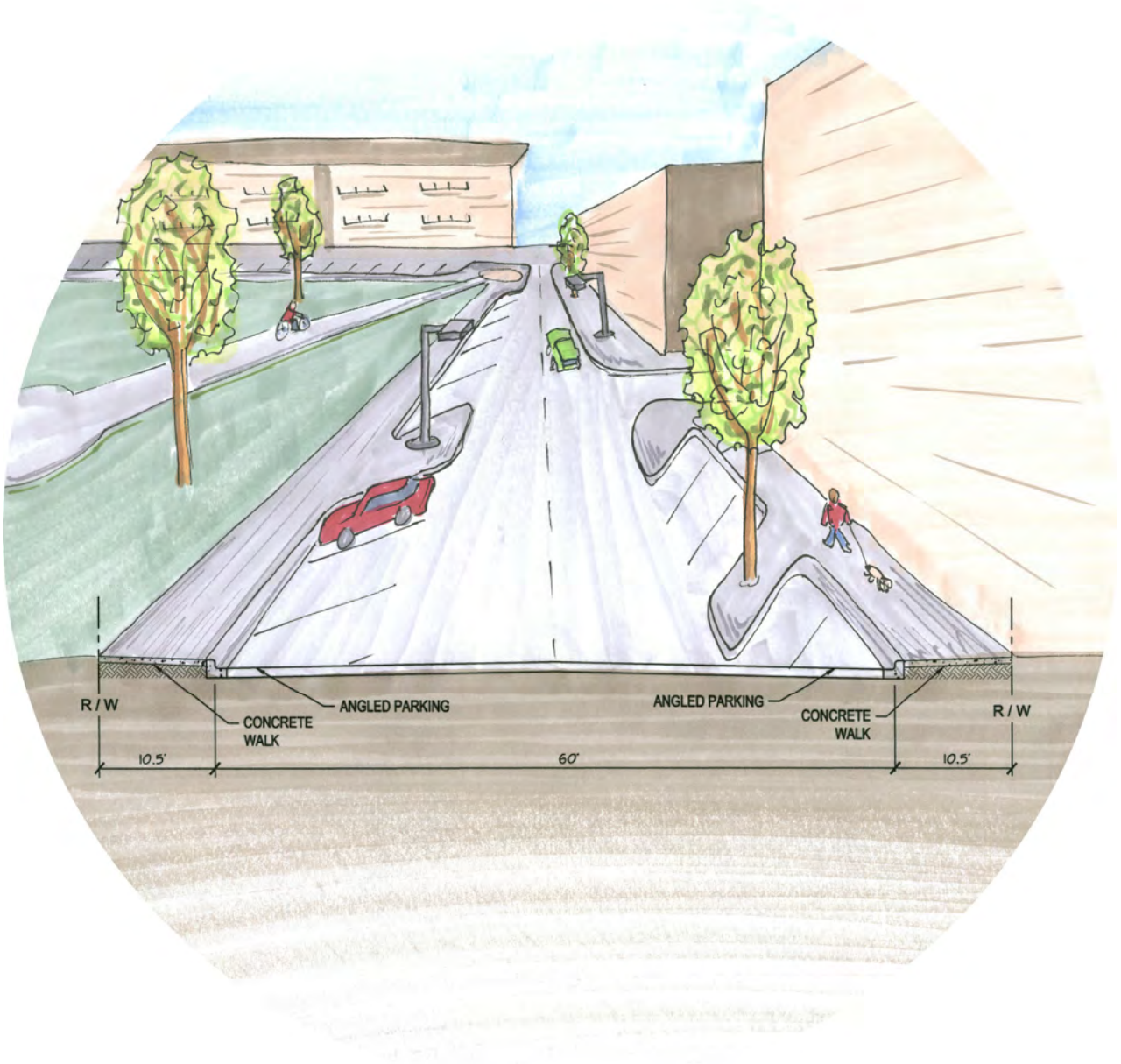
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #5
West of Municipal Plaza

THE COR
RAMSEY, MINNESOTA



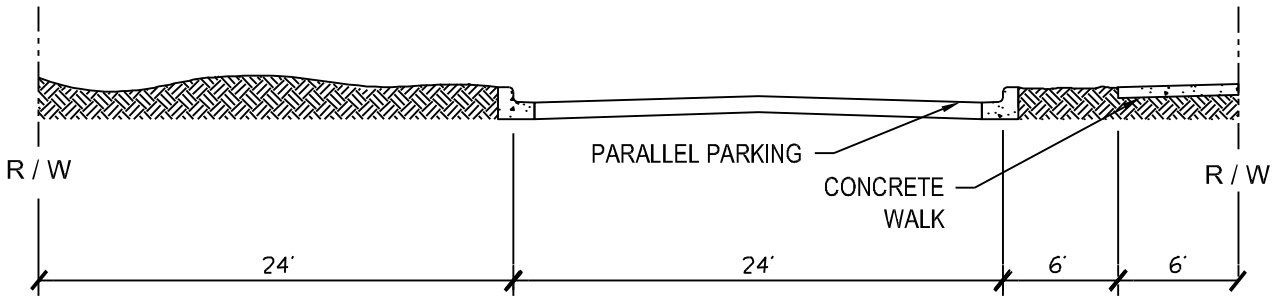


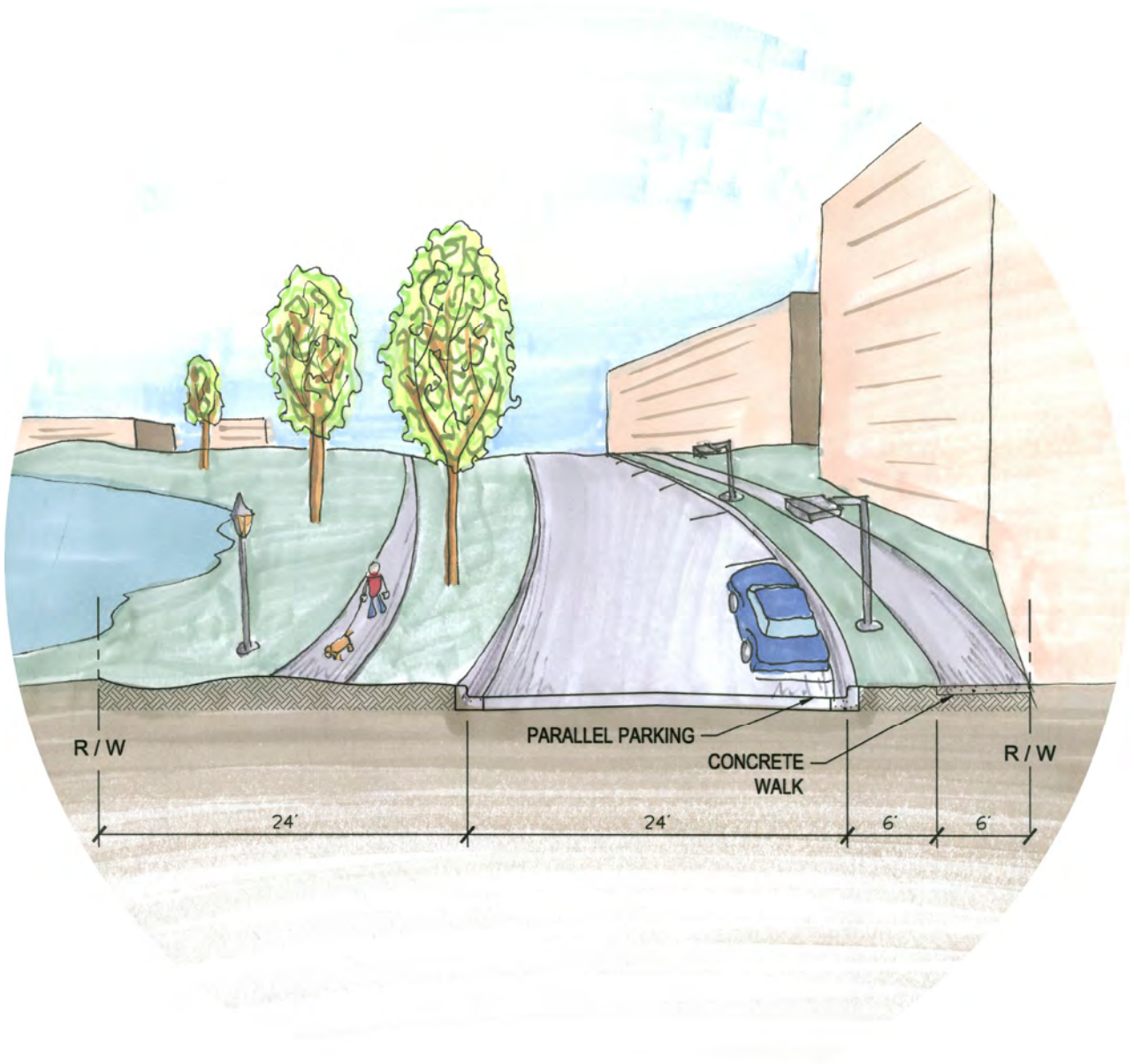
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #6
Center St. East of Municipal Plaza

THE COR
RAMSEY, MINNESOTA





LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #7
Ramsey Pkwy. South of The Draw

THE COR
RAMSEY, MINNESOTA

THE COR
AT RAMSEY

- PYLON/COMMUNITY SIGNS
- COMMUNITY KIOSK
- PROJECT GATEWAY
- PARKING

*See 'Appendix B' for sign details

LANDFORM
From Site to Finish

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Signage Plan

09/06/2012

DRAFT

EXHIBIT B.1

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PYLON/COMMUNITY SIGN 'A'
Armstrong Blvd. & Highway 10

THE COR
RAMSEY, MINNESOTA

Eastbound

Westbound

DRAFT

EXHIBIT B.2

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PYLON/COMMUNITY SIGN 'B'
Commuter Rail & Highway 10

THE COR
RAMSEY, MINNESOTA

DRAFT

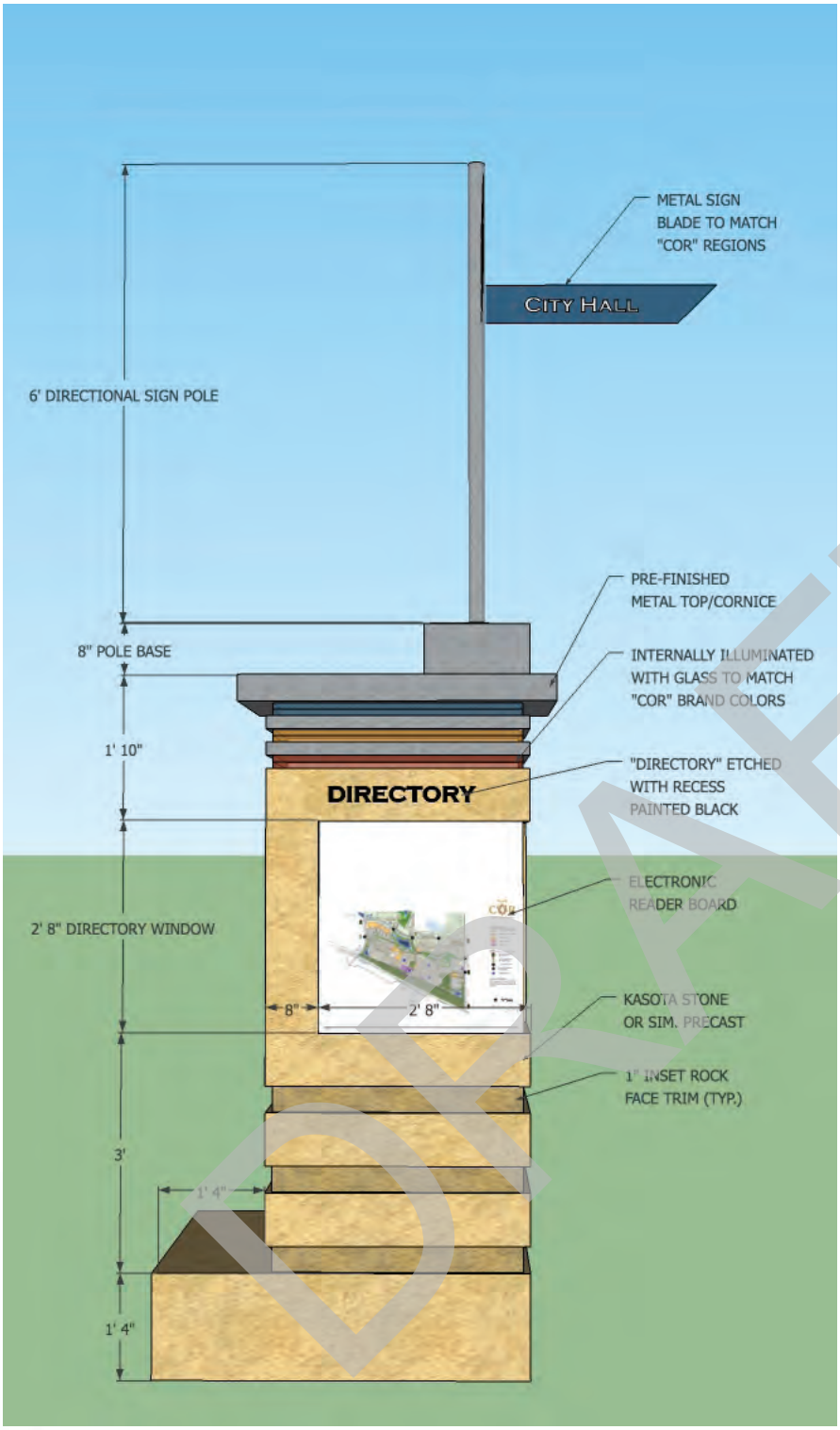
EXHIBIT B.3

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

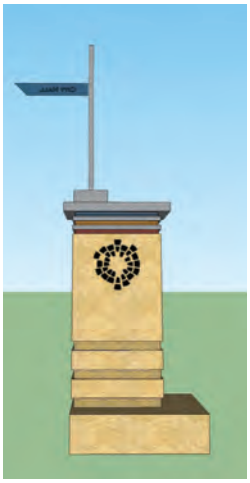
PYLON/COMMUNITY SIGN 'C'
Ramsey Blvd. & Highway 10

THE COR
RAMSEY, MINNESOTA

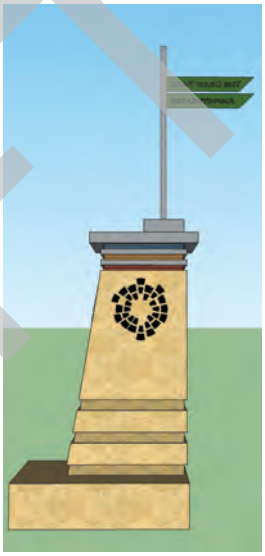


DIRECTORY PANEL VIEW

EVENTS PANEL VIEW

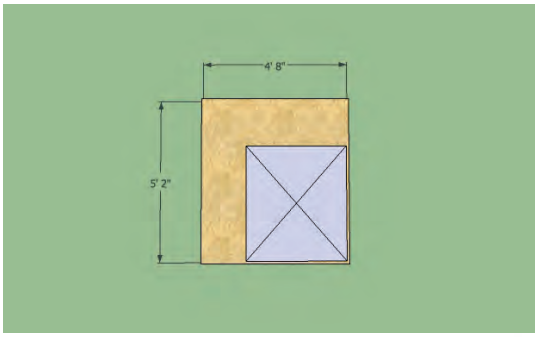


REAR VIEW



SIDE VIEW

PERSPECTIVE



PLAN VIEW

DRAFT

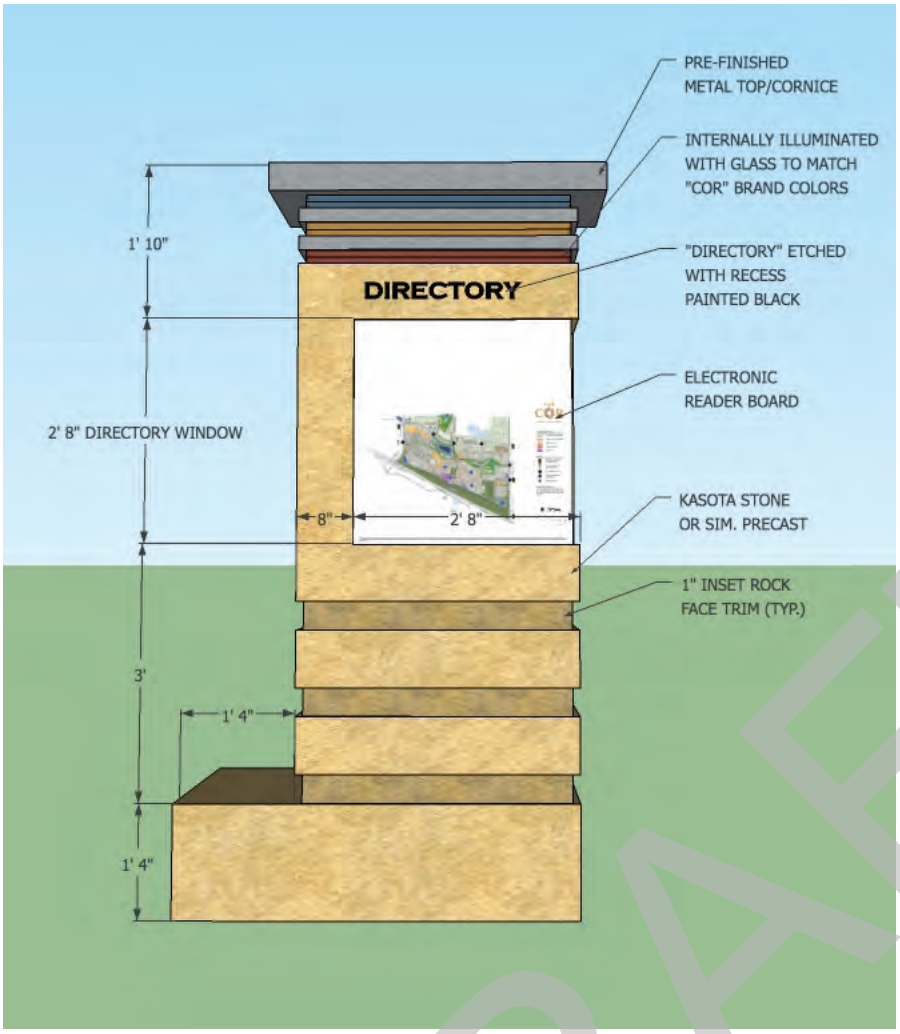
EXHIBIT B.4

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

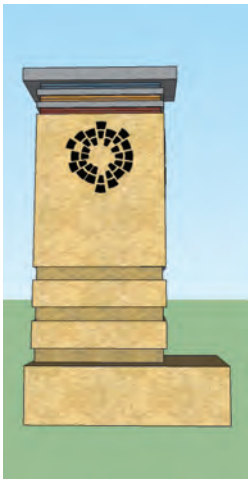
COMMUNITY KIOSK 'A'
Commuter Rail & Veterans Dr.

THE COR
RAMSEY, MINNESOTA



DIRECTORY PANEL VIEW

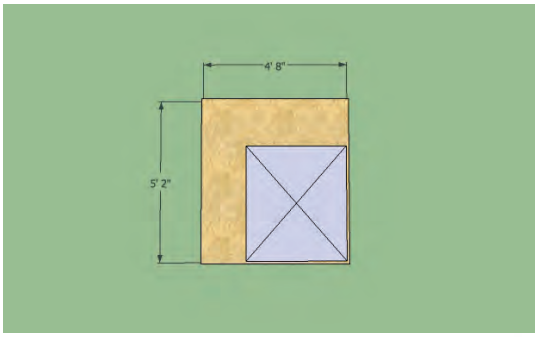
EVENTS PANEL VIEW



REAR VIEW

SIDE VIEW

PERSPECTIVE



PLAN VIEW

DRAFT

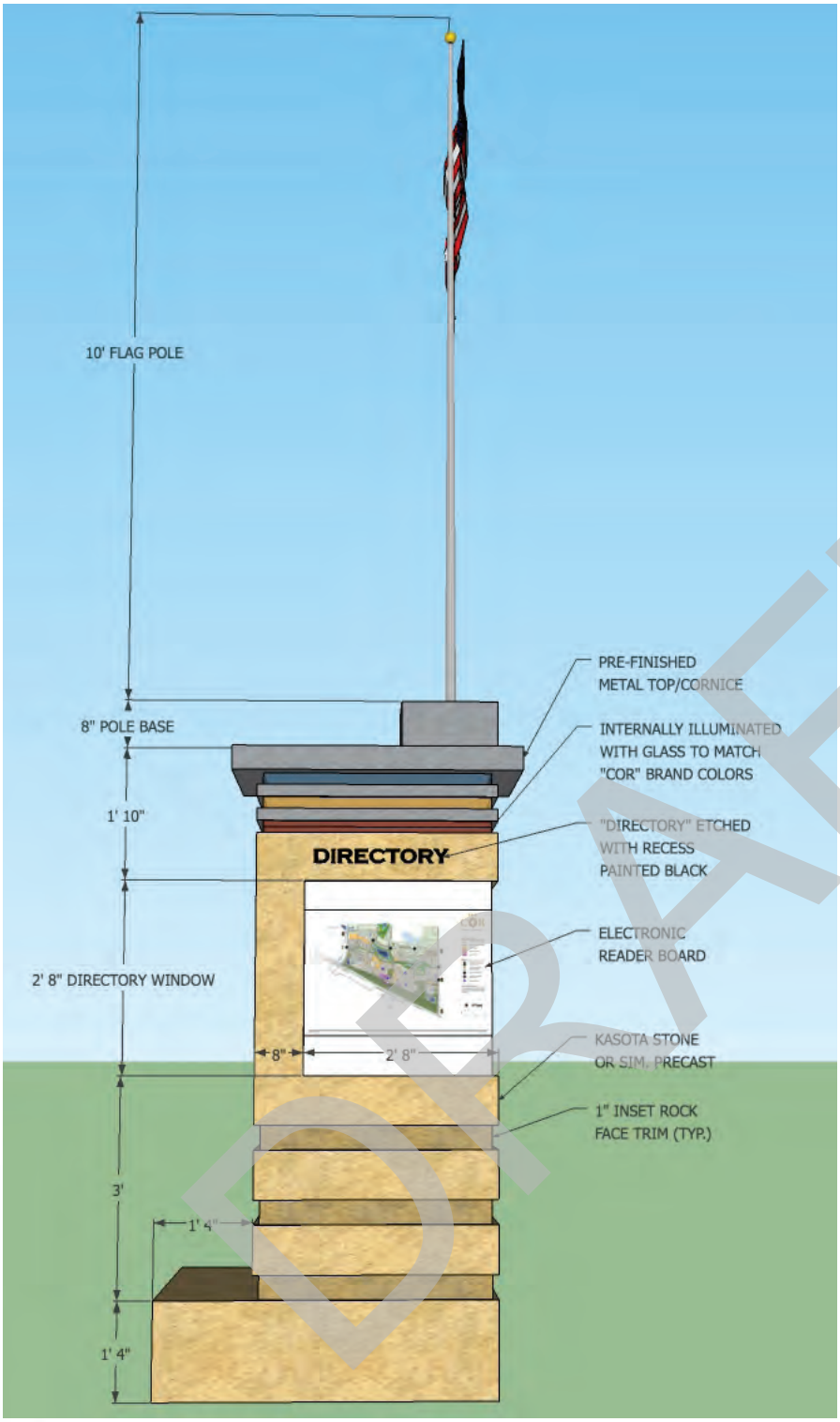
EXHIBIT B.5

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

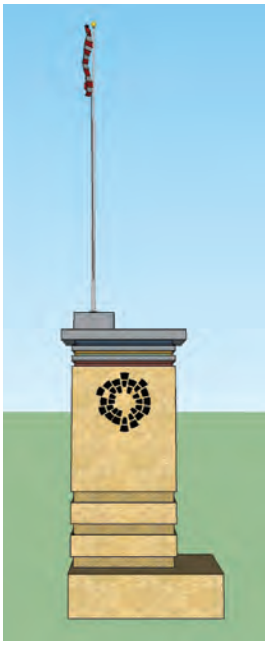
COMMUNITY KIOSK 'B'
Sunwood Dr. & Center St.

THE COR
RAMSEY, MINNESOTA



DIRECTORY PANEL VIEW

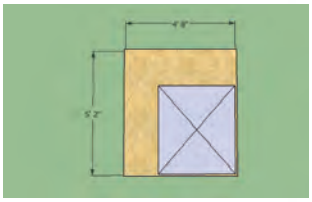
EVENTS PANEL VIEW



REAR VIEW

SIDE VIEW

PERSPECTIVE



PLAN VIEW

DRAFT

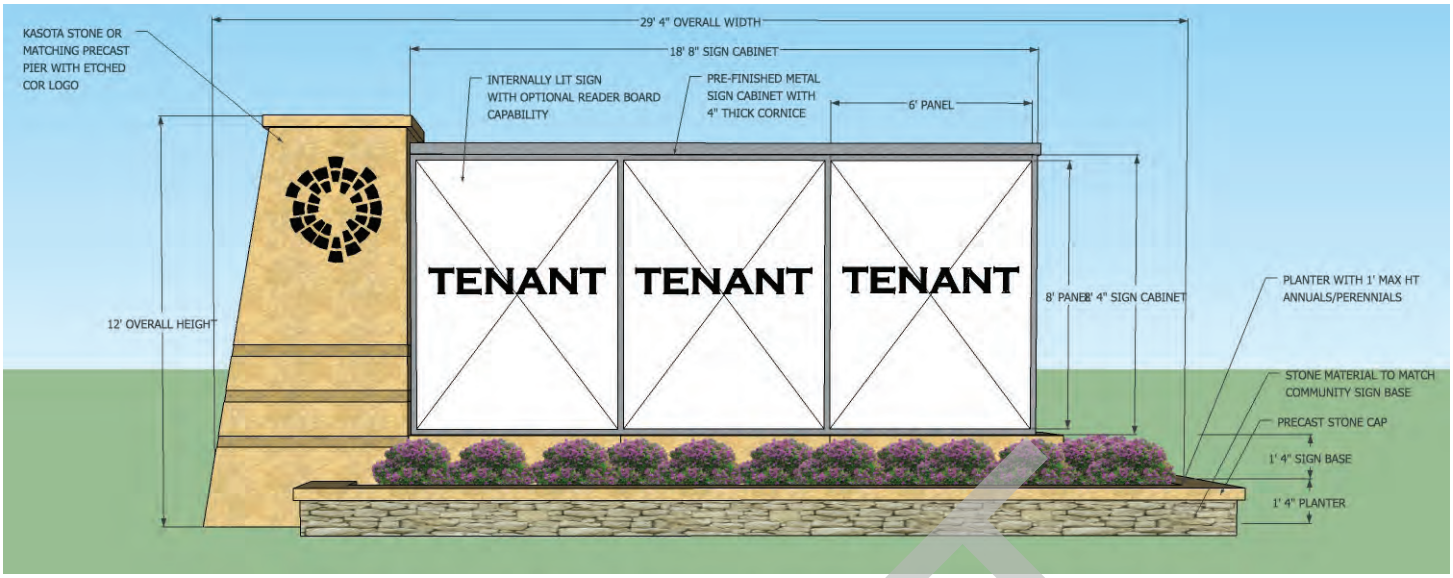
EXHIBIT B.6

LANDFORM
From Site to Finish

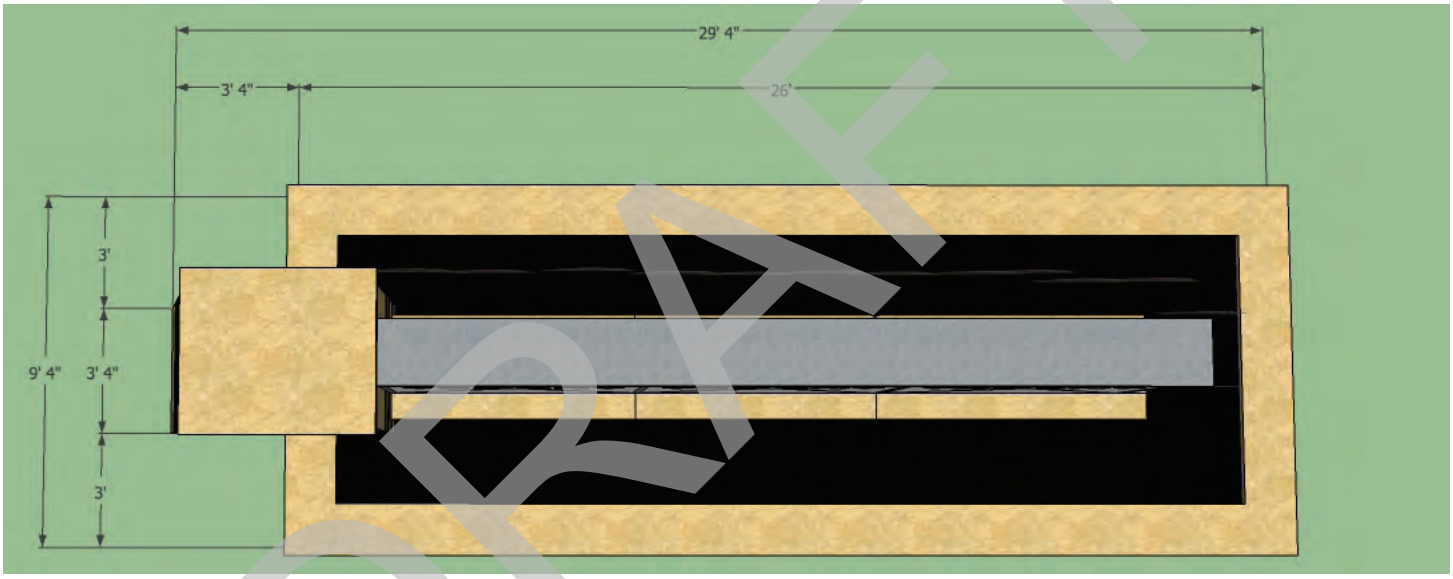
DESIGN FRAMEWORK
The COR at Ramsey

COMMUNITY KIOSK 'C'
Sunwood Dr. at Municipal Plaza

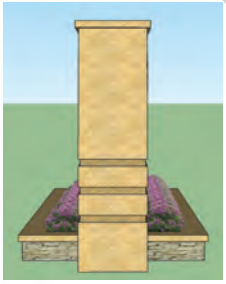
THE COR
RAMSEY, MINNESOTA



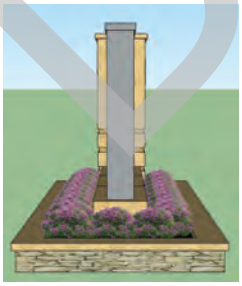
ELEVATION AT SUNWOOD



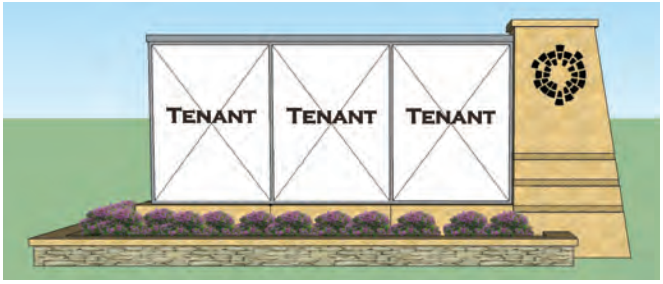
PLAN VIEW



PROFILE VIEW



PROFILE VIEW



ELEVATION

EXHIBIT B.7

DRAFT

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PROJECT GATEWAY SIGN 'A'
Sunwood Dr. & Armstrong Blvd.

THE COR
RAMSEY, MINNESOTA

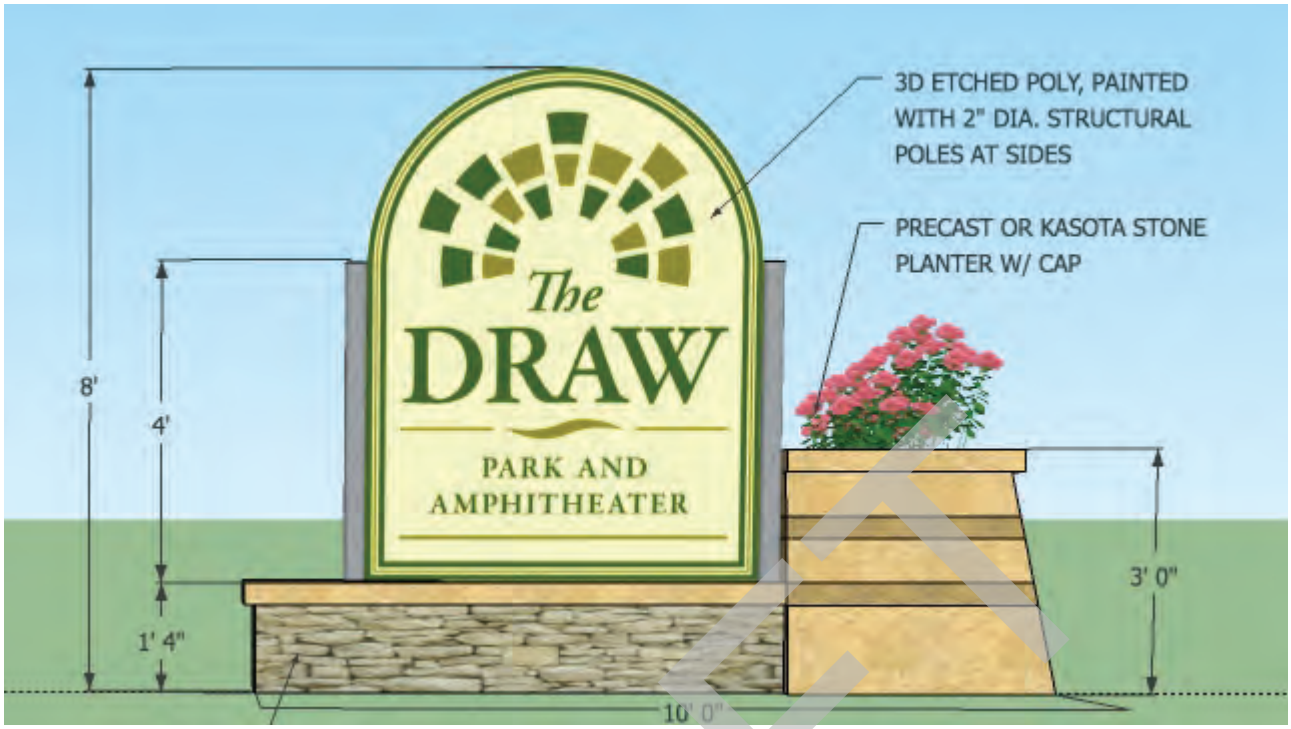


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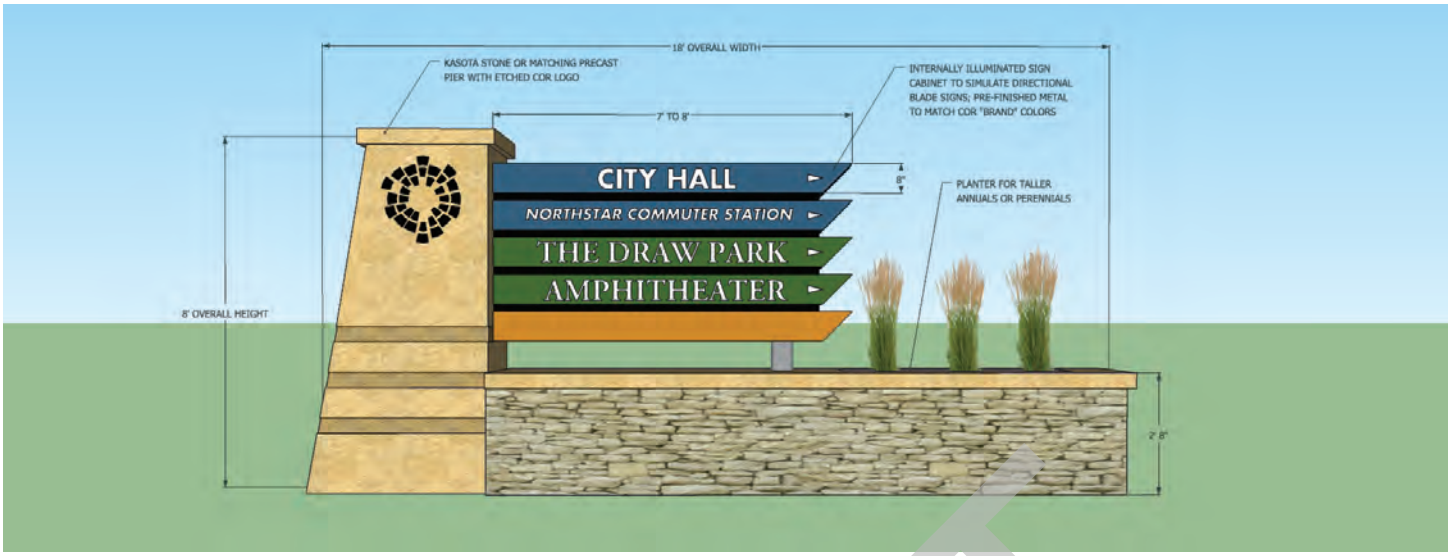
EXHIBIT B.8

LANDFORM
From Site to Finish

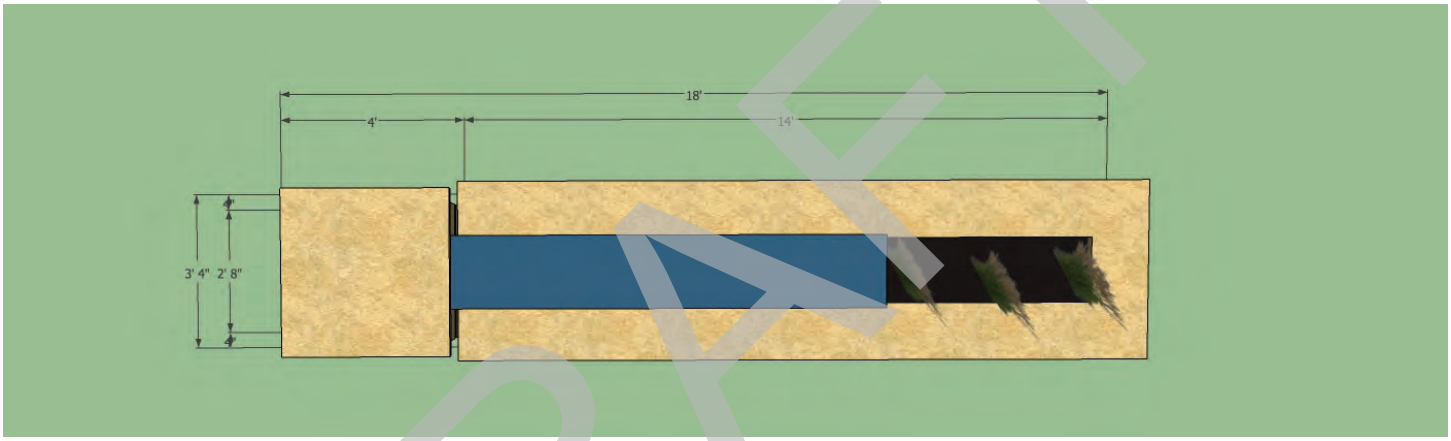
DESIGN FRAMEWORK
The COR at Ramsey

PUBLIC PARK SIGNS

THE COR
RAMSEY, MINNESOTA

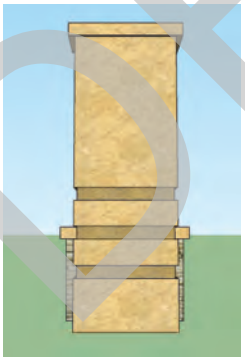


ELEVATION AT EASTBOUND BUNKER LAKE



PLAN VIEW

PROFILE VIEW



PROFILE VIEW

ELEVATION AT WESTBOUND BUNKER LAKE

DRAFT

EXHIBIT B.9

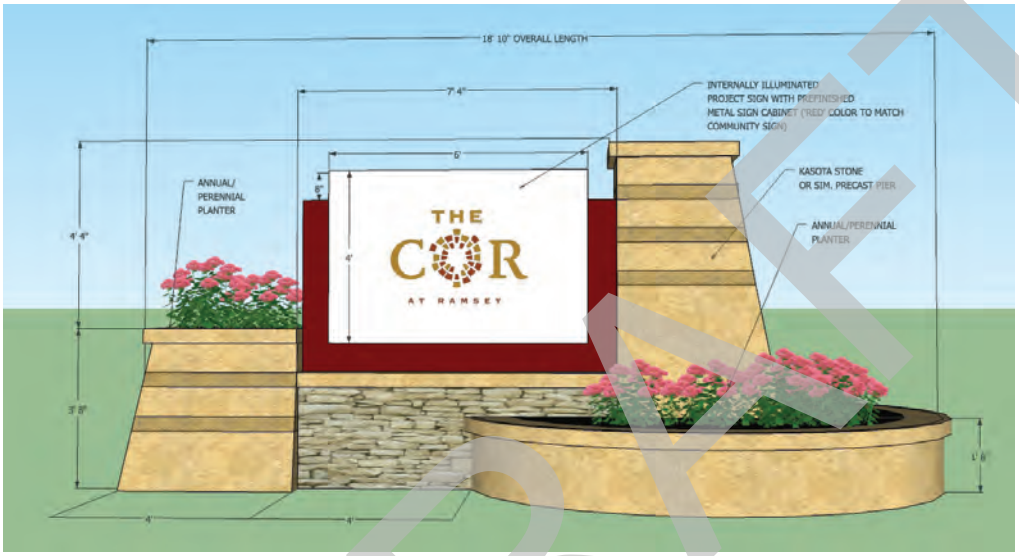
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PROJECT GATEWAY SIGN 'C'
Bunker Lake Blvd. & Center St.

THE COR
RAMSEY, MINNESOTA

ELEVATION AT SOUTH BOUND RAMSEY



ELEVATION AT WESTBOUND BUNKER LAKE

DRAFT

PERSPECTIVE

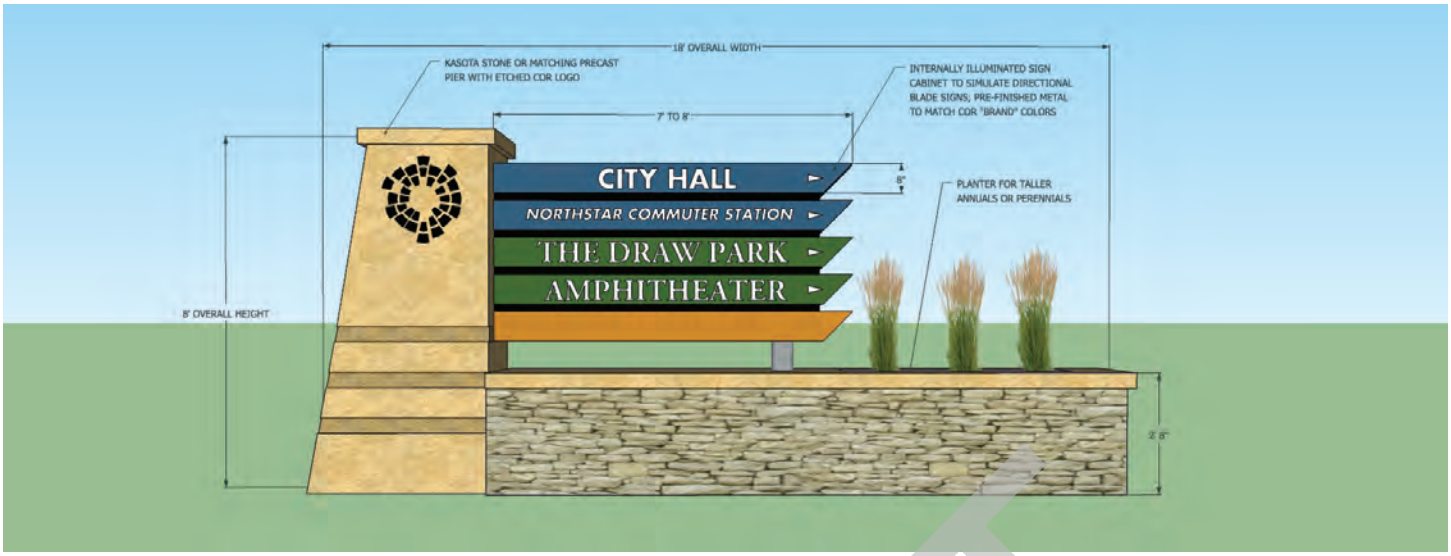
EXHIBIT B.10

LANDFORM
From Site to Finish

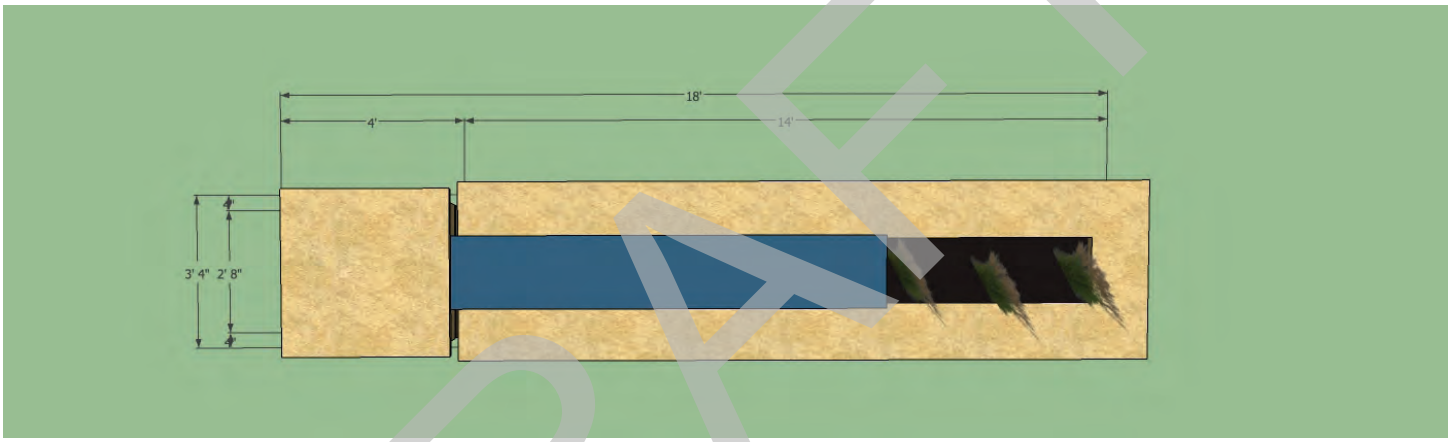
DESIGN FRAMEWORK
The COR at Ramsey

PROJECT GATEWAY SIGN 'D'
Bunker Lake Blvd. & Ramsey Blvd.

THE COR
RAMSEY, MINNESOTA

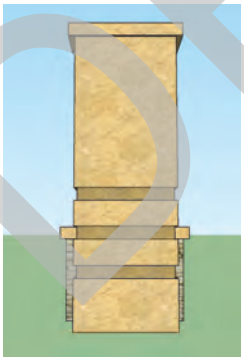


ELEVATION AT SOUTHBOUND RAMSEY



PLAN VIEW

PROFILE VIEW



PROFILE VIEW

ELEVATION AT NORTHBOUND RAMSEY

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EXHIBIT B.11

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PROJECT GATEWAY SIGN 'E'
Sunwood Dr. & Ramsey Blvd.

THE COR
RAMSEY, MINNESOTA

DRAFT

EXHIBIT B.12

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PUBLIC PARKING SIGNAGE
Standard Signage

THE COR
RAMSEY, MINNESOTA

DRAFT

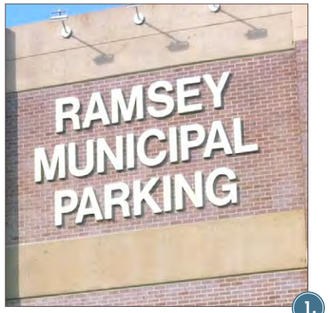
EXHIBIT B.13

LANDFORM
From Site to Finish

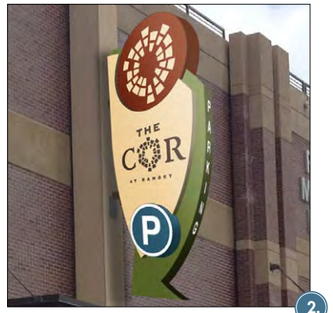
DESIGN FRAMEWORK
The COR at Ramsey

LIGHT POLE BANNER SIGNS
Standard Signage

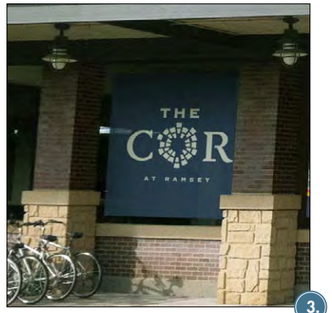
THE COR
RAMSEY, MINNESOTA



1. PERMANENT TENANT SIGN

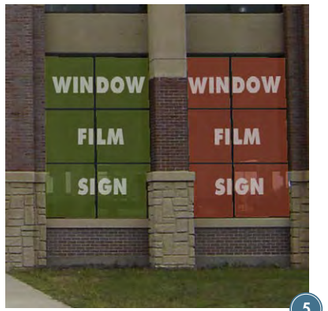


2. RAMP MARQUEE SIGN

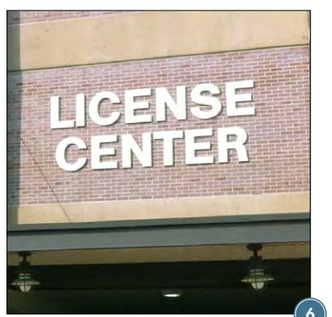


3. INFILL BANNERS

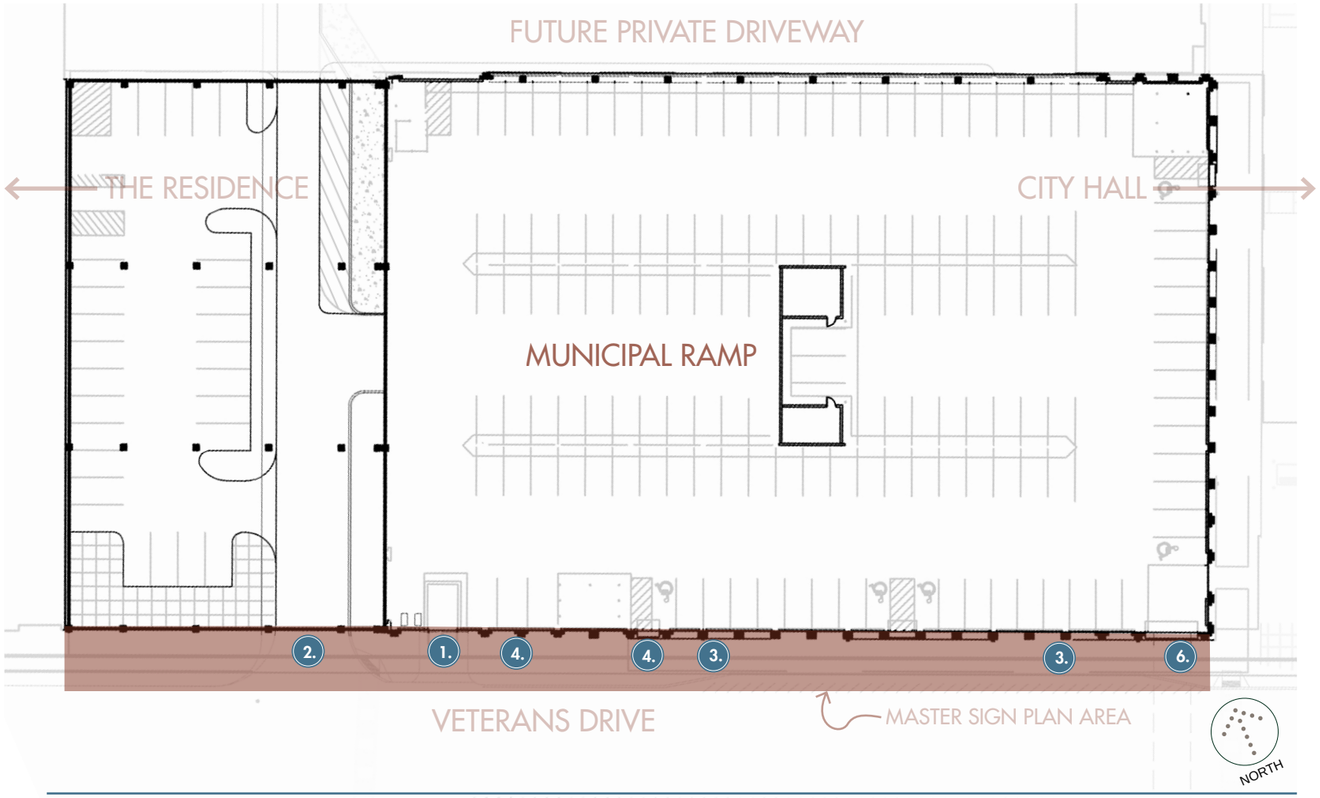
4. COLUMN BANNERS



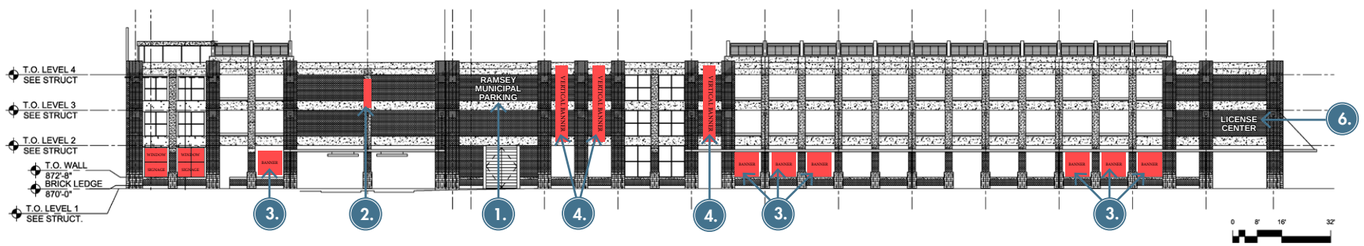
5. WINDOW FILM SIGN



6. PERMANENT TENANT SIGN



PLAN - N.T.S.



SOUTH ELEVATION - N.T.S.

Ramp Elevation & Sign Area Calculations:

South Elevation:

Total Elevation Area = ±15,589 S.F.
Total Allowable Sign Area (15% Elevation Area) = ±2,338 S.F.
Total Proposed Sign Area Used = 1250 S.F.

THE COR AT RAMSEY

Sign Descriptions:

1. 'RAMSEY MUNICIPAL PARKING' brushed aluminum letters, flood illuminated.
Typical Sign Area = ±66 S.F.
Qty. 1 Total South Elevation = 66 S.F.

2. Two-sided Internally illuminated marquee sign cabinet. Typical Sign Area = ±60 S.F.
Qty. 1 Total South Elevation = 60 S.F.

3. Typical banner 6'x 6' printed perforated canvas with finished seams; occurs at open bays.
Typical Sign Area = 36 S.F.
Qty. 6 Total South Elevation = 216 S.F.

4. Typical banner 4'x20' printed canvas x 3 sides.
Typical Sign Area = 240 S.F.
Qty. 3 Total South Elevation = 720 S.F.

5. Window film signs. Sizes vary.
Typical Sign Area = 64 S.F.
Qty. 2 Total South Elevation = 128 S.F.

6. "LICENSE CENTER" brushed aluminum letters
Typical Sign Area = 60 S.F.
Qty. 1 Total South Elevation = 60 S.F.

LANDFORM
From Site to Finish

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Parking Garage Master Sign Plan

10/15/2012

The COR Timeline of Significant Events—Updated June 12th 2012

THE COR AT RAMSEY

2003

- **PACT Charter School groundbreaking:** October, 2003
- **NAU County Insurance groundbreaking:** Fall, 2003
- **Coborn's Retail Plaza groundbreaking:** Fall, 2003
- **Ramsey Municipal Center & Parking Ramp groundbreaking:** July, 2005

2005

- **Ramsey Office Plaza groundbreaking:** Fall, 2005
- **Midwest Medical Examiners groundbreaking:** Fall, 2006

2006

- **Completion of Ramsey Boulevard improvements:** Fall, 2006
- **City creates a Ramsey Town Center Steering Committee:** June, 2006 (awarded $50,000 grant), **February, 2008** (Forums Begin), **February, 2008** (working group selected)

2008

- **City completes sidewalk & streetscape improvements along Sunwood using letter of credit proceeds:** September, 2008
- **City attends first ICSC conference in Las Vegas, NV, partners with Buxton on retail market study:** May, 2009
- **City completes purchase of the Ramsey Town Center for $6.75 million plus assessments:** June, 2009
- **City hires branding consultant to create new brand image for the Ramsey Town Center:** September, 2009
- **City conducts open house and revisions project land use, adopts new development concept:** September, 2009

2009

- **City submits proposal for VA Clinic and competing proposal selected:** August 19, 2009 (proposal submitted)
- **Steering Committee report and recommendations reviewed by Council:** August, 2008, September, 2009 (committee dissolved)
- **COR Development Plan, 1.0 approved:** Fall, 2009

2010

- **Business subsidy agreements reached for Acapulco and Wells Catering/Falls Café:** January, 2010 (Acapulco), June, 2011 (Wells/Falls)
- **Anoka County License Center signs contract to lease space in the Ramsey Municipal Center:** February, 2010
- **The COR is selected and approved as the new development name and brand launched at 2010 ICSC Conference:** March, 2010
- **City conducts RFQ interview process for a development management firm and hires Landform:** November, 2009 April, 2010
- **Special City TIF District approved by the State of Minnesota:** May, 2010
- **City completes construction of The Draw Park and Amphitheatre:** June, 2010 (named The Draw), July/August, 2010 (completion)
- **Allina, Ramsey Clinic, groundbreaking:** August, 2010
- **City decides to forego improvements to Armstrong interchange /overpass on Highway 10: Armstrong** October 2010
- **Fall 2010**
- **Major rezoning, West 30 acres of the master plan significantly changed Sunwood realignment:**
- **Veterans Affairs Ramsey Clinic groundbreaking:** Fall 2010

2011

- **Final alignment plan for Sunwood Drive approved:** Spring 2011
- **The Draw Event Series begins and the first full season of events take place:** August, 2010 (first events), **Summer, 2011** (first full season)
- **Completion of community sign/COR sign on highway 10:** August, 2011
- **Contract for 200 stall expansion of parking ramp awarded:** August, 2011
- **Funding package completed for the Ramsey Rail Station, first ride:** November 16, 2011
- **Armstrong & Bunker intersection is completed:** November, 2011
- **Mass grading and earthwork analysis completed:** November, 2011

2012

- **Ramsey Rail Station groundbreaking:** March, 2012
- **New development guidelines approved for the COR:** April, 2012
- **Residence at The COR apartment complex groundbreaking:** April, 2012
- **Agreement approved with PSD for settlement of Master Declaration:** May, 2012
- **Sunwood Realignment estimated completion:** November, 2012
- **COR Master Development Plan 6.0 & Sketch plans for COR re-platting approved:** June 2012

PLANNING COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Planning Commission conducted a special work session on Thursday, July 9, 2015, in the Lake Itasca Room at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Chairperson Gary Levine
Commissioner Randy Bauer
Commissioner Matthew Maul
Commissioner Cindy Nosan
Commissioner Gary VanScoy

Members Absent: Commissioner Andrew Andrusko
Commissioner Ralph Brauer

Also Present: Community Development Director Tim Gladhill
City Planner Chris Anderson
Assistant City Administrator/Economic Development Manager Patrick Brama
Community Development Intern Geoff Solomonson

1. CALL TO ORDER

Chairperson Levine called the regular meeting to order at 7:03 p.m.

2. APPROVAL OF AGENDA

Motion carried by Commissioner Bauer, seconded by Commissioner VanScoy, to approve the agenda as presented.

Motion Carried.

3. MINUTES

Community Development Director Gladhill explained the purpose of the special work session was to develop a comparison document of the COR Development Plan and the Original Ramsey Town Center Master Plan.

He explained how at the May 26, 2015 Joint Meeting with the City Council, Staff was directed to prepare a comparison document and made the decision to touch base with the commission. The COR vision is very different from the past ideas, but headed in the right direction. He asked if there were to be changes to the vision and ask "what needs to change?"

Community Development Director Gladhill described the history of the COR which originated from the 2020 Comprehensive Plan (1998-2001). In the plan was described how the area was an agricultural use and due to growth forecasts, Ramsey decided to protect its rural areas and concentrate this new growth into a more centralized area.

The question arose of what is a mixed-use development. In the 2001 general election, an advisory question for the ballot was developed, essentially a survey question for residents. The question was "Do you want a Town Center with restaurants, shopping, and other amenities along the Highway 10 Corridor?" This was around the same time as the Northstar Commuter Rail transitway planning.

Between 2009-2010, the City began a process to provide a new vision for the development to better match current market conditions at the time, the revision of the plan to the COR plan today.

Community Development Director Gladhill then asked the commissioners to choose their top 3 components of the original master plan for Ramsey Town Center.

ORIGINAL MASTER PLAN (PREVIOUS)

Commissioner Nosan asked what the "West 30" referred to in the original plan.

Community Development Director Gladhill described the area to the North and West of the roundabout at Sunwood Drive guided for retail.

Commissioner VanScoy asked about redevelopment and the current zoning of the West 30.

Community Development Director Gladhill explained the vision as a more traditional suburban retail center, while still maintaining a higher degree of architectural standards.

Discussion ensued about parking standards for traditional suburban retail.

Commissioner Bauer explained how he wrote down shared parking, such as the ramp next to the Municipal Center [and apartment complex] and how it is critical not to lose the idea of shared parking.

Commissioner VanScoy explained how density requires parking.

Commissioner Nosan responded how the church [Northgate Church] is a great example of successful shared parking.

Mixed-Use was the next topic. Community Development Director Gladhill asked if it meant vertical mixed use within a single building or different types of single-use buildings within a single block.

Chairperson Levine commented it did not mean different uses within a single block.

Commissioner Nosan expressed concern about too much mixed-use in the area. She explained currently it seems to be only the residents actually living in the COR who use the area.

Commissioner Bauer described the apartment complex connected to the Municipal Parking Ramp and how the City Council originally wanted retail on the first floor of the complex. The developer did not want retail on the first floor. Commissioner Bauer then explained without a large store/attraction there is no market for mixed-use commercial in this area.

Commissioner Nosan remarked how the residents of Ramsey are always going to have cars and is what the culture of the town is used to. She explained how Ramsey will never be Uptown [Minneapolis].

Community Development Director Gladhill then clarified the consensus on the meaning of mixed-use for the original plan was vertical mixed use. Gladhill then explained that the City would continue to discuss the current definition in the next step, and perhaps continue to discuss this as a policy question moving forward.

Commissioner Maul explained how mixed-use development works very well in Minneapolis and Uptown because there is limited space, whereas there is still plenty of land in Ramsey.

Community Development Director Gladhill then went through the remaining components of architectural standards, which was split into the architecture of the building itself as well as the architectural review, density; strong blue system, of which The Draw is itself a utility and amenity; and the Master Park Plan.

Commissioner Bauer explained he had written the strong blue system and wanted to see it developed further. He then said water re-use is important and water is unique to Ramsey because of the two rivers. He said he would like to see developments with ideas like fountains using rainwater.

City Planner Anderson explained The Draw uses storm water and is recycled through the park surrounding it.

Chairperson Levine then remarked about how the West 30 idea has changed from the medium-density residential idea to now [retail].

Community Development Director Gladhill then asked the commissioners if there was any components of the Original Master Plan they would like to strike from or add to the list.

Commissioner Maul stated he would like to see the strict sign standards removed.

Chairperson Levine agreed and said he would like to see more relaxed sign standards.

Chairperson Levine spoke of how there was an educational component to the Original Master Plan in buildings being a multi-use, multi-educational facility for shared resources and how he would like to see that brought back in.

Commissioner VanScoy remarked how the residential density was a top priority in the old plan, but not in the new (COR plan). He explained how the old plan was to drive people into the center with a transit-oriented development and build a population of enough people to support retail and subsequently encourage those living in the outer areas to drive in to use the amenities as well.

Commissioner Bauer remarked how he had second thoughts on the retail area in the southwest are of the COR. He explained how the type of retail should be changed to a unique destination type, similar to Stillwater [MN] with craft and antique stores.

Chairperson Levine agreed stating Stillwater is a much better example for Ramsey to follow than Arbor Lakes [Maple Grove].

THE COR DEVELOPMENT PLAN (CURRENT)

Community Development Director Gladhill then asked the commissioners to repeat the process with their top 3 components of the current COR development plan. He explained the similarities of the plans, but some changes occurred when they tried to apply it, such as the West 30 [retail vs residential], eliminating the architectural review, and reducing the floor to area ratio (FAR).

The first topic was the definition of mixed-use. Community Development Director Gladhill explained the change from vertical mixed-use to many single uses within a block.

Commissioner VanScoy agreed the definition had changed, but asked what is considered a block.

Community Development Director Gladhill explained a block is an area surrounded by public or private streets, but could use a better definition [for this plan].

Chairperson Levine made the comment how less is happening in the COR now.

Community Development Director Gladhill explained how less vertical mixed-use is happening, but there is still activity and interest. Gladhill noted that mixed-use is still a goal of the community, however the community has experienced more residential growth compared to retail.

Chairperson Levine remarked how less four (4) story structures and more one (1) story structures equals less activity, or density. He then said less activity equals less rooftops (residents).

Commissioner VanScoy remarked how mixed-use in the COR now seems to be all residential, something different which wants to be built seems like it needs a variance. He then asked how you plan to get the mixed use [in the future] which we want.

Commissioner Maul agreed adding scale should be asked in addition to Commissioner VanScoy's question. He then remarked if we want vertical, we need to plan for it now.

Community Development Director Gladhill then explained more of the components as architectural standards & relaxed sign standards and parking.

Chairperson Levine made the comment how shared parking does not always work.

Commissioner Maul agreed adding and asking again, to what scale.

Commissioner VanScoy remarked how there was no strategy to implementing the shared parking [in the original plan].

Chairperson Levine asked how we pay for parking.

Community Development Director Gladhill explained that the City has had a strategy to implement shared parking, but does require an up front investment and has required some form of public assistance in the past in Ramsey's examples, namely through grant awards. Gladhill reviewed the history of the Ramsey Municipal Ramp and the feedback the City originally received in the early stages of the development before uses such as Residence at The COR was completed.

Commissioner VanScoy remarked how there needs to be a new strategy to shared parking because parking supports density and retail.

Commissioner Bauer explained how the original plan had plans for a second parking ramp. He then explained how it should be pursued in a development which has the developer paying half and the City paying half.

Commissioner VanScoy asked how we define parking counts and how there are conflicting methods for parking counts/requirements.

Community Development Director Gladhill then went through the rest of the components on the board which were the West 30; transit; storm water; density; and streetscape. He then remarked how the streetscape portion has been redesigned different than the original plan, especially Ramsey Parkway. He explained how in the original plan the Parkway continued west with landscape. He then asked what components should be in the streetscape.

Chairperson Levine remarked how Ramsey Parkway was an attraction on the original plan.

Community Development Director Gladhill asked the commissioners if there were anything in the COR plan that they would like to strike out or add to the list.

No commissioners had anything to strike from or add to the list.

Chairperson Levine asked what the 'strong downtown feel in center' meant.

Chairperson Levine expressed concern about the West 30.

FUTURE POLICY QUESTIONS

Community Development Director Gladhill asked if there were additional questions to add to the list of policy questions from city staff [handout].

Chairperson Levine asked about McDonalds, remarking on the question of whether Ramsey wants to continue to allow uses with a drive-thru and gas station. He said McDonalds certainly has a drive-thru and where they go, other restaurants [and retail] will follow.

Commissioner Bauer responded with the reconstruction of Armstrong [Boulevard], it will have the effect of getting people off Highway 10, for example weekends when gas, groceries, and meals are needed on the way [in and out of the city and metropolitan area].

Community Development Director Gladhill responded that drive-thru and gas station type business should be acceptable in portions because Ramsey needs and wants those types of businesses.

Commissioner VanScoy remarked how the plan for the places of employment (southeast quadrant of the COR) needs to be reevaluated.

Community Development Director Gladhill responded, adding with the question, what are appropriate uses within the business park.

Commissioner Bauer responded with the fiber-optic in place, it is not marketed towards retail, but should be marked towards others as job opportunities.

Chairperson Levine asked for clarification on the second and third policy questions. [2. Are there uses we are not allowing that we do not want to allow? 3. Are there uses we are allowing that we do not want to allow?]

Commissioner Nosan asked how we are not allowing uses we do not want when we do not know what those uses are.

Chairperson Levine remarked [question 3.] was saying basically what does [the City] not want here.

Commissioner Nosan responded saying she does not want the COR to turn into a solid line of bars like Jackson Street in Anoka.

Chairperson Levine responded noting that there may be uses we do not want to allow within the development, and that the City should review uses that are currently allowed as part of this process.

Community Development Director Gladhill remarked the definition might be too broad.

Commissioner VanScoy asked to look at the sub-districts [of the COR], what is their intent, and what do they mean.

Chairperson Levine added to Commissioner VanScoy's question with what the sub-district was and what it should be.

Commissioner Nosan asked Assistant City Administrator/Economic Development Manager Brama about the possibility of Target in Ramsey. She spoke of her displeasure of driving to Elk River or Coon Rapids just to visit the store.

Assistant City Administrator/Economic Development Manager Brama explained how Target in Ramsey comes down to logistics and access. He then went to say there is interest from business based on the Armstrong [Blvd] interchange, but they are waiting for 'more rooftops' in the community. He said it comes down to the economy and how Ramsey is surrounded by communities that have a Target, for example.

Community Development Director Gladhill explained that lack access across the Mississippi River to Dayton and across the Rum River reduces the market area or drive-time for retail users.

Assistant City Administrator/Economic Development Manager Brama added when speaking to a broker, they discussed how Ramsey is an island within the area, in terms of access [the lack of current highway 10 freeway] and connections [across the Mississippi] to other communities. He

also went to say there is a possibility retail is too saturated with the amount available due to the restricted access and connections.

Community Development Director Gladhill explained how it would be helpful to see existing examples, local examples, or other retail areas. He suggested a tour with stops including Silver Lake Village in St. Anthony, Arbor Lake in Maple Grove, and Riverdale Village in Coon Rapids. These stops would give the commission and idea of what they do and do not want in the COR.

Commissioner Nosan asked Assistant City Administrator/Economic Development Manager Brama asking if retail has a hard time coming here.

Assistant City Administrator/Economic Development Manager Brama responded saying the Armstrong [Blvd] interchange could help and could also possibly be the domino that falls [propelling growth].

Commissioner VanScoy asked where the City and County stand in regards to the Dayton Bridge [Mississippi River crossing].

Community Development Director Gladhill responded saying [Ramsey's] comprehensive plan and [the City of] Dayton's comprehensive plans both have it listed and both plans match, even to the degree of prioritizing a corridor from Highway 10 to Interstate 94.

Commissioner VanScoy asked if Hennepin County and Anoka County were doing anything in regards towards completing this matter.

Community Development Director Gladhill explained how Anoka County has purchased land in anticipation of the connection, and the connection lines up in both the City of Ramsey and the City of Dayton, but the timeline for this project is undetermined as it is not on the State [of Minnesota] funding plans or MNDOT's plans.

Community Development Director Gladhill told the commission how staff would refine the document based on the responses that evening plus other future meetings, eventually to bring back to the Planning Commission and the City Council.

Commissioner Bauer asked where the planning staff stood with the upcoming comprehensive plan.

Community Development Director Gladhill responded saying the plan is being approached in smaller sections and the information in the meeting that evening would be incorporated into the future document. He then went on to explain that as the smaller section become developed, citizen engagement opportunities and feedback would be initiated closer to fall.

4. ADJOURNMENT

Motion to adjourn the meeting.

Motion Carried.

The special work session of the Planning Commission adjourned at 8:20 p.m.

Respectfully submitted,

_____

Tim Gladhill

Community Development Director

ATTEST:

_____

JoAnn Shaw

Community Development Assistant

Drafted by Geoff Solomonson

DRAFT

Our Mission: To work together to resposibly grow our community, and to provide quality, cost-effective, and efficient government services.

CC Regular Session **7. 5.**

Meeting Date: 07/28/2015

By: Bruce Westby, Engineering/Public Works

Information

Title:

Review of Metropolitan Council's draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan

Purpose/Background:

Purpose:

The purpose of this case is to review City staff's draft response to the Metropolitan Council's draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan, and to obtain input from the City Council prior to finalizing the response.

Background:

The Metropolitan Council originally adopted the Twin Cities Metropolitan Area Master Water Supply Plan (MWSP) in 2010 in support of legislative requirements. The 2010 MWSP is being updated in 2015 to integrate with *Thrive MSP 2040*, the region's 30-year comprehensive plan, which was approved by the Metropolitan Council on May 28, 2014. The 2015 Twin Cities Metropolitan Area MWSP will also incorporate new data and information that has been collected since 2010.

According to the Metropolitan Council, the Draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan provides a framework for sustainable long-term water supply planning at the local and regional level, and provides communities in the region with planning assistance for water supply in a way that:

- Recognizes local control and responsibility for owning, maintaining and operating water supply systems
- Is developed in cooperation and consultation with municipal water suppliers, regional stakeholders and state agencies
- Protects critical habitat and water resources over the long term
- Meets regional needs for a reliable, secure water supply
- Highlights the benefits of integrated planning for stormwater, wastewater and water supply
- Emphasizes and supports conservation and inter-jurisdictional cooperation, and
- Provides clear guidance by identifying key challenges, issues, and considerations in the region and available approaches (without dictating solutions).

The MWSP provides guidance so that communities can take the most proactive, cost-effective approach to long-term planning and permitting to ensure plentiful, safe, and affordable water that supports the prosperity and livability of the region for future generations.

As previously mentioned, the 2015 MWSP will incorporate new data and information that has been collected since 2010 including:

- New population projections- Metropolitan Council
- Screening of groundwater and surface water relationships- Metropolitan Council
- Mapping of the vulnerability of bedrock aquifers to flow through glacial sediments- MN Geological Survey

- New aquifer testing data collected through community source water protection programs- MN Department of Health
- New groundwater level monitoring data- MN Department of Natural Resources
- Water supply alternative feasibility assessments- Metropolitan Council in partnership with communities

Municipalities and Public Water Suppliers are therefore being asked to:

- Provide guidance on the content and format of the MWSP
- Provide feedback on regional water supply issues, including challenges and opportunities
- Share local data about water resources and water supply planning
- Review draft technical analysis and planning tools
- Review draft Master Water Supply Plan and provide comments

More information on the MWSP is available at http://metrocouncil.org/Wastewater-Water/Planning/Water-Supply-Planning/Master-Water-Supply-Plan.aspx.

The Metropolitan Council released the draft 2015 MWSP for public comment on June 25th. The full draft plan, which contains 955 pages, is attached for reference. Also attached is a 2 pager titled "How to Navigate the Master Water Supply Plan". A copy of City staff's draft response letter is also attached.

Final plan review responses must be submitted by 5 pm, Friday, August 21. The Metropolitan Council will adopt the updated Twin Cities Metropolitan Area Master Water Supply Plan in the fall of 2015.

Notification:

Notification is not required.

Observations/Alternatives:

Chapter 1 provides an overview of the draft 2015 MWSP and outlines the rationale and benefits of water supply planning, identifies updates being made to the plan, and describes how the plan can be used to guide planning efforts at the local level, including the potential need to use a multi-community approach in planning for future water supply needs.

Chapter 2 discusses the goal, guiding principles and vision of the draft 2015 MWSP, and states "the Master Water Supply Plan's single overarching goal is that the region's water supply is sustainable now and in the future." The City's draft response letter acknowledges and supports this goal, though it also stresses the need to achieve this goal in an equitable manner through partnering with other communities.

Chapter 3 explores the region's current and projected water use demands, and water conservation options.

Chapter 4 considers major water supply sources available to the region, and summarizes challenges and opportunities associated with the major water supply sources.

Chapter 5 looks at water supply issues facing the region, including how they vary across the region.

Chapter 6 identifies some measurable outcomes that can be tracked to monitor progress toward the goal of sustainability.

Chapter 7 provides more detail about how policies and strategies are translated into action by the Metropolitan Council and its partners.

Chapter 8 addresses the roles and responsibilities needed at the various levels (individual, community, regional, state, and federal) to support the implementation of the draft 2015 MWSP.

Staff believes it is critical that the City respond to the draft 2015 MWSP as it is clear that this guidance and planning document will play a role in how the City of Ramsey plans for its future water supply needs, and the costs associated with implementing those plans. Staff therefore requests that the City Council provide comments on the

attached draft response, which will then be incorporated into the final response letter to be reviewed by Council again on August 11th. A final response will then be submitted to the Metropolitan Council prior to the August 21st deadline.

Funding Source:

This case is being handled as part of normal Staff duties.

Recommendation:

Staff recommends that the City Council review the draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan and provide comments on the attached draft response to allow a final response letter to be prepared for Council review and approval on August 11th prior to submittal to the Metropolitan Council by the August 21st deadline.

Action:

Provide comments on the attached draft response to the draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan.

Attachments

Draft 2015 Master Water Supply Plan

How to Navigate the MWSP

Draft Response Letter

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Jo Thieling	07/23/2015 04:24 PM
Patrick Brama	Patrick Brama	07/23/2015 04:39 PM
Form Started By: Bruce Westby		Started On: 07/22/2015 07:01 AM
Final Approval Date: 07/23/2015		

Water Supply Master Plan

METROPOLITAN COUNCIL

6/17/2015

WATER SUPPLY MASTER PLAN

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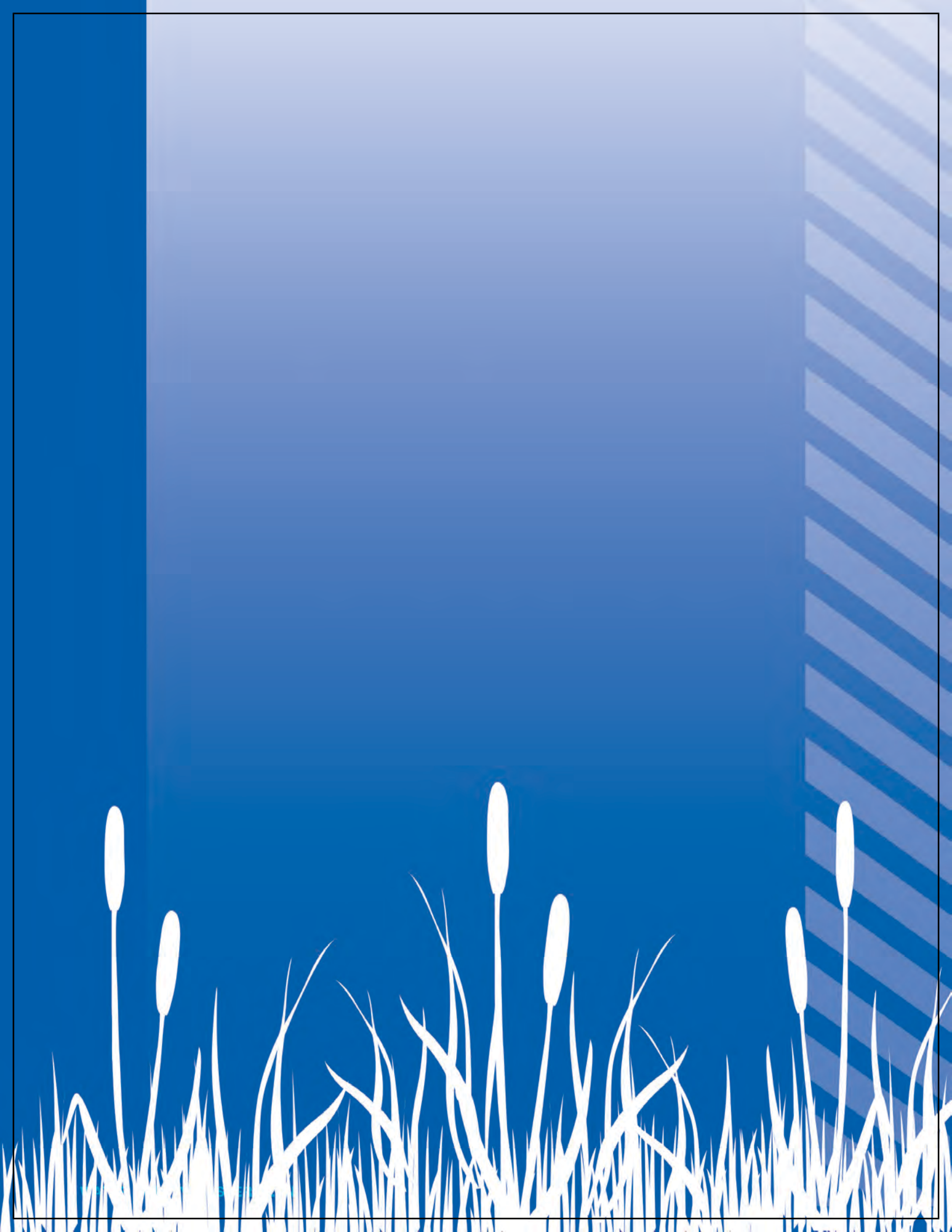


1 Master Water Supply Plan Overview

Introduction

The Twin Cities seven-county metropolitan area is home to over half of Minnesota's population. Securing safe and plentiful drinking water for them, while protecting the region's diverse water resources, requires coordinated, interdisciplinary and ongoing effort. Balancing the region's many competing needs for water by the region's many users is a challenge.

Population growth and expanding development are increasing demands on our water supplies in the region. Coordinated planning by local communities, the Metropolitan Council, and state partners will help meet our future water supply needs.

The Metropolitan Council Environmental Services division provides wastewater services and integrated planning to ensure sustainable water quality and water supply for the region. The role of the Metropolitan Council in water supply planning is to:

1. Work with regional partners to develop a regional plan
2. Maintain a database of technical information
3. Provide assistance to communities in developing their local water supply plans
4. Identify approaches for emerging issues
5. Review local water supply plans as part of the local comprehensive plan

The region's Master Water Supply Plan provides communities in the region with planning assistance – including guidance and tools - for water supply, so that they can take the most proactive, cost effective approach to long term planning and permitting to ensure plentiful, safe, and affordable water that supports the prosperity and livability of the region for future generations.

The Metropolitan Council is not a water supplier and has no intent or authority to take over local water supply systems. The regional planning process has been designed and applied to ensure local water suppliers have control of and responsibility for their water supply systems.

This chapter discusses the need for and benefits of regional water supply planning and provides a summary of the Master Water Supply Plan, including what it means for local plans to reflect this plan. Subsequent chapters provide details about the goal, water use, sources, issues, desired outcomes, implementation strategies, and roles and responsibilities.

Rationale for regional water supply planning

The Twin Cities metropolitan area is endowed with a relative abundance of high-quality ground and surface water, which supports over half of Minnesota's population and a thriving economy. Three major rivers, vast underground aquifers, and 950 lakes make us the envy of urban areas the world over.

The Metropolitan Council recognizes the responsibility and authority of local water suppliers to provide water. A regional perspective is also important, because the effects of local water supply decisions don't stop at community boundaries – there are cumulative effects on water supply sources and connected resources.

The Metropolitan Council forecasts that the region will add about 824,000 residents over the next 25 years. A pressing concern is the impact that future development might have on the reliability and availability of the region's water supplies.

The region's water supplies are not limitless, and activities within the region can affect water quality and quantity. Regional water supply planning can help to address issues such as regional and subregional groundwater declines, localized water shortages, contamination, and negative impacts on surface waters and help the region prepare for events such as drought. For example, in parts of the region, groundwater levels are declining. In some areas, it has lowered lake and wetland levels and impacted waterways and this has the potential to affect many more with increasing demands on our groundwater resources.

The development of this plan is not motivated by widespread water shortages or crises. Rather, this plan is a response to the recognized benefits of developing and maintaining a plan that supports current and future populations without adverse impact to natural and economic resources.

Water is livability

Water is vital to the region's present and future quality of life. It is key to our identity as Minnesotans and what we want for our children.

Quality of life surveys repeatedly identify water-related features – parks, trails, beaches, etc. – as the region's most attractive features. Seventy-eight (78%) of the 2012 Residents Survey respondents considered water supply and water quality monitoring to be very important Council programs and responsibilities.

Water is prosperity

Water is vital to the region's present and future prosperity. Every sector of the region's economy is influenced by water – agriculture, manufacturing, mining, travel and lodging, and services. When critical water demands are met, health and economic impacts are avoided.

Minnesota Department of Employment and Economic Development reported that, in 2014, Minnesota has more Fortune 500 companies per capita than all but one state, with 18 Fortune 500 companies headquartered in the state. By metropolitan area, Minneapolis-St. Paul ranks first among the 30 largest metropolitan areas in the number of Fortune 500 companies per capita. Those companies rely on stable water supplies. Seven of the metro area's Fortune 500 companies each have water permits to use more than 1 billion gallons of water a year; others are large customers of public water supplies.

Benefits of the regional water supply planning process

With the Master Water Supply Plan, communities are better able to take the most proactive, cost effective approach to long term planning and permitting to ensure plentiful, safe, and affordable water for future generations.

The plan supports this work by providing planning assistance to connect growth planning coordinated by the Metropolitan Council with water supply permitting conducted by the Minnesota Department of Natural Resources.

Benefits of the Master Water Supply Plan include:

Regional perspective informs local planning. Water does not follow political boundaries, and water use decisions can have impacts that extend across multiple jurisdictions. The Master Water Supply Plan provides a perspective and tools to help develop and implement local plans that support sustainable water supplies across the region.

Better data, better analyses. The specific water supply sources and associated regional and local issues identified in this plan are supported by analyses based on the best available regionally consistent data and tools, such as the Minnesota Department of Natural Resources (DNR) water use database and regional groundwater flow model (Metro Model 3). This regional approach to water supply assessment objectively highlights potential problem areas and thus reduces the likelihood that water supply problems will develop "under the radar".

Clearer and more consistent guidance for the permitting and approval process. The regional and local issues identified in this plan were assessed in close cooperation with the DNR, and issues relevant to each community are outlined in the community's water supply profile in Appendix 1. When a community's local water supply plan reflects this Master Water Supply Plan and the local plan is approved then, as long as requested water appropriation permit actions are consistent with the local plan, permits are more likely to be granted.

Economies of scale. This plan helps communities realize economies of scale in multiple ways. With a focus on working with partners to develop tools and other resources, costs associated with resource assessment may be reduced or eliminated; publicly available and regionally consistent data is provided as part of this plan. Additional resources, including Metro Model 3 and the Conservation Toolbox, are also provided. As development expands and demand increases, opportunities for interjurisdictional partnerships will, too. Continuous updating of technical analyses will identify such opportunities for cooperation to supply water in both the short and long term.

Minnesota Legislature requires water supply planning

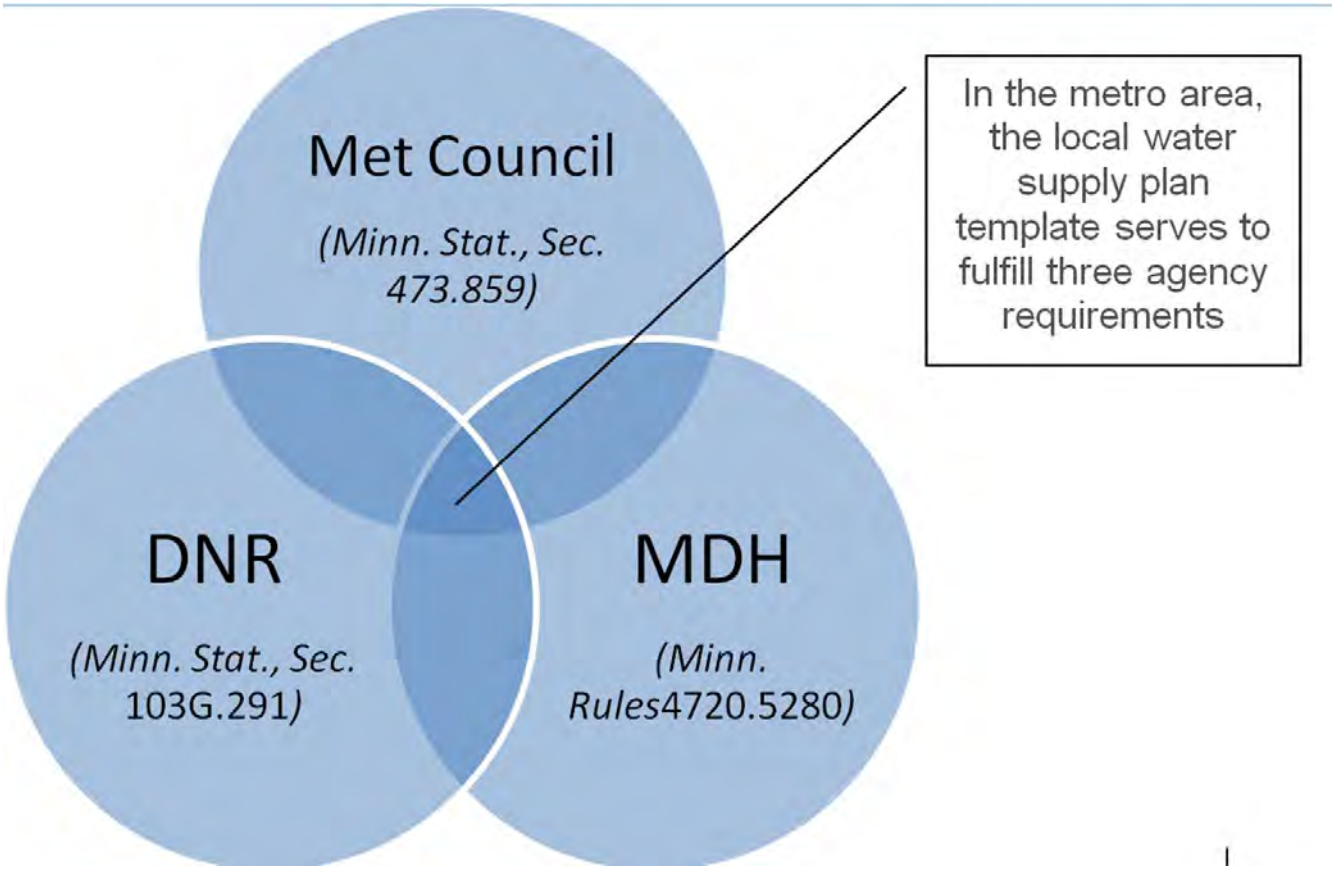
Public water supply plans

A water supply plan is required for all communities within the metropolitan area with a municipal water supply system, as a required element of the local comprehensive plan (Minn. Stat., Sec. 103G.291).

A water supply plan template has been jointly developed by the Minnesota Department of Natural Resources and the Metropolitan Council. Completing the template fulfills multiple statutory obligations including:

- Minn. Stat., Sec. 103G.291 to complete a water supply plan including demand reduction
- Minn. Stat., Sec. 473.859 to address water supply in local comprehensive plans
- Minn. Administrative Rules 4720.5280 to address contingency planning for water supply interruption

Figure 1. In the metro area, the template for local water supply plan, fulfills three agency requirements



Communities without public water supplies do not need to prepare a water supply plan, but they should include information about plans to protect private water supplies in appropriate sections of the local comprehensive plan.

Communities and utility boards adopt the water supply plan, if one is required, along with the local comprehensive plan.

Comprehensive plan content

Under the Metropolitan Land Planning Act (Minn. Stat., Sec. 473.859), local governments must review and update their local comprehensive plans every 10 years, including an implementation program that describes public programs, fiscal devices, and other specific actions to be taken to implement the comprehensive plans. The implementation plan shall:

1. A description of official controls, addressing **water supply** and a schedule for the preparation, adoption, and administration of such controls;
2. A capital improvement program for **water supply**

Water supply planning activities and advisory committee

The Metropolitan Council has provided technical assistance and planning studies to support community water supply planning for several decades, but it wasn't until 2005 that the Minnesota Legislature specifically directed the Metropolitan Council, under Minn. Stat., Sec. 473.1565, to:

> "carry out planning activities addressing the water supply needs of the metropolitan area,… [including] development and maintenance of technical information; recommendations for clarifying roles, streamlining decision-making and approval processes, and funding; and the development of a twin cities metropolitan area master water supply plan... that:"

- Provides guidance for local water supply systems and future regional investments;
- Emphasizes conservation, interjurisdictional cooperation, and long-term sustainability; and
- Addresses the reliability, security, and cost-effectiveness of the metropolitan area water supply system and its local and subregional components."

The same legislation also created a Metropolitan Area Water Supply Advisory Committee (MAWSAC) representing state agencies, counties, municipalities, and utilities. Members were appointed by the Governor, and the membership is defined in statute. MAWSAC members provide guidance to local water supply planning efforts in accordance with the Master Water Supply Plan.

In 2015, the legislature amended Minn. Stat., Sec. 473.156 to include a technical advisory committee to provide input on regional water supply planning activities.

The Metropolitan Council is also guided by a variety of local stakeholders through several sub-regional water supply work groups established to provide input on the scope and results of sub-regional water supply studies.

Developing and updating the Master Water Supply Plan

The Metropolitan Council strives for collaboration, integration, and accountability in all its work. These guiding principles have shaped how the Master Water Supply Plan was developed and updated.

The process for developing the 2010 Master Water Supply Plan began in 2006 with a series of public meetings and workshops, guided by the Metropolitan Area Water Supply Advisory Committee. Public meetings were held regularly throughout the process to get input from city planning and utility staff, elected officials, and other interested people. Progress reports were provided to the Minnesota Legislature in 2007, and a formal public review period occurred in 2009. The Master Water Supply Plan was approved by the Metropolitan Council in March 2010, and the DNR Commissioner approved the plan in July 2010.

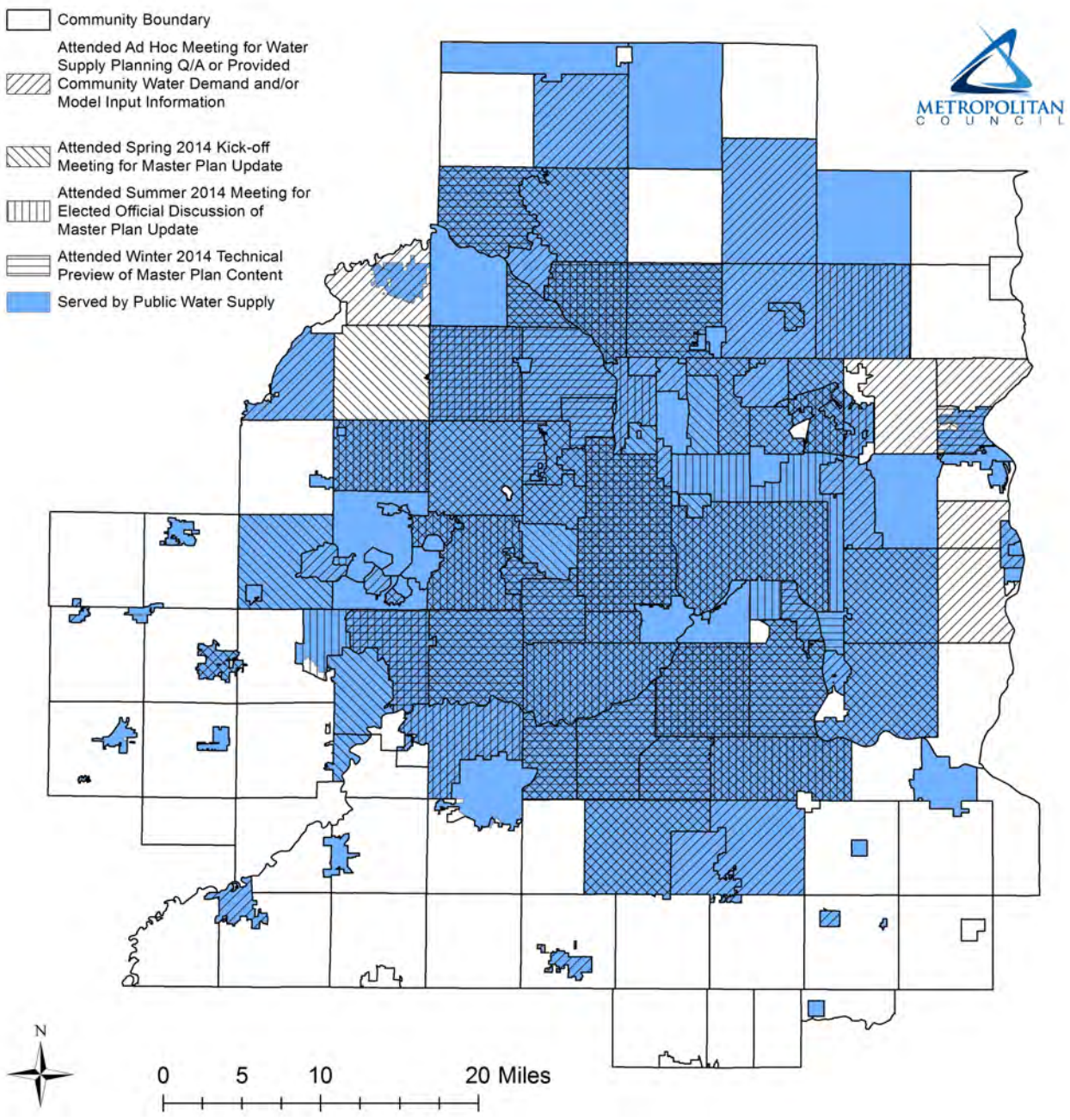
After completing the Master Water Supply Plan in 2010, the Council partnered with state agencies, private consultants and communities to complete several technical and outreach projects that strengthen regional and local water supply planning efforts, including better integration of water supply planning and local comprehensive planning.

The 2015 update of the Master Water Supply Plan incorporates new technical information and feedback from many stakeholders, and it reflects changes to the regional development framework, *Thrive MSP 2040,* and the *Water Resources Policy Plan*. Stakeholders were engaged through:

- Metropolitan Area Water Supply Advisory Committee presentations and discussion
- Community Technical Work Group presentations and discussion
- Public meetings during plan development (over 170 attendees representing more than 70 communities)
- Ad hoc community meetings during plan development (45 attendees representing over 32 communities)
- One-on-one discussions, including data sharing, between Council staff and community planning and utility staff during plan development (90 public water suppliers)
- Information shared on the Council's website
- Formal public review period and process

Overall, the communities participating in Master Water Supply Plan outreach serve over 85% of the metropolitan area's population.

Figure 2. Communities engaged in Master Water Supply Plan outreach events and one-on-one discussions. Blue communities are partially or wholly served by a public water supply system.



Updating the Master Water Supply Plan

The Master Water Supply Plan is updated regularly to reflect the best available information. Updates of the Master Water Supply Plan will incorporate new technical analyses to provide the most up-to-date information about the region's water supplies, emerging issues, and water supply alternatives; and they will reflect new regional policies and system growth projections.

The Master Water Supply Plan may be updated if and when the following triggers occur:

Triggers

- 10-year updates of The Metropolitan Council's *Thrive MSP 2040*

- Legislative actions mandate significant changes in Metropolitan Council or partners' roles or responsibilities
- New technical analyses that identify a change in our current understanding of water supply issues or approaches/alternatives identified in Master Water Supply Plan community profiles

Scope and Process

Following 10-year updates of the *Thrive MSP 2040* and concurrent with the update of the *Water Resources Policy Plan*, the Master Water Supply Plan will be updated as follows:

1. The policy advisory committee (MAWSAC) and a technical advisory committee will be consulted for guidance about the scope and schedule for the plan update
2. Local stakeholders will be asked to provide input about the format, content, regional water supply issues and challenges, and technical analyses
3. Draft plan will be reviewed the policy advisory committee (MAWSAC), a technical advisory committee, and others and approved by Met Council for a formal public review, including a public notice and hearing
4. Public feedback will be incorporated and the final plan will be approved by the policy advisory committee (MAWSAC) and adopted by Met Council

Other triggers may lead to ad hoc updates to the technical information and guidance in the Master Water Supply Plan appendices, such as the community water supply profiles. The update process for appendices is:

1. Review by a technical advisory committee and communities impacted by the change
2. Updated community water supply profiles will be posted on the website, along with technical reports describing the technical project in question
3. Paper profiles will be mailed to impacted communities

Changes to the Master Water Supply Plan in 2015

The 2010 Master Water Supply Plan was updated in 2015 to integrate with *Thrive MSP 2040*, the region's 30-year comprehensive plan. The update also incorporates new technical information.

What is new

Most notably, the update incorporates new data and information that has been collected since 2010 and is available on the Council website:

- New Metropolitan Council population forecasts
- Metropolitan Council analysis of groundwater and surface water relationships
- Minnesota Geological Survey mapping of the vulnerability of bedrock aquifers to flow through glacial sediments
- Aquifer tests by the Minnesota Department of Health based on data collected through community source water protection programs since 2009
- New surface water and groundwater level monitoring data from the Minnesota Department of Natural Resources
- Water supply alternative feasibility assessments conducted by Metropolitan Council in partnership with communities
- Updated regional groundwater flow model (Metro Model 3)

The update also includes revision to satisfy Governor Dayton's 2014 Executive Order to implement plain language and compliance with the Americans with Disabilities Act.

What stays the same

The core of the 2010 Master Water Supply Plan remains the same, including:

- The rationale for regional water supply planning
- Goal
- Guiding principles
- Key water supply sources and challenges
- Statutory roles and responsibilities of the Metropolitan Council and partners

Changes between the 2010 and 2015 versions of the Master Water Supply Plan

Chapter 1 of the updated plan contains the information provided in Chapter 1 of the original plan, including the rationale and history of regional water supply planning, the legislative mandate, and a summary of benefits of metropolitan area water supply planning process to partners and stakeholders.

Chapter 2 of the updated plan contains the information provided in Chapter 2 of the original plan, including the goal and guiding principles. The updated chapter also provides an overview of water supply policies in the updated *Water Resources Policy Plan*.

Chapter 3 of the updated plan contains the water use information provided in Chapter 3 of the original plan (which both discussed use and sources), but updated to reflect more recent information and more detail about water conservation.

Chapter 4 of the updated plan contains the water source information provided in Chapter 3 of the original plan (which discussed both use and sources), updated to include more information about wastewater and stormwater reuse.

Chapter 5 of the updated plan contains the water supply issue information provided in Chapter 5 of the original plan, updated to include the results of new groundwater flow model scenarios.

Chapter 6 of the updated plan contains information about the outcomes to be achieved through implementation of the Master Water Supply Plan. This is new content.

Chapter 7 of the updated plan contains information about specific implementation strategies that the Metropolitan Council will implement. This corresponds to Chapter 6 of the original plan, although more detail is provided and strategies are more closely aligned with the Metropolitan Council's updated *Water Resource Policy Plan* policies.

Chapter 8 of the updated plan contains information about the roles and responsibilities for water supply planning in the region. This chapter expands on the information provided in Chapter 4 of the original plan.

How the Master Water Supply Plan guides local planning

The Master Water Supply Plan provides communities in the region with planning assistance for water supply in a way that:

- Recognizes local control and responsibility for owning, maintaining and operating water systems
- Is developed in cooperation and consultation with municipal water suppliers, regional stakeholders and state agencies
- Is approved by the Minnesota Department of Natural Resources
- Protects critical habitat and water resources over the long term
- Meets regional needs for a reliable, secure water supply
- Highlights the benefits of integrated planning for stormwater, wastewater and water supply
- Emphasizes and supports conservation and interjurisdictional cooperation

- Provides clear guidance by identifying key challenges/issues/considerations in the region and available approaches without dictating solutions

Local water supply plan considerations

The Master Water Supply Plan is updated regularly to reflect the best available information. Updates of the Master Plan will incorporate new technical analyses to provide the most up-to-date information about the region's water supplies, emerging issues, and water supply alternatives; and they will reflect new regional policies and system growth projections.

A local water supply plan template has been jointly developed by the Minnesota Department of Natural Resources (DNR) and the Metropolitan Council (Council) to meet the water supply requirements of both agencies. In addition, completing the template fulfills the requirements by the Minnesota Department of Health (MDH) to address contingency planning for water supply interruption in source water protection plans.

Appendix 1 may be helpful for completing the local water supply plan template. Appendix 1 contains community water supply profiles that summarize community-specific information about water use, potential water supply issues, and strategies.

Completing Parts 1-4 of the local water supply plan template and submitting it as part of the local comprehensive plan is the way community plans reflect the Council's water supply-related policies and the Master Water Supply Plan. Figure 2 illustrates the process for the Council and DNR review of the local water supply plan.

The Council's review of the local water supply plan will focus on the following content that addresses key elements of this Master Water Supply Plan:

Extended water demand projections

Extended water demand projections (through 2040 and estimated for full build-out) should be included in Part 4 of the local water supply plan template. These projections should be consistent with the population forecasts in the community's systems statement. Assumptions of water conservation impacts on demand projections may be supported by information provided in Part 3 (Conservation Plan) of the local water supply plan template.

Potential water supply issues

The discussion of resource sustainability in Part 1-E of the local water supply plan template should acknowledge the potential water supply issues identified on the community water supply profile in Appendix 1 of the Master Water Supply Plan. While the information in each water supply profile is generally based on regional analyses, it can be used in local planning and can be verified and/or refined with more local analyses.

Monitoring and ongoing evaluation

Part 1-E of the local water supply plan should include information about existing and planned resource monitoring and analysis needed to evaluate the local effects of community water use and to provide early warning of unidentified or developing water supply issues. Metropolitan Council recognizes the value of monitoring and ongoing evaluation to reduce uncertainty about regional water supply sustainability; the Council will provide technical guidance upon request for this part of the local water supply plan. However, the DNR and the community are the primary partners responsible for developing the details of the monitoring and evaluation plan.

Water conservation

Water conservation practices can effectively reduce the demand placed upon groundwater and surface water sources as well as municipal water supply systems. Part 3 of the local water supply plan should provide a detailed water conservation plan, which may also inform extended water demand

projections in Part 4. Metropolitan Council will provide technical guidance and tools such as the Conservation Toolbox to assist in the development of this portion of the local water supply plan. However, the DNR and the community are the primary partners responsible for developing the details of the conservation plan.

Proposed approaches to meet extended water demand projections

Building on the information provided in Part 2 of the local water supply plan template, Part 4 of the local water supply plan template should describe:

- The adequacy of the existing water supply system to meet demand through 2040.
- Proposed approaches to meet water demand through 2040, if the current system is inadequate to do so, that consider the potential issues identified for the community within Appendix 1 of the Master Water Supply Plan and by local monitoring and evaluation.

Proposed approaches may include:

- Continuing to use existing groundwater or surface water sources, supported by monitoring and evaluation to provide warning of developing problems and a plan for back-up should limitations occur.
- Using new (currently not in use) approaches with a lower likelihood of causing well interference, aquifer or surface water impacts, or added treatment costs due to contamination. Potential approaches include expanded conservation, interconnections with neighbors, groundwater, surface water, reclaimed stormwater, and reclaimed wastewater.

In some cases, a multi-community approach may be warranted. The DNR and Metropolitan Council will provide planning assistance and technical information to support development of multi-community water supply management plans, where appropriate.

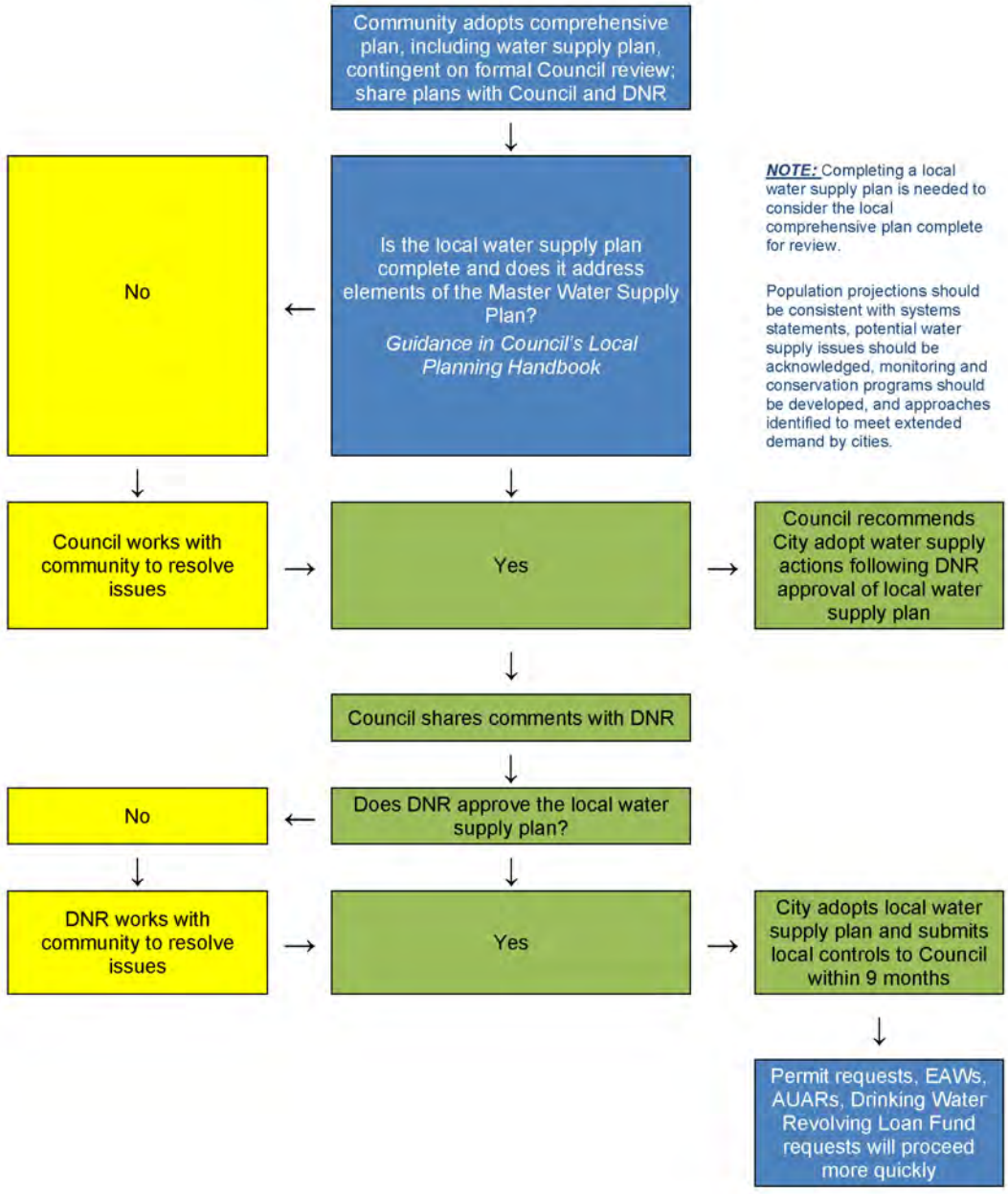
Metropolitan Council will also help support the work outlined in the local water supply plan template through public outreach to increase knowledge by the general public about water supply issues, partnering on technical studies, promoting and supporting water conservation, investigating reuse of treated wastewater, and supporting investments in water supply. Results from these efforts will be incorporated into regional analyses and in future updates to the Master Water Supply Plan.

More detailed guidance on how local plans can incorporate water supply considerations is provided in the Metropolitan Council's *Local Planning Handbook*.

Review process

Metropolitan Council and DNR cooperate in the process to review local water supply plans. Figure 3 shows the decision process review of water supply plans, including the benefits of completing and approving a local water supply plan.

Figure 3. Metropolitan Council's local water supply plan review process, including coordination with DNR.



2 Water Supply Goal for the Region

Introduction

This chapter discusses the goal, guiding principles and vision of the Master Water Supply Plan. These elements are expressed through Metropolitan Council's water supply policies and implementation strategies in the *Water Resources Policy Plan,* with this Master Water Supply Plan providing more detail.

This information shapes the approaches recommended for supplying the water uses outlined in Chapter 3. Implementation of these policies will help the region achieve the outcomes discussed in Chapter 6. Chapter 7, Implementation Strategies, provides more detail about roles and responsibilities, milestones, and possible funding sources.

Goal: A sustainable water supply now and in the future

The Master Water Supply Plan's single overarching goal is that he region's water supply is sustainable now and in the future.

The premise of sustainability as the foundation of water supply planning is recognized in Minnesota statute and the Twin Cities metropolitan area's long-range plan, *Thrive MSP 2040*.

Minnesota Statutes, Section 4A.07 define sustainable development for local government as:

> "…development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."

Minnesota Statutes, Section 103G.287 provides the following definition of sustainable water use:

> "…water use is sustainable when the use does not harm ecosystems, degrade water quality, or compromise the ability of future generations to meet their own needs."

Thrive MSP 2040, states that planning for water supply sustainability means:

> "...promoting the wise use of water through expanding water conservation and reuse, increasing groundwater recharge, and optimizing surface water and groundwater use"

Evaluation of sustainability considers a wide variety of information, and Chapter 5 provides more detail. While this Master Water Supply Plan incorporates the best regional information available in 2015, insights may change over time as new technical information becomes available and policies change.

Vision for a sustainable balance of sources

Considering the statutory definitions and regional long-range plan above, the region's water supply may be considered sustainable when water users maximize their use of existing water supply infrastructure investments within the sustainable limits of available sources, and use water in a way that:

- Is efficient and conserves water
- Maintains aquifer levels consistent with safe yield conditions defined in Minnesota Statutes
- Maintains surface water by managing withdrawals, including diversions of groundwater that supports them, to maintain protected flows and elevations
- Minimizes impacts to groundwater flow directions in areas where groundwater contamination has, or may, result in risks to the public health

- Recognizes uncertainty and seeks to minimize risk

Multiple approaches

This plan recognizes that, across most of the metropolitan area, groundwater is the principal water supply source. Public and private water providers and users have invested many millions of dollars in water supply infrastructure. The Metropolitan Council values these past investments and supports plans that leverage these existing investments in infrastructure within the regional and local sustainable limits of water sources.

Sustainable water supply management will maximize the region's use of existing water supply infrastructure investments – usually groundwater - within sustainable limits. Where demand exceeds the sustainable limits of existing sources, water conservation and other sources are available to support demand.

With access to multiple water sources, the Twin Cities metropolitan area is relatively water rich. As a region, a strategic and combined use of all available water supply sources simultaneously supports the region's economy and the quality of life that is so highly valued. And a diverse set of water sources provides better flexibility – to better manage rapid growth, extreme weather conditions, and other risks.

Like an investment portfolio, the region needs a combination of water sources that:

- supports our growth objectives
- considers cost and time
- distributes risk by diversifying

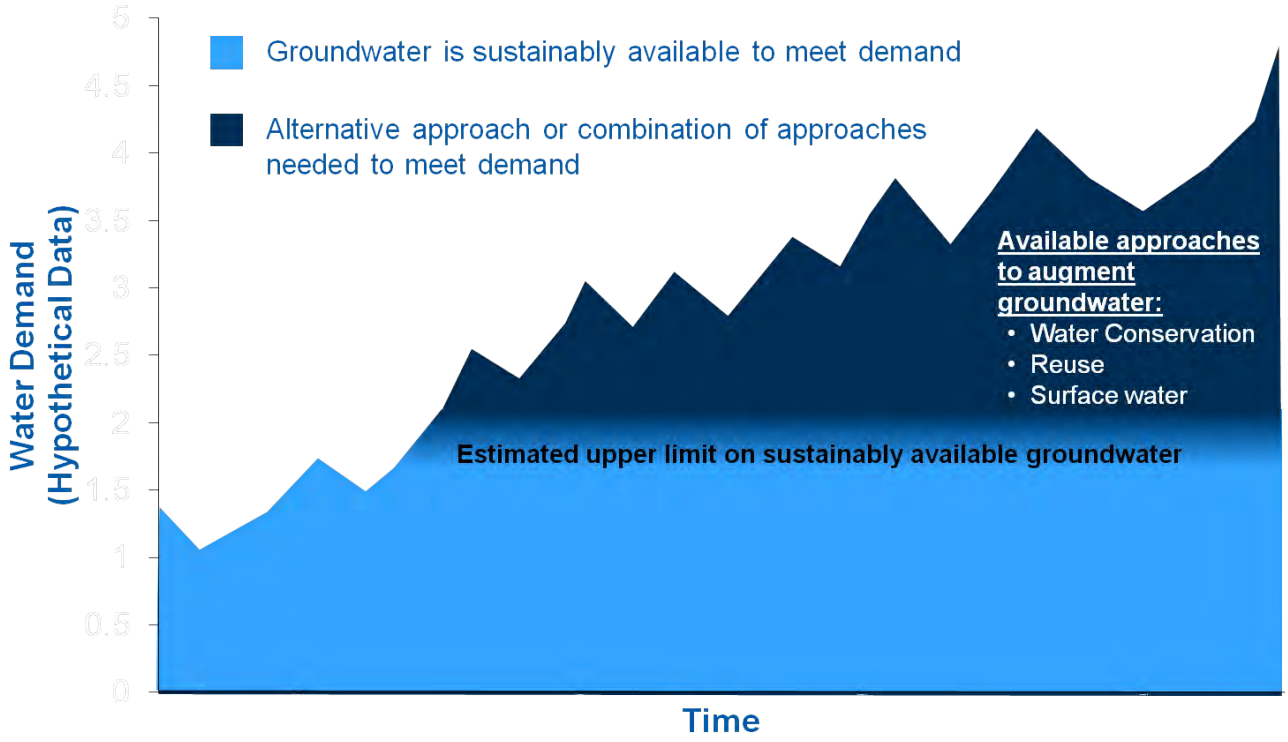
There is no single solution for ensuring a long term sustainable water supply across the metro area. There are generally six water supply approaches available across the region, and it is the community's responsibility to consider which combination works best for them:

1. Water conservation
2. Groundwater
3. Stormwater reuse
4. Surface water
5. Enhanced recharge
6. Reclaimed wastewater

Together, this robust combination of sources can provide more than enough water for our region's needs. In parts of the region, however, some sources may not be enough to meet planned demand. Strategies like water conservation can begin immediately and may eliminate the need for or buy time to consider additional options. Other strategies, like expanding surface water infrastructure, take longer to implement but can alleviate pressure on groundwater systems in areas with higher demand for potable water. Much like investing, a deliberate collection of water supply sources, programs, and infrastructure will provide us with the best short and long-term water supply options. Figure 4 illustrates the vision for regional water supply sustainability.

Figure 4. Vision for regional water supply sustainability.

Sustainable water supply management will maximize the region's use of existing water supply infrastructure investments – usually groundwater - within sustainable limits. Where demand exceeds the sustainable limits of existing sources, water conservation and other sources are available to support demand.



A regionally sustainable combination of water supply approaches will maximize the use existing water supplies and system investments within the sustainable limits of the resource and use other approaches to meet demand above the amount sustainably available from those sources. Where infrastructure changes are needed – such as to address needs for increased treatment, reducing impact on natural and recreational resources – all available options should be considered, with input from neighbors and other partners who may know of opportunities for added value and cost-sharing.

Appendix 4 provides some case studies of local examples of alternative approaches to water supply, which move the region toward achieving our goal of sustainability.

While there are important benefits to long term planning, there is uncertainty about the future. Tools like regional groundwater flow modeling, discussed in Chapter 5, can be used to explore a range of possible future conditions. Regional modeling is a planning tool, not a regulatory tool, and it provides useful information to support regional planning and cooperation that ensures sustainability. Working collaboratively with the local providers to develop and share sound technical information and implementation tools will be the pathway to success in the area of sustainability.

Guiding principles

Sustainable water supply planning must consider the links between surface water and groundwater, water quality and quantity, and water and land use. As these links are evaluated, both objective technical information and subjective human values come into play. Water supply planning must be based on principles that strike a balance between technical information and human values. The following principles inform water-related decisions in the region:

1. Water supply planning is an integral component of long-term regional and local comprehensive planning.
2. An understanding of the region's long-term water supply availability and demand is necessary to identify a specific community's or sub-region's water sources.
3. All hydrologic system components, naturally occurring and man-made, must be carefully evaluated when making water infrastructure plans.
4. The quality of the region's water is a critical component of water supply planning.
5. Inter-jurisdictional cooperation is a viable option for managing short-term water supply disruptions and sustainably meeting long-term water supply needs.
6. Regional and local cost-effectiveness and fair cost-sharing are considered when identifying water supply options.
7. Wise use of water supplies is critical to ensuring adequate supplies for future generations.

Policies

The Master Water Supply Plan provides information and guidance to support the implementation of the Council's water supply-related policies, found in the *Water Resources Policy Plan*, guided by the principles above:

Policy on Sustainable Water Supplies. While recognizing local control and responsibility for owning, operating, and maintaining water supply systems, the Council will work with our partners to develop plans that meet regional needs for a reliable water supply that protects public health, critical habitat, and water resources over the long-term.

Policy on Assessing and Protecting Regional Water Resources. The Council will continue to assess the condition of the region's lakes, rivers, streams, and aquifers to evaluate impacts on regional water resources and measure success in achieving regional water goals.

Policy on Water Conservation and Reuse. The Council will work with together with partners to identify emerging issues and challenges for the region and solutions that include the use of water conservation, wastewater and stormwater reuse, and low impact development practices in order to promote a more sustainable region.

Investment Policy. The Council will strive to maximize regional benefits from regional investments.

3 Water Use Now and In the Future

Introduction

The region's water supplies have supported public health, economic development, parks and recreation in our region for generations. In short, our quality of life. Going forward, our region is expected to grow and change, with increasing demand for water.

This chapter discusses the region's current water use and how it is expected to change in the future. By 2040, it is estimated that the region will need about 100 million gallons of water per day more than in 2010, if current water use practices continue. The need to ensure that the water use is sustainable for future generations, while protecting the environment and habitat, becomes increasingly important.

The comparison between water use and the information about available sources presented in Chapter 4 suggests that future water use should be matched to the best combination of sources available to sustainably meet demand.

Water use priorities defined by Minnesota statutes

Water is used for a wide range of purposes in the region – from drinking to construction dewatering. Should multiple users request water above the sustainable limits of the same source, the allocation of water is prioritized by who is using the water and for what purpose, according to the six categories listed below, in order of priority (2013 Minnesota Laws Chapter 103G.216):

1. Domestic water supply, excluding industrial and commercial uses of municipal water supply, and use for power production that meets the contingency planning provisions
2. Use of water that involves consumption of less than 10,000 gallons of water per day
3. Agricultural irrigation, and processing of agricultural products involving consumption in excess of 10,000 gallons per day
4. Power production in excess of the use provided for in the contingency plan
5. Uses, other than agricultural irrigation, processing of agricultural products, and power production, involving consumption in excess of 10,000 gallons per day
6. Nonessential uses

Sustainable water use means that all of the region's water needs are met, which – as demand grows and competition for limited resources increases – means uses will need to be more efficient and matched to the most appropriate sources. For example, nonessential non-potable uses such as car washes or boulevard irrigation or may be better supplied by treated stormwater than by groundwater treated to drinking water standards.

Users of water sources in the region

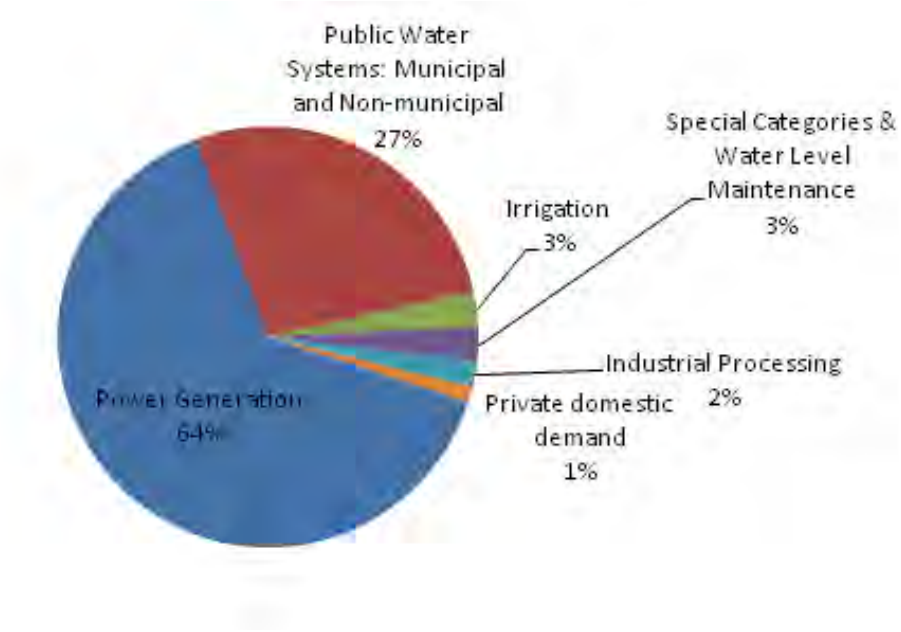
The best source of water use information is data submitted by water appropriation permittees to the Minnesota Department of Natural Resources (DNR). Between 1988 and 2012, these data were stored in the State Water Use Data System (SWUDS). In 2013, the DNR developed a new database to house and manage these data, the Minnesota Permitting and Reporting System (MPARS). In this report, SWUDS data is used to represent recent patterns and trends in water use; MPARS 2014 data represent current water use.

In recent years (2003-2012), the metropolitan area used approximately 1,300 million gallons per day of surface water and groundwater. The biggest category of water use in the region is power generation (Figure 5). However, the metropolitan area power plants mostly use open-loop cooling systems where very little water is actually consumed; the rest is returned directly back to the surface water from

which it came. That leaves public water systems (predominantly municipal), irrigation, special categories and water level maintenance, and industrial processing as the four largest consumptive water uses, and most of this water is not returned back to its original source (Table 1).

Category	2003-2012 Average	Future Demand
Power Generation	316,000 MGY	Non-consumptive use expected to increase and consumptive use to remain constant
Public Water Systems: Municipal and Non-municipal	133,000 MGY	Expected to increase significantly
Irrigation: Major Crop & Non Crop	13,200 MGY	Relatively constant or increase slightly
Special Categories & Water Level Maintenance	13,000 MGY	Expected to remain relatively constant
Industrial Processing	9,600 MGY	Expected to remain relatively constant
Private Water Supply (Domestic)	5,800 MGY	Expected to decrease

Figure 5. Water consumed in the Twin Cities metropolitan area, 2003-2012 average.



Power generation – self supplied

Power generation is the single largest water use in the metropolitan area, and production above what is identified in contingency plans is the fourth water use priority in the state.

From 2003 to 2012, an average of about 866 million gallons of water per day was used by power plants in the metropolitan area. Most of the water used for power generation comes from surface water sources, but a small percentage comes from groundwater.

Because power generation is so dependent on surface water supply, drought response is a critical component of contingency planning. For example, the *System-wide Low-flow Management Plan for the Mississippi River above Saint Paul, Minnesota* helps ensure that "run-of-river" operations are maintained by hydropower operators during low flow to minimize artificial flow fluctuations resulting from power generations and to protect aquatic resources.

Although power generation is a large water demand, almost all of this water is used and then returned back to its original source. Consequently, power generation, although a large use, is not a primary focus of the Master Water Supply Plan.

Public water systems (community: municipal and nonmunicipal)

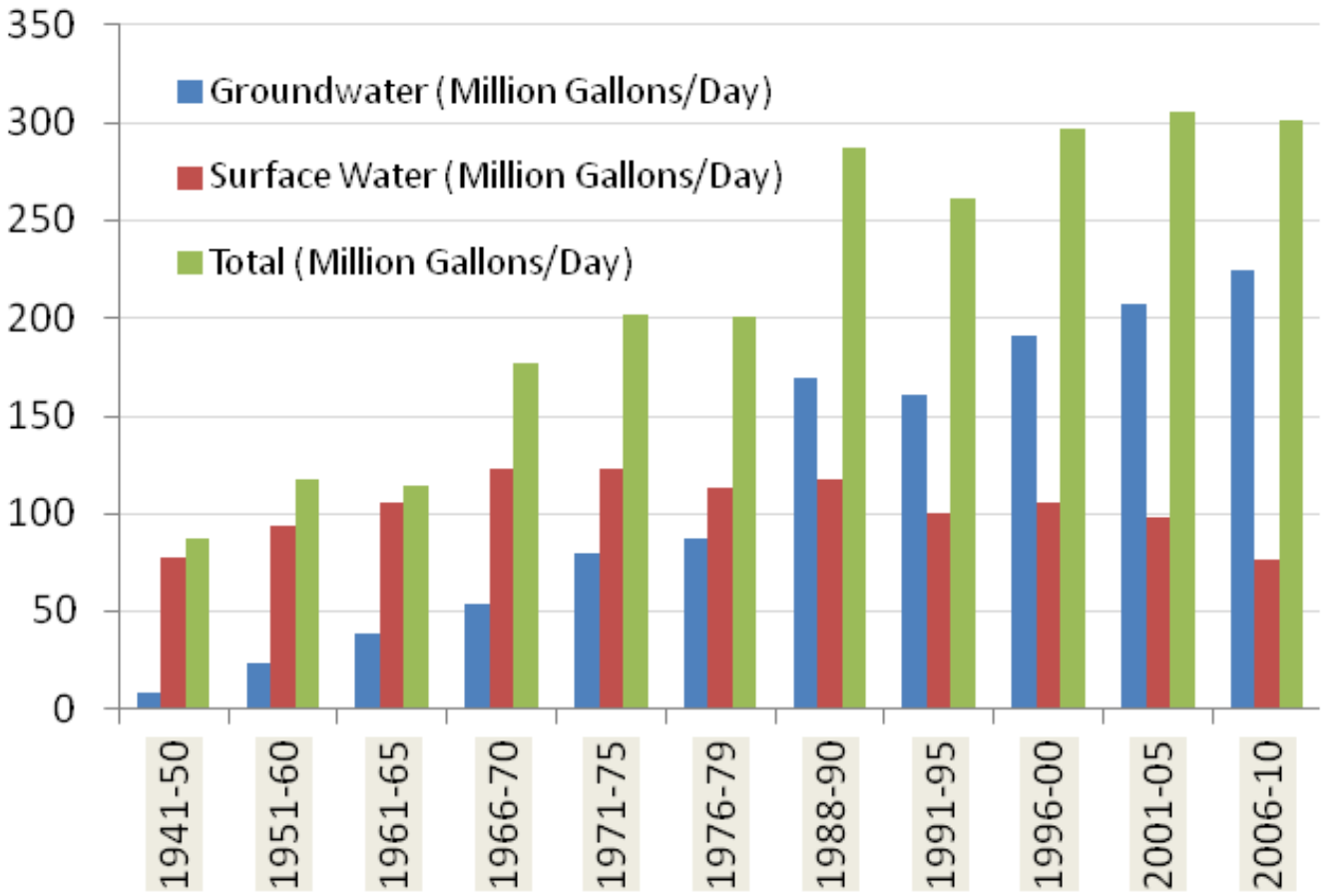
Public water supply is the second largest, and fastest growing, water demand in the metropolitan area. Over 120 separate public water suppliers provide the bulk of the region's drinking water and supports commerce and industry. A relatively small amount of public water supply is provided by commercial and institutional water works and private waterworks.

Municipal systems use the most water for a variety of purposes, which complicates the process of setting water use priorities for emergency planning. Water use for domestic purposes is first priority, but other municipal use is usually fifth or sixth priority.

From 2003 to 2012, an average of about 364 million gallons per day for municipal and non-municipal public water supplies including residential, industrial and commercial uses.

Today, most of the water used by public water suppliers comes from groundwater, although this hasn't always been the case.

Figure 6. Shift in use of water sources over decades, Twin Cities metropolitan area, 1941-2010.



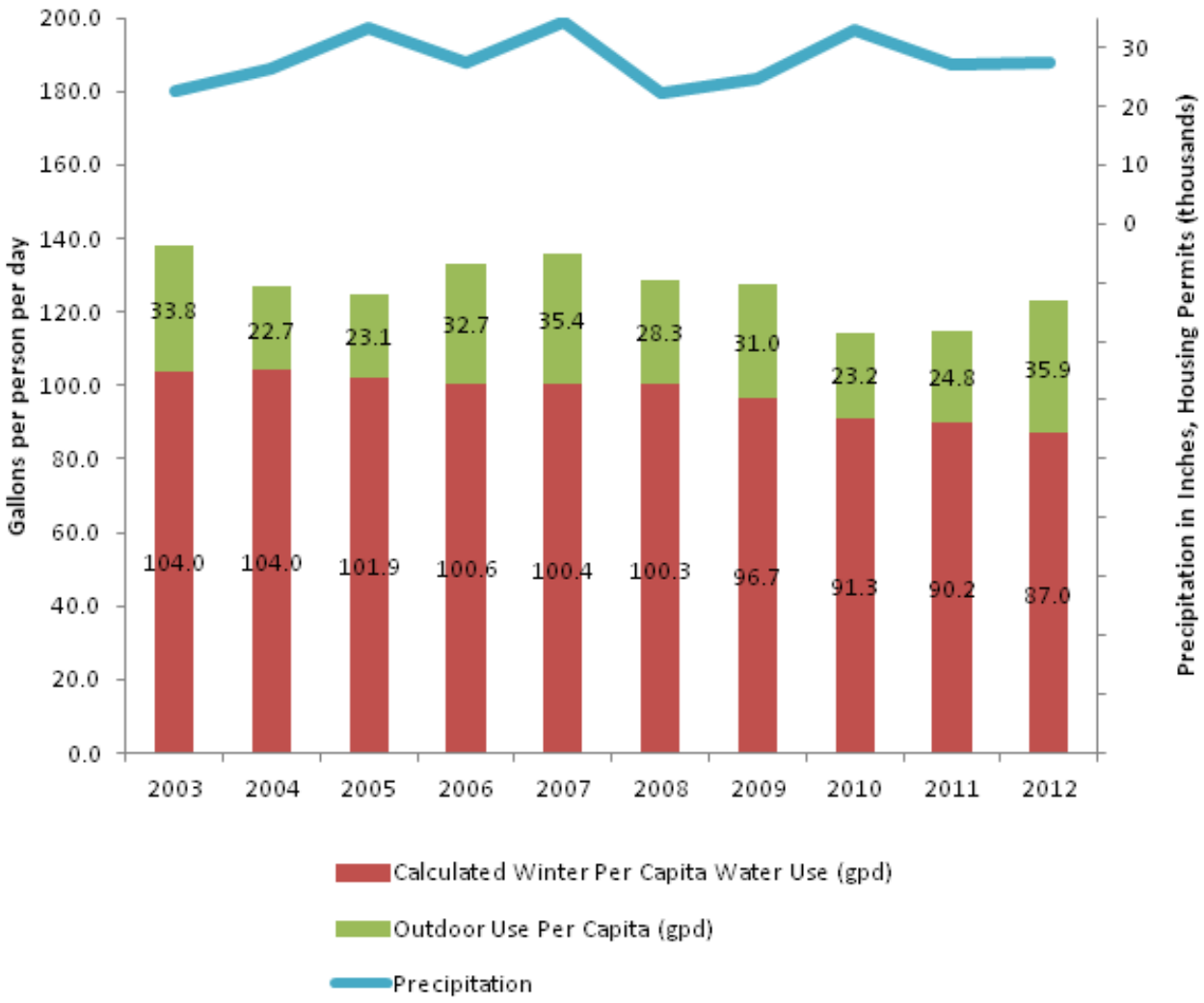
Like private domestic wells, groundwater is a preferred source for public supply across most of the region, due to widespread availability and relatively good water quality and low treatment costs. However, in some locations, higher pumping rates raise the risk of impacting neighboring wells and groundwater-supported surface water features.

Over the course of a year, most water is used indoors for household purposes and by commerce and industry (Figure 7). During summer months, however, a significant amount of water is used outdoors, mostly used outdoors for seasonal businesses and lawn irrigation.

In the summer, Minneapolis Water Works is the region's largest public water supplier, because the City of Bloomington meets summer peak demand using water purchased from Minneapolis. In the winter, however, Saint Paul Regional Water Services is the region's largest public water supplier.

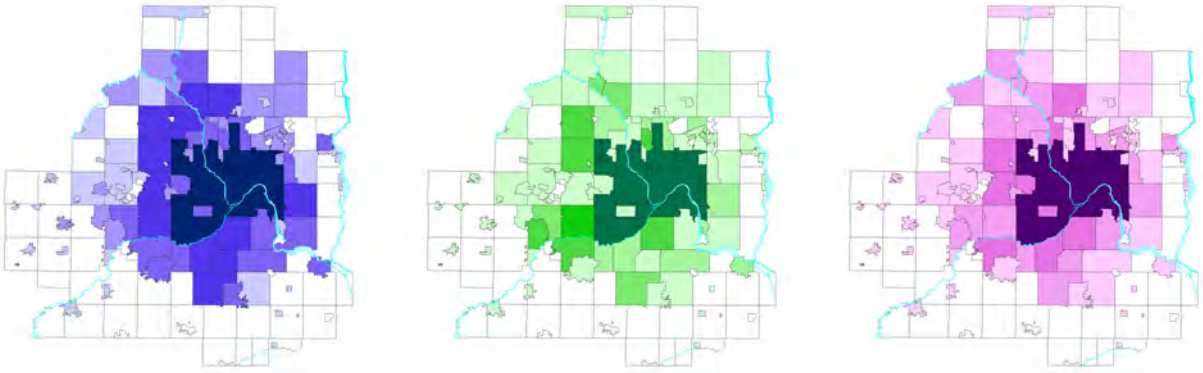
Figure 6 illustrates average yearly indoor (red) and outdoor (green) water use per person in the metro area. Over time, the amount of water used per person for indoor purposes has gone down. More efficient indoor appliances as well as economic conditions may be contributing to this trend. Outdoor water use, however, does not seem to show the same trend. Growth patterns, weather, economic conditions, and technological changes are factors that can affect outdoor water use but in ways that are difficult to predict.

Figure 7. Indoor and outdoor per capita water use, Twin Cities metropolitan area, 2003-2012.



Water demand varies between communities based on community size, land use and other factors. A 2014 survey of public water suppliers identified only two – Minneapolis Water Works and Saint Paul Regional Water Services – that averaged more than 60 million gallons per day from 1988 to 2012. About half of the region's public water suppliers (52%) averaged less than one million gallons per day (Metropolitan Council, 2015d). The three maps in Figure 8 illustrate the relative volumes of water provided by public water suppliers for residential (blue), industrial (green) and commercial (purple) uses in metro area communities. Over the period 1993-2012, the average residential water use was about 63% of total water sales, commercial was about 25%, and industrial was about 2%. Municipal water use in all three categories is highest in the urban core and generally diminishes outward from Minneapolis and Saint Paul. High water use, particularly residential, can be seen along major transportation corridors like Interstate Highways 94 and 35.

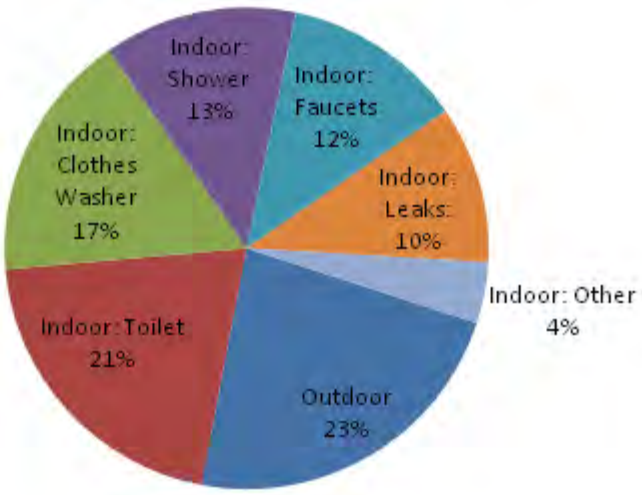
Figure 8. Relative volumes of water used by metro area communities for the period 2003-2012 for residential (blue), industrial (green) and commercial (purple) uses. (darker colors indicate higher use)



Residential

Residential water use is the largest category of municipal water use in the metropolitan area, and is the highest priority water use. Between 2003 and 2012, approximately 63% of municipal water was used by residents for drinking and cooking, bathrooms and laundry, and for outdoor uses like lawn watering. During the 2003-2012 time period, metropolitan area residents each used an average of about 94 gallons per day for residential purposes. However, this amount varied from community to community and from summer to winter. In some communities, summer water use is more than three times that of winter water use, while other communities use water more evenly throughout the year. As a region, approximately 23% of residential water is used outdoors, mostly for irrigation.

Figure 9. Estimated percent of residential water consumption by type of use, metro area, 2003-2012.



While domestic water use is the State's first priority, this is generally assumed to mean indoor use. Outdoor water use is considered nonessential use and the first to be curtailed during an emergency, although enforcement is challenging because this use is distributed among so many people and locations.

Commercial

Commercial water use is the second largest category of municipal water use in the region, but is the state's fifth-priority water use if emergencies arise. This means that, during an emergency, these uses may be curtailed per local emergency response plans.

Between 2003 and 2012, about 25% of municipal water was used for a variety of businesses. The amount of water used to support commerce varies from community to community. In some communities, such as New Brighton and Shakopee, almost half of the municipal water supply supports commercial, industrial, and institutional customers. Others, such as Birchwood Village and Centerville, report very little commercial or other nonresidential water use.

Industrial

Industry is the third largest category of public water supplies. Like commercial use, this is a fifth-priority use and subject to restriction in an emergency.

Between 2003 and 2012, approximately 2% of municipal water use supported industry. However, industrial water demand varies greatly from community to community. In some communities such as South St. Paul, almost a third of the municipal water supply is used by industrial customers. In others, none is used for industrial purposes.

Some industries, however, have their own water appropriations and wells and do not rely upon the municipal systems. That use is discussed later in this chapter.

Irrigation– self supplied

Water is used for irrigation on major crops, golf courses, nurseries, and landscape/athletic fields; the amount varies from year to year depending on weather, and approximately 36 MGD were used for irrigation between 2003 and 2012. About two-thirds of irrigation is for major crops (22 MGD). Nine MGD were used between 2003 and 2012 for golf course irrigation, and approximately 4 MGD each for landscape/athletic fields and for nurseries. Agricultural demand for major crop irrigation is the third-priority water use in the state.

Currently, there are approximately 57,500 irrigated acres in the region. Agricultural water use is seasonal, so although annual totals are not as high as municipal water use, summer seasonal use is very large, particularly in rural areas with sandy soils such as Dakota County.

DNR reports that water is used for major crop irrigation by over 400 permittees in the Twin Cities metropolitan area.

Special categories & water level maintenance – self supplied

Water supplies are used for many other purposes, as well. Between 2003 and 2012, approximately 17 MGD were used for water level maintenance – some at long term quarry dewatering sites and some at short-term construction projects. An additional 14 MGD were used for special categories – the largest uses include pollution containment (11 MGD), sewage treatment (2 MGD), and snow and ice making (0.5 MGD).

These are generally fifth- and sixth-priority uses, and they are likely to the first curtailed during drought or other water use conflict.

Industrial processing – self supplied

After municipal demand, private industry uses the most amount of water. Purposes include agricultural processing, petroleum processing, metal and non-metallic processing, sand and gravel washing and other similar uses. This use is the fifth priority water use in the state.

Between 2003 and 2012, the average daily industrial water use in the metropolitan area was approximately 26 million gallons per day. The top three uses were for petroleum chemical processing,

agricultural processing, and industrial process cooling water. Private industrial water use is distributed among approximately 190 permittees.

Small private water supply (domestic)

Minnesota statutes establish domestic water use as the highest priority of the state's water when supplies are limited (Minn. Stat., Sec. 103G.261).

Slightly less than 10% of the region's population draws their drinking water from tens of thousands of private wells. While water use data is limited, the amount of water supplied by private domestic wells can be estimated by assuming that the population of the seven-county metro area that is not served by public water supply systems uses an average of 75 gallons per person per day. The result is an estimate of approximately 16 million gallons per day supplied by private domestic wells.

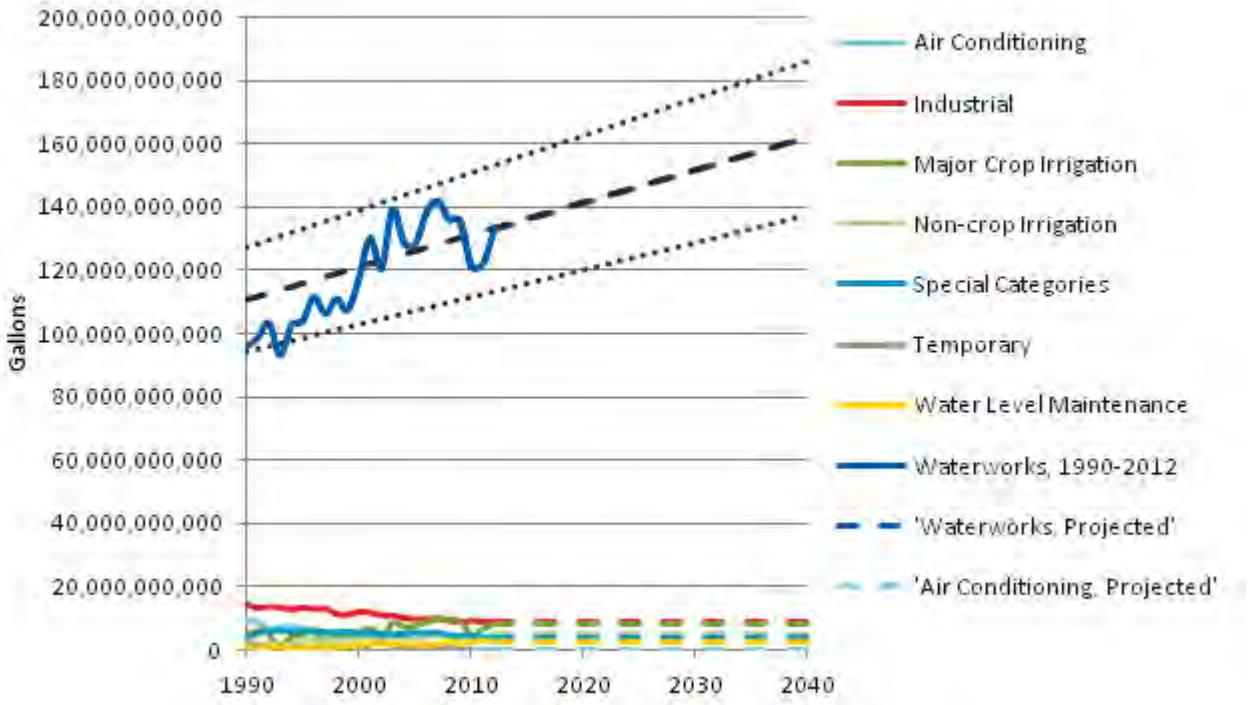
The most commonly used source of water for domestic private supplies is groundwater; it is more widespread and usually safe to drink with minimal or no treatment. Private well owners are responsible for testing water quality, taking action to prevent contamination at the wellhead or intake, and planning for back-up supplies in case of emergency. The Minnesota Department of Health (MDH) is an important resource in these efforts.

Water use is growing - future water use

The amount of water used has changed over time, but municipal water use is the largest and has grown faster than any other water use category in the metro area. The other water use categories show various historical trends, although the quantities are not large compared to public supply.

As the region's population and economy continue to grow, regional water use is expected to grow as well. While water demand projections are not precise, simplifying assumptions can be made to estimate a reasonable range for future water demand.

Figure 10. Projected trends for the largest water consumption categories in the Twin Cities metropolitan area. Does not include power generation, which is predominantly non-consumptive use.

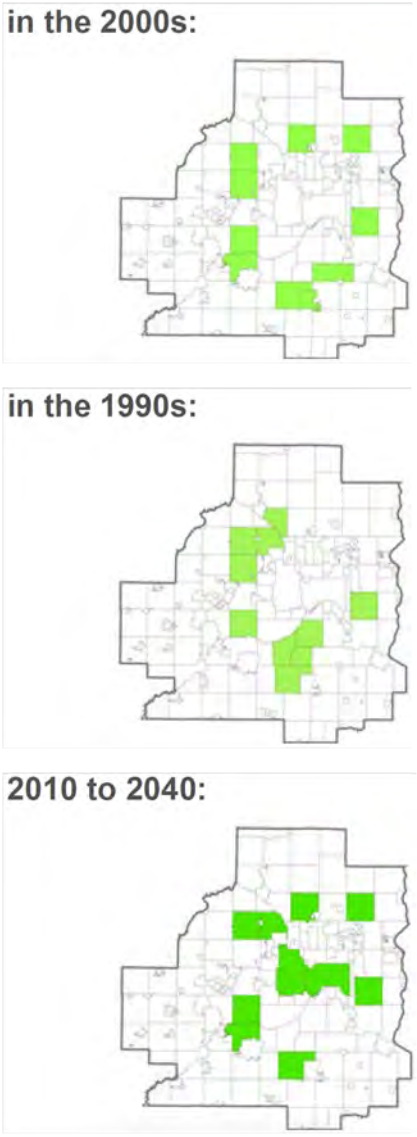


Public water supply systems - municipal water demand

Based on population projections in the Metropolitan Council's 2040 regional development framework, *Thrive MSP 2040,* the region's population is expected to increase by approximately 30% percent above the 2010 figure, to approximately 3.6 million. During this same period, municipal water demand is expected to increase by a similar amount and account for the majority of the increase in total regional water demand. Figure 11 highlights the top ten growing cities by decade.

75% of the population future growth is expected to occur in communities with public water supply systems supplied by groundwater; 11% in communities where public water supply systems supply surface water; 12% in communities with a groundwater-surface water mix (Saint Paul Regional Water Services, Edina and Bloomington, and Burnsville and Savage); and 2% of future growth is expected to occur in communities supplied by individual wells.

Figure 11. Top ten growing cities in the Twin Cities metropolitan area, by decade.



The impact of this population growth on water supply was estimated using a per capita unit use calculation for municipal water utilities in the seven-county metropolitan area (Metropolitan Council, 2014c). Future water demand projections are obtained by multiplying future population projections by the estimated per capita unit use:

(Projected Water Use) = **(Projected Population)** X **(Per Capita Water Use)**

Where communities provided local data, these data replaced Council estimates.

Given the variability in water use due to climatic, economic and other conditions, the Council recognizes that actual water use is likely to fluctuate around an average value by approximately 40%. This information is useful and appropriate for regional planning and modeling, but not for local water system capacity planning. For example, local water supply planning also considers peak demand in addition to average daily use. Therefore, these projections are not intended for local water system capacity planning purposes (Metropolitan Council, 2014c).

Industrial processing & commercial – self supplied

The region's total industrial and commercial water demand is expected to remain relatively constant, although the location of water use and the adoption of water conservation strategies are likely to change in ways that are difficult to predict. As more information is collected about water use by private industry and commerce, projections for future industrial water use may change. For example, the region could become more attractive for businesses moving from states facing future water shortages.

Irrigation – self supplied

Agricultural water demand is expected to remain relatively constant or to increase slightly in the Twin Cities metropolitan area. Some counties, such as Dakota County, are likely to continue experiencing higher agricultural irrigation rates relative to other counties. In general, expansion of agricultural irrigation systems is assumed to be offset by improved irrigation efficiency and conversion of agricultural land to other development.

Managing and conserving water

The population and economy of the metro area are growing and demands on municipal water systems continue to increase. The metro area has enough water in the short-term, but long-term projections predict potentially significant impacts to aquifers if water continues to be consumed at current or higher rates and using current sources. A key factor in mitigating possible problems is for residents, businesses, water suppliers, and elected officials to work together to become more water efficient.

There are many opportunities for more efficient water use and conservation across the region, and the benefits of more efficient use and water conservation extend beyond the preservation of water sources and the ecosystems and recreational water features they support. For example, water conservation may also reduce energy and treatment chemical use and offset future infrastructure investments.

The value of water conservation was a common theme at public meetings and other outreach for this Master Plan. Some challenges that need to be overcome were also identified, including:

- Mitigating the impact of decreased water use on utility revenue
- Lack of funding for local education, incentive and enforcement activities
- Different conservation approaches for different users (e.g. residents, industries, agricultural irrigators)
- Building public support
- Need for subregional and regional coordination regarding conservation targets and implementation

Municipal supply

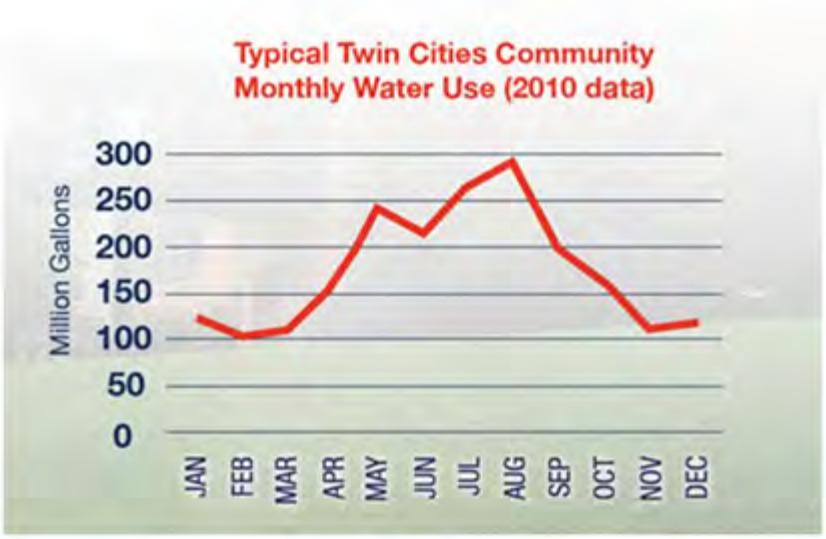
For public water suppliers, conserving water means educating customers, adopting inclined block rates with sufficiently high prices in upper tiers (which charge more per unit of water as water use increases), and enacting water conservation regulations.

Increased water efficiency and conservation may help avoid the expensive cost of adding new storage or treatment capacity. Every gallon saved is water that does not have to be pumped, treated, and delivered – and the saved water can then be reallocated to accommodate new growth or business need. In addition, water conservation may reduce the amount of wastewater that requires treatment.

Setting measurable regional goals for water conservation is useful for implementation and evaluation purposes. For example, while a challenging goal, the region could reduce its total municipal (residential, commercial and industrial) per capita water use to 90 gallons per day. This change means that the region's total 2040 water demand could be met with no regional increase in water use above 2010 amounts – existing water use could be managed to meet the region's needs. The Minnesota Department of Natural Resources, in partnership with the Metropolitan Council, already recommends a community goal for one part of the municipal demand: residential use of less than 75 gallons per person per day.

In most communities, reducing the growth in outdoor water use is perhaps the most valuable approach. Water systems are sized to meet maximum demand, so summer water use can drive substantial investments in infrastructure that is extraneous the rest of the year. In the metro area, a typical community will use up to 2.3 times more water in one summer month than during a winter month. And summer use is growing; between 1990 and 1994, the summer use was 1.6 times the winter use. The region could reduce its total water use by over 15% by simply returning to outdoor watering practices of this time period. This would conserve 16.8 billion gallons per year.

Figure 12. Seasonal municipal water use in a typical metro area community, 2010.



Private industrial and commercial

A recent survey of private industrial water users in the eleven county metropolitan area by the Minnesota Technical Assistance Program indicates that the three biggest water supply concerns, as they related to industrial water-use processes, include: water discharge regulations, water use regulations, and incoming water quality (Metropolitan Council, 2013a).

The same survey indicated that approximately 40% of industrial groundwater users do not routinely monitor water use through separate processes; only total facility use is monitored. In this situation, water audits can identify a variety of opportunities for water and cost savings.

When industry and commerce do implement conservation, the benefits can be significant. For example, a small project with the Minnesota Technical Assistance Program in 2012 conducted 7 one-day site assessments that identified opportunities to save 71.9 million gallons per year. At three of

those sites, changes identified through follow-up summer intern projects resulted in savings of 44 million gallons annually and savings of $360,000 per year (Metropolitan Council, 2013a).

Agricultural

Agricultural water use is one of the largest water uses in Minnesota, including Dakota County in the metro area. Irrigation is a significant consumptive use of water that can adversely impact stream flows, groundwater availability, and natural ecosystems and the level at which irrigation is sustainable is still unknown.

Irrigation management is a recommended best management practice in the *Agricultural Best Management Practices Handbook for Minnesota*. Along with optimizing available water supplies, irrigation management can support additional objectives such as decreasing non-point source pollution of surface and groundwater resources, and reducing energy use.

Conservation toolbox

The Council has developed a free on-line conservation tool (*Water Conservation Toolbox*) that residents, utilities, and communities can use to select an optimal mix of conservation measures that will maximize conservation in a way that makes economic sense for them.

The Conservation Toolbox includes a variety of information, including best management practices that target residential irrigation, information about sustainable conservation rate structures, and example ordinances that support water conservation.

4 Water Supply Sources

Introduction

The Twin Cities metropolitan area is fortunate to have relatively abundant water resources. The Mississippi River and the region's prolific aquifers provide residents with reliable water supplies, while its rivers and lakes serve commerce, support wildlife, and offer people a variety of recreational opportunities.

No single source supplies the region's water demand, as described in Chapter 3. Instead, a combination of sources provides the Twin Cities metropolitan area with water to meet its current and growing needs: groundwater, surface water, stormwater, and reclaimed wastewater.

This chapter describes the major water supply sources available to the region. The chapter also summarizes challenges and opportunities identified by the region's water supply managers and decision-makers. Plans to use these sources for current and future demand need to consider the issues presented in Chapter 5.

Supplementing existing sources with additional approaches

This plan recognizes that, across most of the metropolitan area, many communities rely on only one source of water. Local governments, businesses, public institutions, and private households have together invested many millions of dollars in the existing water supply infrastructure. The Metropolitan Council recognizes the value of these past investments and supports plans that leverage these existing community investments in infrastructure within the regional and local sustainable limits of water sources.

Where demand exceeds the sustainable limits of current sources, water conservation and a combination of other sources may be used to reduce demand for groundwater or augment groundwater to support demand.

Each community may consider which combination of water supply approaches work best for them. Some strategies, like water conservation, can begin immediately and eliminate the need for or buy time to consider additional options. Other strategies, like expanding surface water infrastructure, take longer to implement but can alleviate pressure on groundwater systems in areas with irreducible demand for potable water. Much like investing, a deliberate collection of water supply sources, programs, and infrastructure will provide us with the best short and long-term water supply options.

In some areas, expansion of surface water use to supply potable water has the dual benefit of reducing groundwater withdrawals and improving the suitability of reclaimed water for industrial and irrigation uses, by reducing the use of water softeners and resulting chloride concentrations in wastewater.

In other areas, addition of groundwater wells can provide a backup source of water to communities relying solely on surface water during extreme drought or contamination events.

Stormwater can be collected as precipitation runs off from impermeable surfaces, such as rooftops, and stored for future use. Like groundwater wells, stormwater reuse projects can be installed as development occurs, providing a local water source as local growth occurs. Stormwater is used as a relatively minor water supply throughout the region; it is most commonly used for irrigating turf areas. While still a minor source serving non-potable needs, this source is expected to grow.

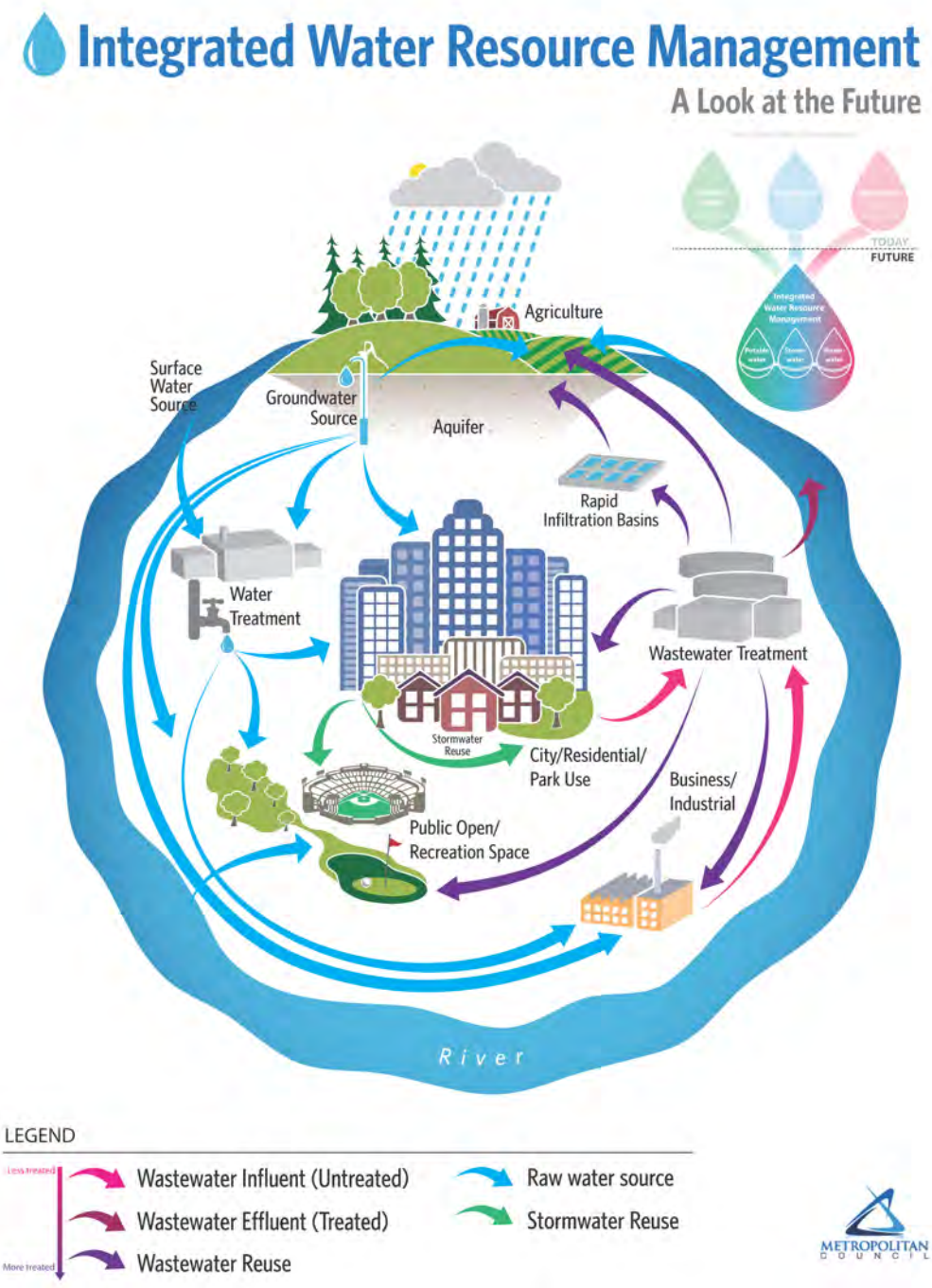
Urban non-crop irrigators, such as golf courses, landscaping and athletic fields, may be especially well suited for using stormwater since they represent a significant water demand and water quality requirements are less of a concern. Based on preliminary work done in Dakota County, it appears

feasible that some volume of groundwater demand for these purposes could be offset with stormwater capture and use. In the northern portion of Dakota County, these uses totaled 257 million gallons in 2010, or just over one percent of annual non-winter runoff (Metropolitan Council, 2015b).

Reclaimed wastewater has potential for both recharging groundwater and reducing potable water demand by providing and alternate source for non-potable purposes such as industrial cooling, irrigation, and toilet flushing. Year round reuse of wastewater could include recharging groundwater, industrial cooling, and other non-potable use. Seasonal possibilities include irrigation of agricultural land, golf courses, parks, and lawns. Each type has water quality requirements that may require additional wastewater treatment before it is distributed and used.

There is no single solution for ensuring a long term sustainable water supply across the metro area, but all solutions are likely to include some combination of the sources discussed in this chapter.

Figure 13. Water cycle illustrating opportunities for integrated water resource planning.



Many opportunities exist throughout the hydrologic cycle to enhance and thereby expand available water supply. For example, stormwater best management practices may enhance aquifer recharge and provide reuse opportunities.

Each of the region's water supply sources has unique benefits and obstacles. If managed together, however, they have the capacity to serve the region's water supply needs now and into the future.

The Council is committed to working with partners to protect, conserve, and utilize all sources of water in the region.

Water supply sources

The region has a diverse collection of water supply sources, as show on the map in Figure 14. They include surface water primarily supplied by the Mississippi River (blue), groundwater from a series of aquifers distributed across the region (within the dashed line), reclaimed wastewater from several regional wastewater treatment facilities (squares), and stormwater across the entire area.

Figure 14. Water supply sources for potable and non-potable uses in the Twin Cities metropolitan area.

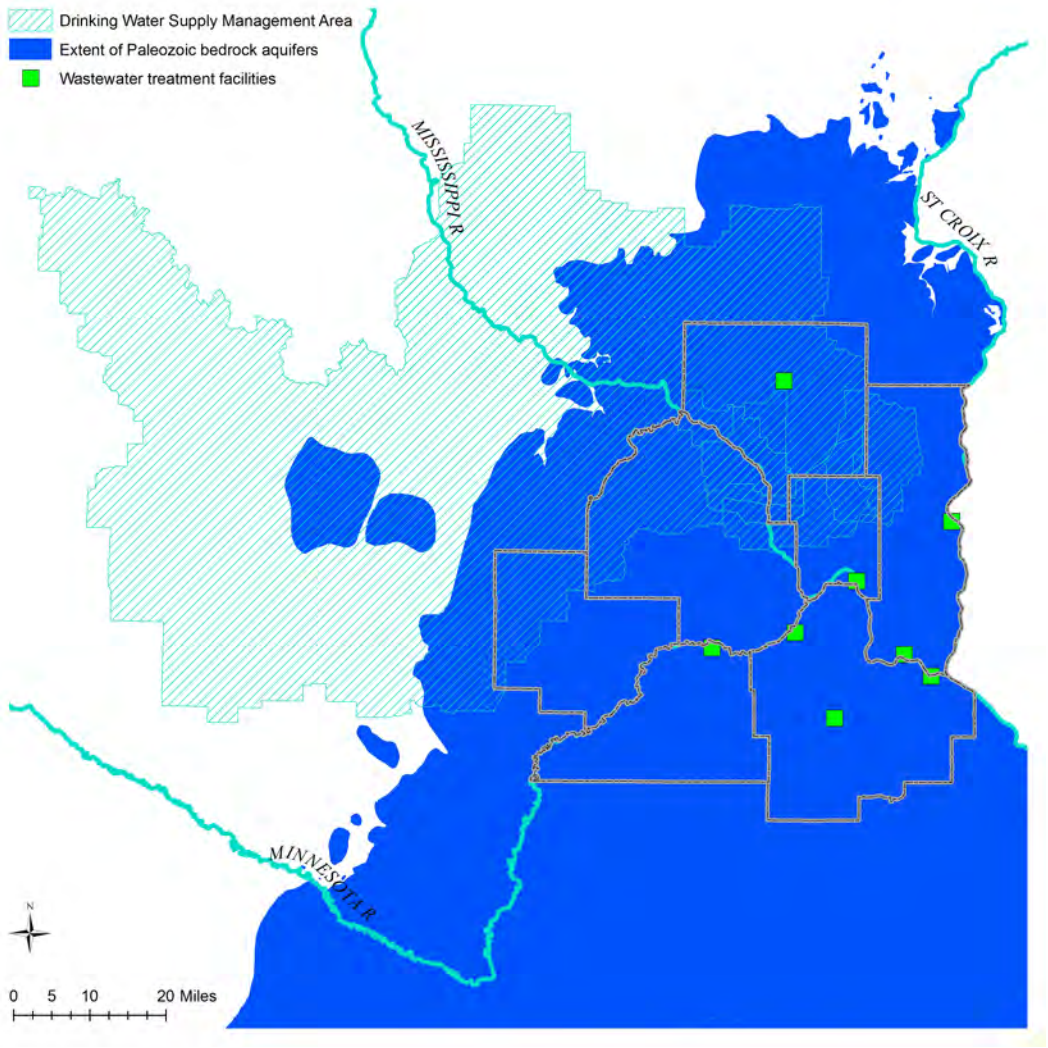


Table 1 - Summary of water supply sources in the Twin Cities metro area, including key management considerations; the estimated amount of water sustainably available from sources in areas where infrastructure currently exists; or, in the case of stormwater, has current support for implementation and the number of municipal water supply systems currently supplied by each source.

Source & Management Considerations	Estimated sustainable amount available	Number of municipal water supply systems currently supplied by this source
Quaternary Aquifer • Challenging to identify the most productive sand and gravel layers • First aquifer to experience changes in recharge quantity and quality • Most likely of all aquifer to be connected to surface waters • Treatment needs for naturally and manmade contamination varies across region • Response to recharge may change as climate and land use changes • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	About 70-90 MGD	24
Prairie du Chien-Jordan Aquifer • Not available to some growing communities • As the most heavily used aquifer in parts of the region, greater likelihood of water use conflict • Connected to some protected surface waters • Treatment needs for naturally and manmade contamination varies across region • Response to recharge may change as climate and land use changes • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	About 280-330 MGD	83
Tunnel City-Wonewoc Aquifer • Productivity varies greatly across the region and is highest where it is fractured or weathered • Connected to some protected surface waters • Treatment needs for naturally and manmade contamination varies across region • Low recharge rate in parts of the region, response to recharge may change with climate and land use	About 70-90 MGD	30

Source & Management Considerations	Estimated sustainable amount available	Number of municipal water supply systems currently supplied by this source
• Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc		
Mt. Simon-Hinckley Aquifer • Use of this aquifer is restricted by Minnesota law • Very slow recharge rate, response to recharge may change as climate and land use changes • Significant groundwater mining has occurred historically • Treatment needs for naturally contamination varies across region • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	About 10 MGD	35
Mississippi River • Coordination with Minneapolis Water Works and St. Paul Regional Water Services • Drought and related risk of water shortages • Vulnerability to contamination and related monitoring and treatment requirements • Limited ability to manage and protect water quality within the watershed • Limited access to source and related distribution costs • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	About 1,940 MGD, the flow exceeded 90% of the time at Anoka, MN	2: Minneapolis and St. Paul and the communities that they serve
Minnesota River • Drought and related risk of water shortages • Vulnerability to contamination and related monitoring and treatment requirements • Limited ability to manage and protect water quality within the watershed • Limited access to source and related distribution costs • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	About 320 MGD, the flow exceeded 90% of the time at Jordan, MN	0
St. Croix River • Drought and related risk of water shortages	About 1,290 MGD, the flow exceeded 90% of the time at St. Croix Falls, WI	0

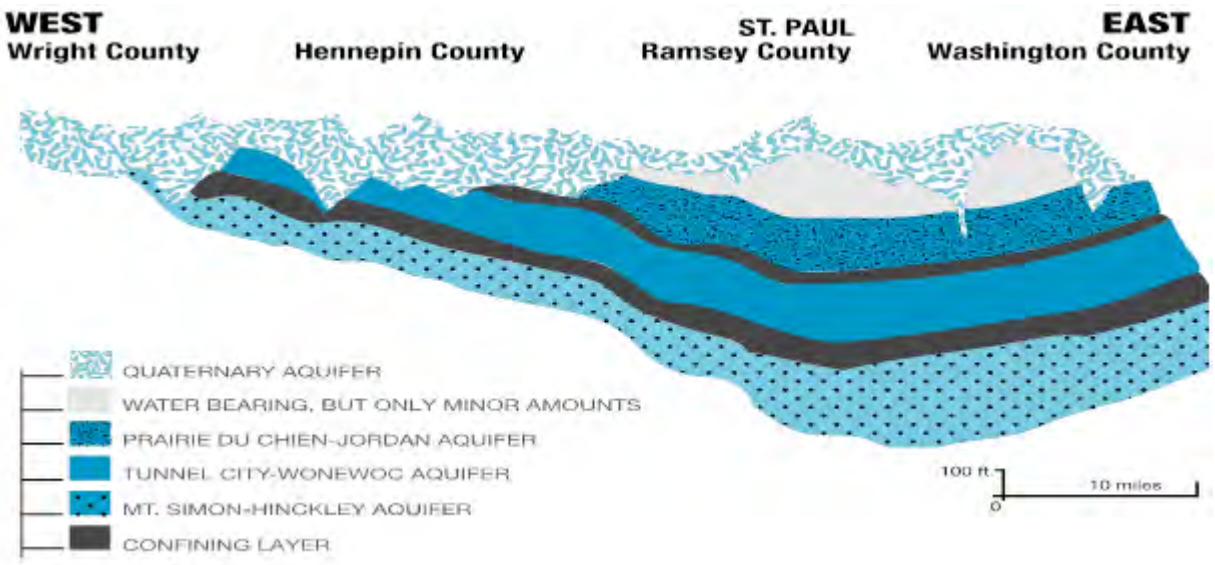
Source & Management Considerations	Estimated sustainable amount available	Number of municipal water supply systems currently supplied by this source
• Vulnerability to contamination and related monitoring and treatment requirements • Additional federal and state protections in place • Limited ability to manage and protect water quality within the watershed • Limited access to source and related distribution costs • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc		
Stormwater • Drought • Availability limited seasonally and by access to land for collection and storage • Vulnerability to contamination • Regulatory limits to protect public and environmental health • Water quality requirements for potential uses • Inconsistent watershed rules • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	Less than 100 MGD	All
Reclaimed Wastewater • Seasonality of some non-potable demand • Geologic limitations on the effectiveness of reclaimed wastewater water as a source for enhanced aquifer recharge • Public acceptance • Regulatory limits to protect public and environmental health • Funding challenges may include project phasing opportunities, eligibility for funding sources, partnerships, etc	Up to 250 MGD, the average flow in regional wastewater treatment facilities	1: East Bethel

Limitations on sources

Groundwater

Although there are several aquifers in the region, they are not equally distributed. For example, some communities in the western metro, such as Norwood Young America – do not have access to the productive Prairie du Chien-Jordan Aquifer. Figure 15 illustrates the aquifer layers and their curved shaped beneath the Twin Cities metropolitan area.

Figure 15. Geologic cross-section of aquifers service the metro area, from east to west across the northern metro.



The amount of groundwater that can be sustainably withdrawn depends on the amount of recharge available, the rock properties that control how easily water moves through the aquifer, and human-imposed limits that have been established to protect public health, maintain ecosystem services, and reduce water use conflicts.

Recharge – the ultimate sources of water to the groundwater system – has been estimated by the Metropolitan Council, U.S. Geological Survey and Minnesota Pollution Control Agency. The range of these estimates suggest that 900 to 1,200 million gallons per day is the upper limit on the amount of groundwater available for all needs including baseflow to surface waters, drinking water, and to support industry and commerce (Metropolitan Council, 2014d).

To understand what portion of potential recharge may be sustainably available from the groundwater system, regional groundwater flow modeling can also be used to explore approximately the limit (as an estimated range) on how much groundwater can be pumped without causing unacceptable conditions (Appendix 4). These conditions were incorporated into a regional groundwater model scenario that tests the sustainable capacity of aquifers in areas where high capacity wells already exist, under the assumptions that:

- Sustainable groundwater pumping should maintain aquifer levels consistent with safe yield conditions defined in Minnesota Statutes
- Sustainable groundwater pumping should maintain surface water by limiting withdrawals, including diversions of groundwater that supports them, to maintain protected flows and elevations
- Sustainable groundwater pumping should minimize impacts to groundwater flow directions in areas where groundwater contamination has, or may, result in risks to the public health

Results suggest that the region might sustainably withdraw approximately 400-500 million gallons of groundwater per day in areas where high capacity wells currently exist (Appendix 4). However, even when groundwater withdrawals are less than that, local limitations may still exist due to proximity of sensitive local features such as neighboring wells or a trout stream.

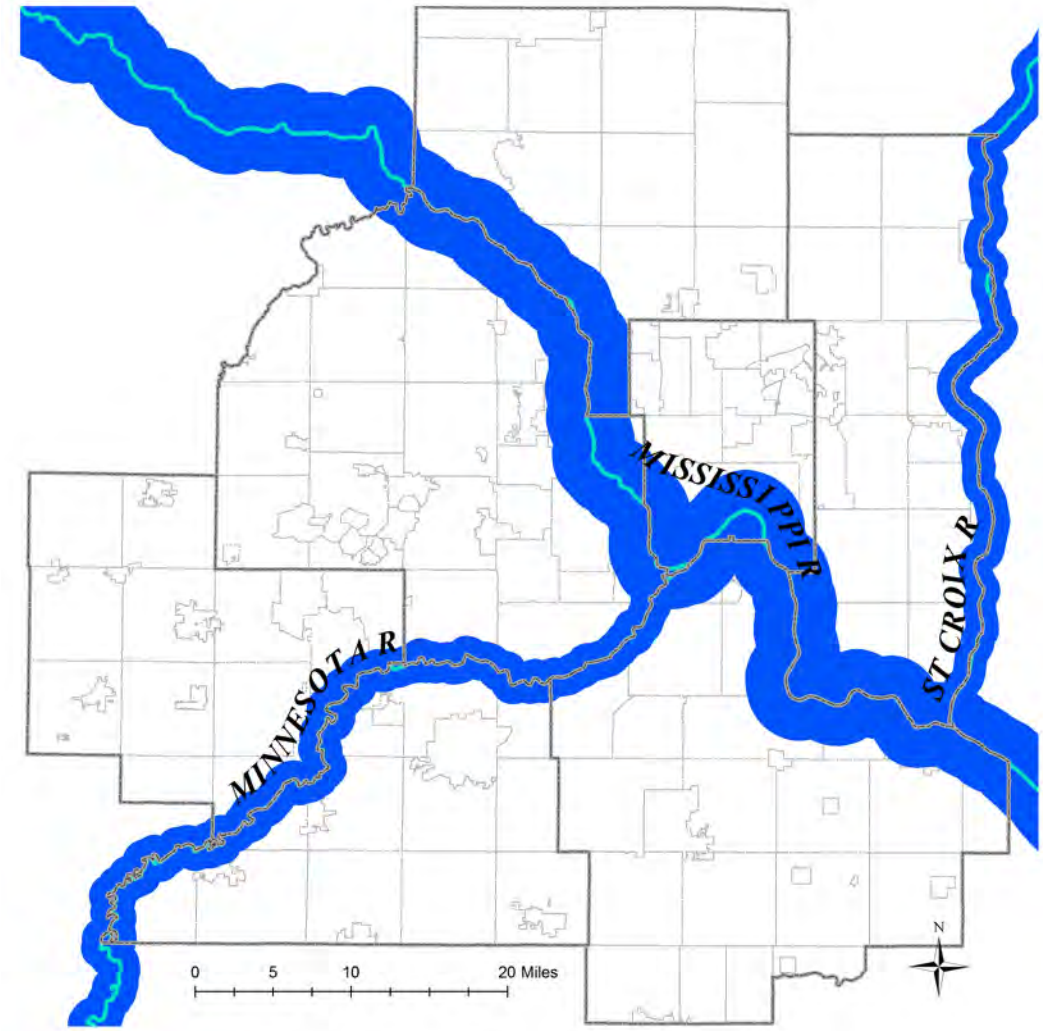
This calculation is an estimate of sustainable withdrawals, and can be used as a guide to regional water supply management. Additional data produced by expanded monitoring and aquifer analysis can be used to refine this estimate. The result is most sensitive to the factors used to define sustainable conditions. This type of modeling approach may be a useful tool to evaluate how

changing definitions of sustainability affect our understanding of water supply availability. Chapter 7 includes a process to continue this type of evaluation in partnership with communities and other stakeholders.

Surface water

The region's most visible water supply source is its surface water. Three major rivers, hundreds of streams and ditches, and thousands of lakes and wetlands provide varying amounts of water. This Master Water Supply Plan focuses primarily on one surface water source, the Mississippi River, but also provides information about two other large potential sources: the Minnesota River and the Saint Croix River (Figure 16).

Figure 16. Metro area's three major rivers, sized relative to the amount of flow that is likely to occur at least 90% of the time.



Use of the Minnesota, Mississippi and Saint Croix rivers is limited by a variety of climatic, economic, water quality, regulatory, and ecological reasons.

For example, while average annual flow for the Minnesota (at Jordan, MN), Mississippi (at Anoka, MN) and St. Croix (Stillwater, MN) rivers are 4,200; 9,000; and 3,100 MGD respectively, flow varies considerably through time. 90% of the time, flow in the Minnesota River at Jordan exceeds 320 MGD; flow in the Mississippi River at Anoka exceeds 1,940 MGD; and flow in the St. Croix River at St. Croix Falls exceeds 1,290 MGD (Dadaser-Celik and Stefan, 2009). Another way to consider low flow is the "7Q10" value. This value refers to the lowest consecutive seven-day flow that a river experiences on

average at least once every 10 years, and it has been used to define low flows for the purpose of setting permit limits. The Minnesota Pollution Control Agency has established The 7Q10 value for the Minnesota River near Jordan is 175 MGD (272 cfs).

Low flow in the Mississippi River is of particular concern and is included in the *State Drought Plan*, which includes a matrix of drought phase triggers. When flow is less than 2,000 cubic feet per second (1,293 MGD) for five consecutive days, public water suppliers and other water users using the Mississippi River implement appropriate conservation measures. Should flow fall below 1,000 cubic feet per second (646 MGD) for five consecutive days, all public water suppliers in the Twin Cities metro area implement mandatory water use reductions with the goal of reducing water use to January levels (Minnesota Department of Natural Resources, 2009).

Much discussion about these limits followed the 1988 drought. Critical flow of the Mississippi River was determined to be a flow that supports basic needs for water supply, power and navigation; a minimum flow of 554 cubic feet per second (358 MGD) is needed for these purposes (Metropolitan Council, 1990). Work done by the U.S. Geological Survey indicate that there is less than a 1% probability of flow on the Mississippi River falling below 600 cubic feet per second in any give year; the recurrence interval for flow less than 600 cubic feet per second is 100 years (Kessler and Lorenz, 2010).

Stormwater

Currently, the State of Minnesota does not have a state-specific code applicable to stormwater harvesting and reuse. The MPCA has developed some guidelines for the use of reclaimed water, and the Metropolitan Council has summarized these and other information in its *Stormwater Reuse Guide* (Metropolitan Council, 2011).

Because of its direct tie to precipitation, stormwater is not consistently available for reuse, so storage is required to ensure water is available when needed. The amount of stormwater available at any given location is also a factor of the size and amount of impervious surface in the area contributing to the site.

More work is needed to evaluate the potential for stormwater reuse across the region, but a rough estimate can be made of the amount of stormwater available for reuse, based on some simplifying assumptions:

- A one acre parking lot generates 27,000 gallons of runoff during a 1” rainfall,
- An average of six 1” rainfall events occur on average in recent years, and
- 245,909 acres of impervious area exist in the metropolitan area.

Given those assumptions, approximately 100 million gallons per day of stormwater water could be available in the region. Stormwater reuse projects are not tracked consistently through the region, so it is uncertain how much stormwater reuse currently exists.

Reclaimed wastewater

Opportunities to use reclaimed wastewater as a non-potable water source exist throughout the region. Reusing treated wastewater to supplement groundwater and surface water as sources of water to support regional growth, where economically feasible, will promote sustainability goals. Feasibility depends on site-specific factors. For instance, proximity to treatment plants, regulatory requirements, water quality needs, distribution system requirements, and the benefits of reuse from a total water perspective all contribute to feasibility. Reclaimed wastewater is one of the region’s underutilized water supply sources.

The amount of reclaimed wastewater available for reuse is ultimately limited by the amount of wastewater produced and the number and size of wastewater treatment facilities. The Council

currently operates eight wastewater treatment plants, with an average flow of 250 million gallons per day. The design capacity of these plants if 358 million gallons per day. Planned 2040 system capacity is 372 million gallons per day and long term (beyond 2040) is 500 million gallons per day.

The effluent quality and level of treatment varies among the existing wastewater treatment plants. Additional treatment would generally be needed to match reclaimed water quality requirements.

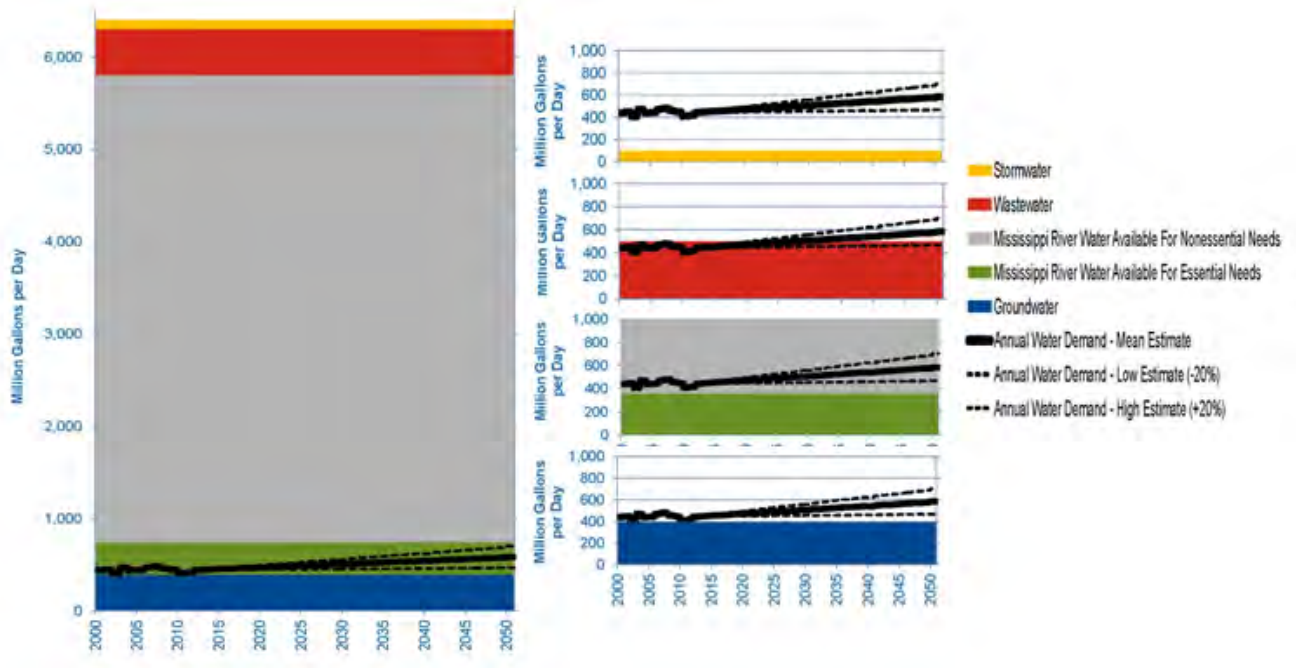
Cost is a key factor in evaluating the feasibility of wastewater reuse. In 2014, Metropolitan Council evaluated reclaimed water demand, water quality needs, and estimated costs in the Southeast Metro. Potential users included in a possible reuse scenario included Flint Hills Refinery, residential and commercial toilet flushing and irrigation in areas of growth between 2010 and 2040, and agricultural irrigation north of and east of the Empire Wastewater Treatment Plant. The treatment and distribution system incremental costs (above the existing treatment) to provide reclaimed water ranged frm $5 to $10 per 1,000 gallons. Key factors driving costs are treatment requirements, distribution costs, and seasonality of use.

Estimated amount of water available to the metro area

Considering that the metro area has access to water from several sources including stormwater, reclaimed wastewater, surface water and groundwater and based on our current understanding of water supply sustainability, the region can sustainably access about 4 billion gallons per day.

Although the region generally has enough water to meet current and future demand from all available sources, each source is limited and is vulnerable to a variety of factors. The only single source capable of supplying the region's demand is surface water, which is also the most vulnerable to drought and contamination.

Figure 17. Comparison of historical and projected needs versus sustainable sources.



5 Key Water Supply Issues

Introduction

Our region is growing and our environment is changing. The region cannot take easy access to water for granted, and water supply planning should be done when there is time to develop workable solutions, not when a crisis threatens. Good planning now will keep our water supply safe and plentiful for generations to come. Regional planning will provide a comprehensive look at issues associated with cumulative impacts of individual cities decisions.

This chapter discusses the water supply issues the region faces and how they vary across the region, including regulatory considerations, water use, conflicts and well interference, aquifer decline, surface water and ecosystem impacts, contamination, uncertainty in aquifer properties, reliability and funding.

Regional mapping, monitoring networks, and modeling are used to characterize the issues discussed in this chapter. This information should be refined with more locally-specific information, if available, to better evaluate potential issues. The information is also summarized for each community in Appendix 1.

Water issues change across the region and through time

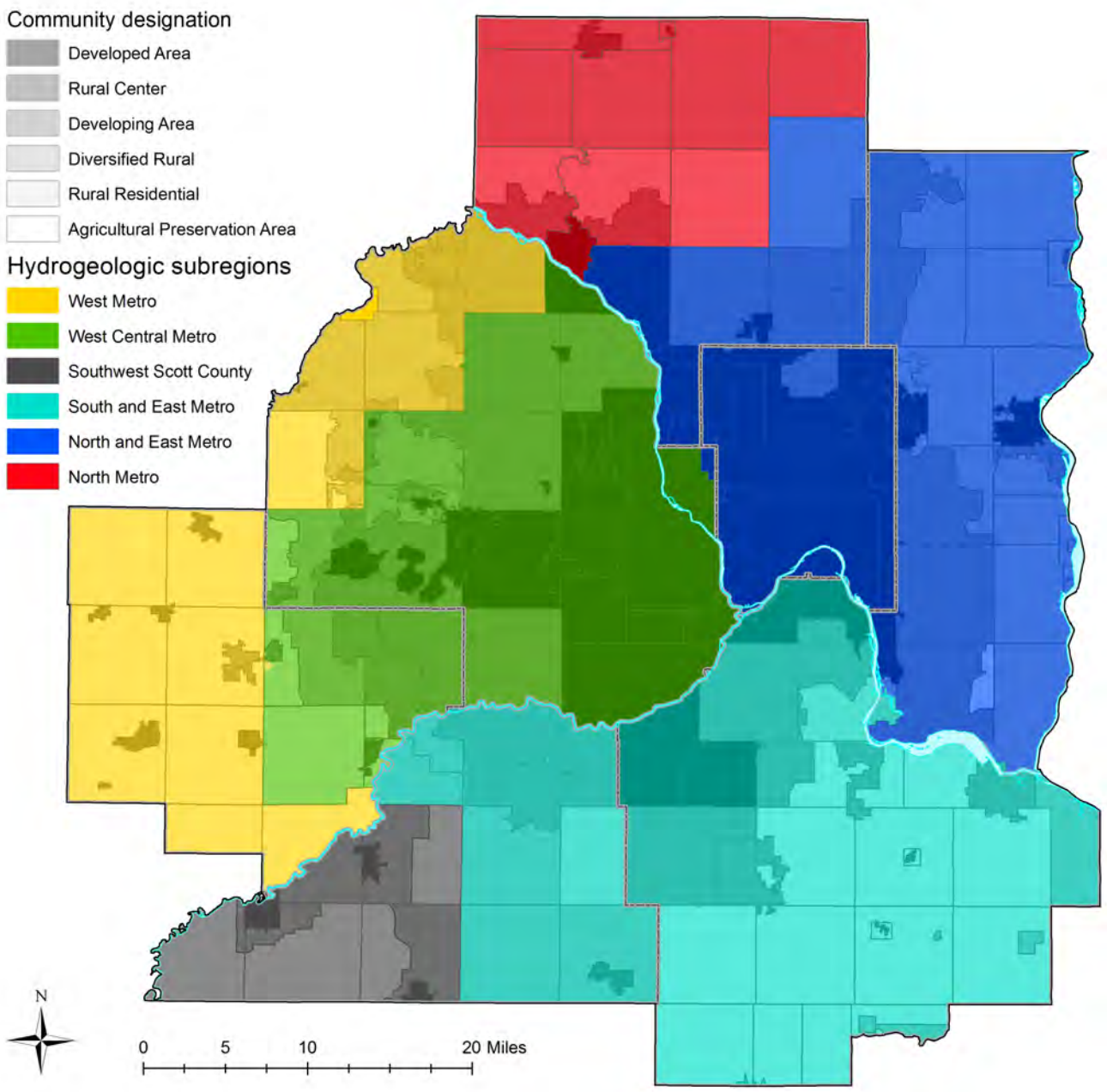
Water issues are different in different parts of the region, and they may vary over time. While water supplies – including a variety of aquifers and surface waters - are regionally abundant, they are not evenly distributed throughout the metropolitan area and may become limited over time due to hard-to-predict events like long term drought or contamination.

In addition, the state of public water supply systems varies greatly across the region. Some communities are fully served by aging water supply systems while others have just begun to develop public water supplies. Rural areas have different water supply and source water protection issues than their urban counterparts.

Our major rivers – the Minnesota, Mississippi, and St. Croix - transect the region, but most communities do not have direct access to these sources. The groundwater in the metropolitan area is not all connected – groundwater does not flow all the way from Anoka County to Dakota County and vice versa. Consequently, the amount of available groundwater is not uniform from community to community.

Figure 18 illustrates how hydrogeologic conditions and community development combine to create a patchwork of different water supply conditions across the region. Each color represents a different combination of aquifers and groundwater recharge and discharge areas. Different shading illustrates different community development patterns, where darker indicates communities served by public water supply systems and lighter indicates communities mostly served by private wells.

Figure 18. Hydrogeologic conditions and community development create subregional differences in water supply planning issues.



Metropolitan Council recognizes that sustainable water supply planning needs are different from community to community. The Council will work with communities to support information sharing and technical work that meets the various needs of water supply stakeholders in each of the metro area's hydrogeologic subregions.

Regulatory considerations

The regulatory complexity of water management in Minnesota has been identified as challenging for decades. Public water suppliers and communities have identified several challenges, including:

- Supplying, treating and distributing water to consumers in compliance with Safe Drinking Water Act standards, water appropriation permits and well code

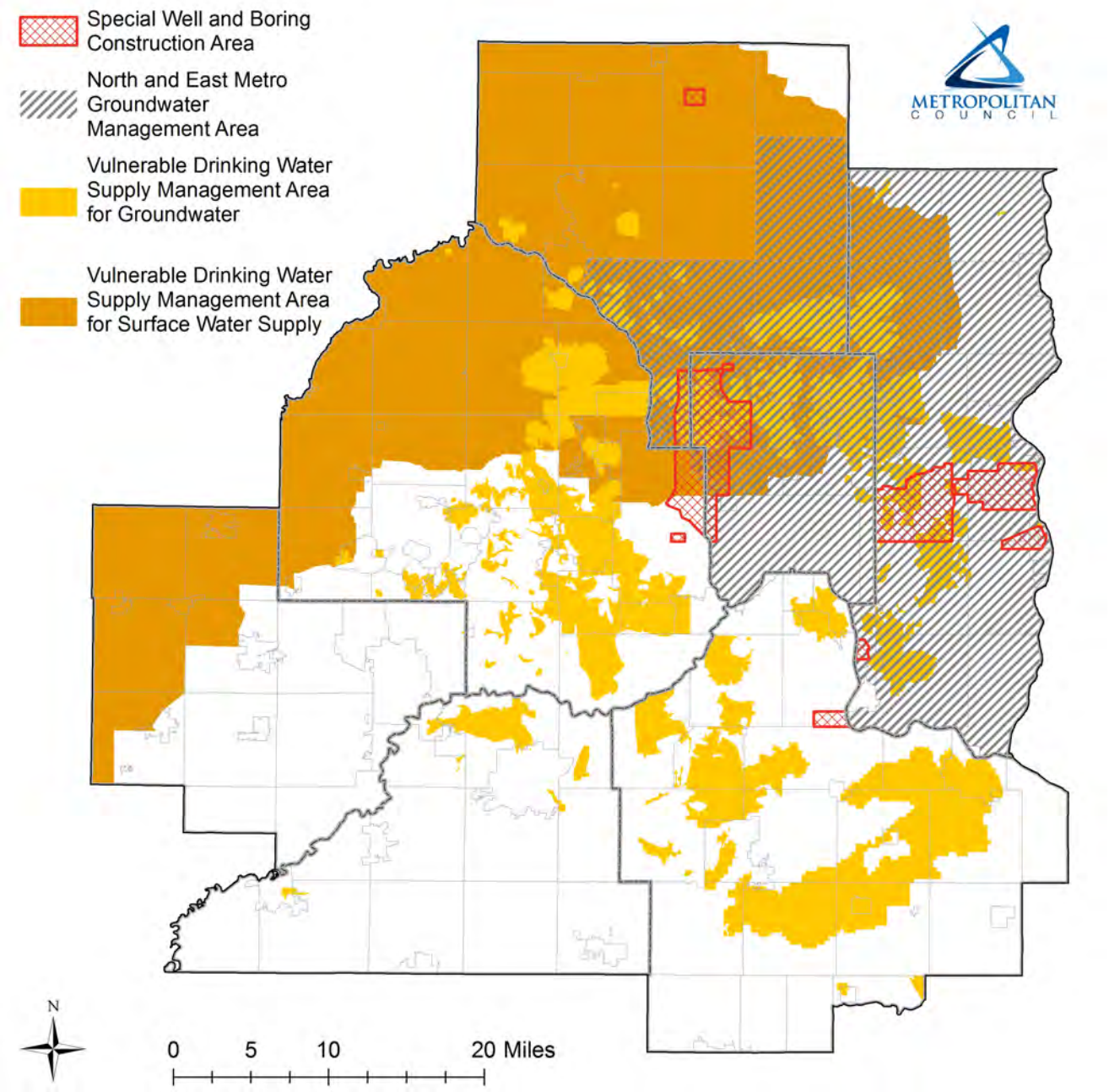
- Agency permit requirements that may contradict one another
- Source water protection guidance that limits stormwater infiltration, conflicting with increased requirements for onsite stormwater management
- Minnesota rules preventing use of wells for injection to enhance recharge
- Plumbing code that limits and causes confusion about how water may be reused

Where the following special management areas have been designated, the challenges raised above may be exacerbated:

- Groundwater management Area
- Special Well and Boring Construction Areas
- Vulnerable Drinking Water Supply Management Areas (DWSMAs)

Figure 19 illustrates DNR-designated Groundwater Management Areas (cross-hatched) and MDH-designated Special Well and Boring Construction Areas (red outlines) and Vulnerable Drinking Water Supply Management Areas for groundwater (light yellow) and surface water (dark yellow).

Figure 19. Areas where additional regulatory conditions exist due to documented issues or vulnerability.



Managing water demand

Water demand is a driving factor for water resource planning. Water demand is shaped by various socioeconomic and climate factors, but planning and maintaining efficient systems are common goals.

The following are indicators that changes in water supply system development and maintenance or demand management could result in significant water use reduction:

- Water that is not accounted for (non-revenue) makes up more than 10% of the total water use, which is a goal recommended by the American Water Works Association

- Residential per capita water demand is greater than 75 gallons per person per day, which is the goal recommended by the Minnesota Department of Natural Resources
- The trend in total per capita water use is not decreasing, which is a goal recommended by the Minnesota Department of Natural Resources
- A ratio of maximum demand day to an average demand day exceeds 2.6, which is the goal recommended by the Minnesota Department of Natural Resources

The challenges of water demand management vary throughout the region, primarily driven by differences in level of development. For example, individual public water suppliers vary in the amount of unaccounted water region based on different metering systems or the age of the infrastructure. New development may be associated with higher per capita use and peak summer water use as new vegetation is established. Older communities with aging infrastructure may have higher amounts of unaccounted for water use.

Water use conflicts and well interference

There are tens of thousands of wells in the region, supplying diverse users. Where water users compete, conflicts must be resolved – often a costly process. Water use conflict is defined in Minnesota Rules (part 6115.0740) as a condition where the available supply of water in a given area is limited by a competing demand that exceeds the reasonably available waters. However, even where there is adequate water for a proposed project, a well interference can occur if that project interferes with the ability to withdraw water from a public water supply well or private domestic well.

The following are specific indicators of increased risk of well interference:

- Documented well interference problems
- High volume water users in proximity to residential wells

Because private wells are pervasive in the metro area, there is a potential for well interference for all water users. Complaints about well interferences are reported to the Minnesota Department of Natural Resources (DNR), which then works to resolve the issue through the process set forth in Minnesota Rules (part 6115.0730).

Aquifer water levels

Aquifer levels are useful for providing information about groundwater flow directions, relationships between groundwater and surface water systems, and water levels near wells, so the issue of aquifer water levels is closely related to issues like water quality, surface water –groundwater relationships, and well interference. Monitoring networks provide information about current and past conditions, and modeling is a valuable tool to anticipate potential future conditions.

In several parts of the metropolitan area, *historical* DNR groundwater level monitoring data suggest long-term declines. Groundwater levels in other parts of the metro area have remained relatively constant over time. One example of long-term decline can be found in Orono, Minnesota where groundwater-level monitoring has documented declines of one foot per year in the Prairie du Chien-Jordan aquifer. However, water levels in the St. Peter aquifer in Roseville have generally trended upward since the early 1990s.

While some parts of the metro area have not yet experienced groundwater declines, existing data show that aquifer decline is an issue that needs to be addressed in parts of our region (figure 20). Aquifer decline issues vary throughout the region, primarily driven by differences in aquifer properties and level of development.

The Department of Natural Resources evaluates water level impacts on confined aquifers using the definition of safe yield found in Minnesota Rules (6115.0670). Those rules define safe yield as the amount of groundwater that can be withdrawn without degrading water quality or causing a continual

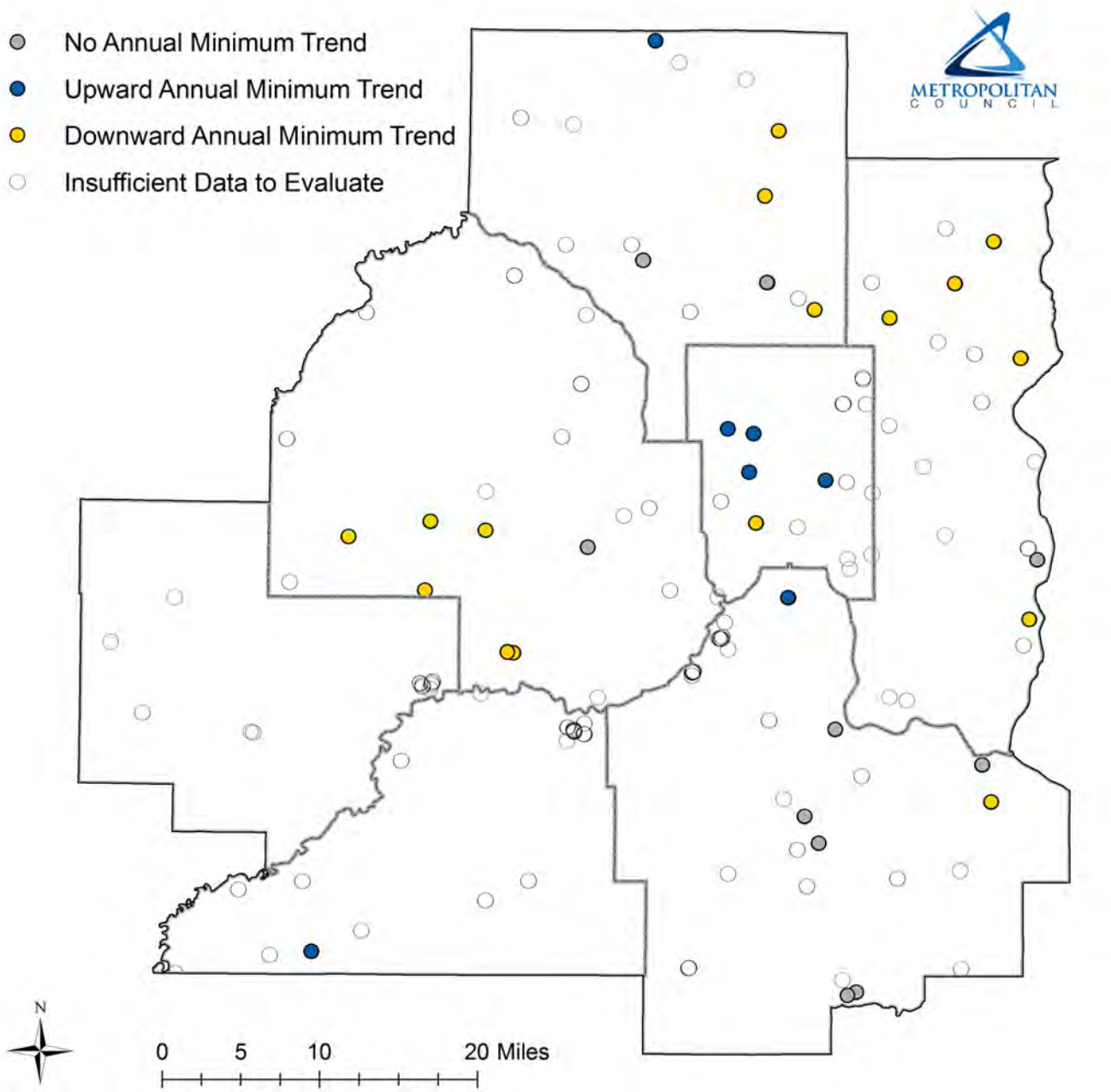
decline in groundwater levels that results in a change from artesian to water table condition. For unconfined aquifers, Minnesota Rules (chapter 6115) requires that withdrawal from the aquifer system does not exceed long term average recharge to the aquifer system. Also, Minnesota Statues (Chapter 103G) protects surface waters from harmful impacts to groundwater withdrawal.

The following are indicators of increased risk of significant aquifer water level decline:

- DNR observation well data documents a declining trend in aquifer levels, suggesting groundwater withdrawals exceed safe yield amounts, as defined above
- Regional groundwater flow modeling highlights areas where the range of projected 2040 water demand may exceed safe yield amounts, as defined above, if current use patterns and water sources are used to meet that demand; this may be considered as a warning threshold to allow time for contingency plans to be in effect if water levels decline

Figure 20 is a map of DNR observation wells that monitor aquifer levels. Trends in annual minimum water levels were developed for wells with complete records between 1993 and 2012. Blue circles indicate an upward trend in the annual minimum water level during that time period. Yellow circles show a downward trend, and white circles indicate wells without enough data to evaluate trends. This map does not identify the cause of these trends, which may represent aquifer response to climate variability or groundwater pumping or both. Regardless of the cause, however, groundwater in areas of downward trends should be reviewed regularly and water levels in nearby wells monitored to prepare for any needed management changes.

Figure 20. Active DNR observation well and trends in annual water level minima (1993 – 2012).



Regional groundwater flow modeling (Metro Model 3) is a tool that allows water supply planners to consider a range of potential *future* aquifer levels under a set of planned and alternative water demands and sources (Appendix 3). Metro Model 3 is a planning tool, not a regulatory tool, and it provides information to support regional planning and cooperation to ensure sustainability.

Regional groundwater modeling, which simultaneously evaluates the combined impacts of all wells in the region, suggests that our current (2015) plans for water supply are likely to cause further declines in aquifer levels.

Figure 21 is a map of Metro Model 3 model scenarios illustrating predicted aquifer declines under projected 2040 groundwater pumping conditions, which are expected to fall within a range 20% above or below the 2040 projection described in Appendix 2:

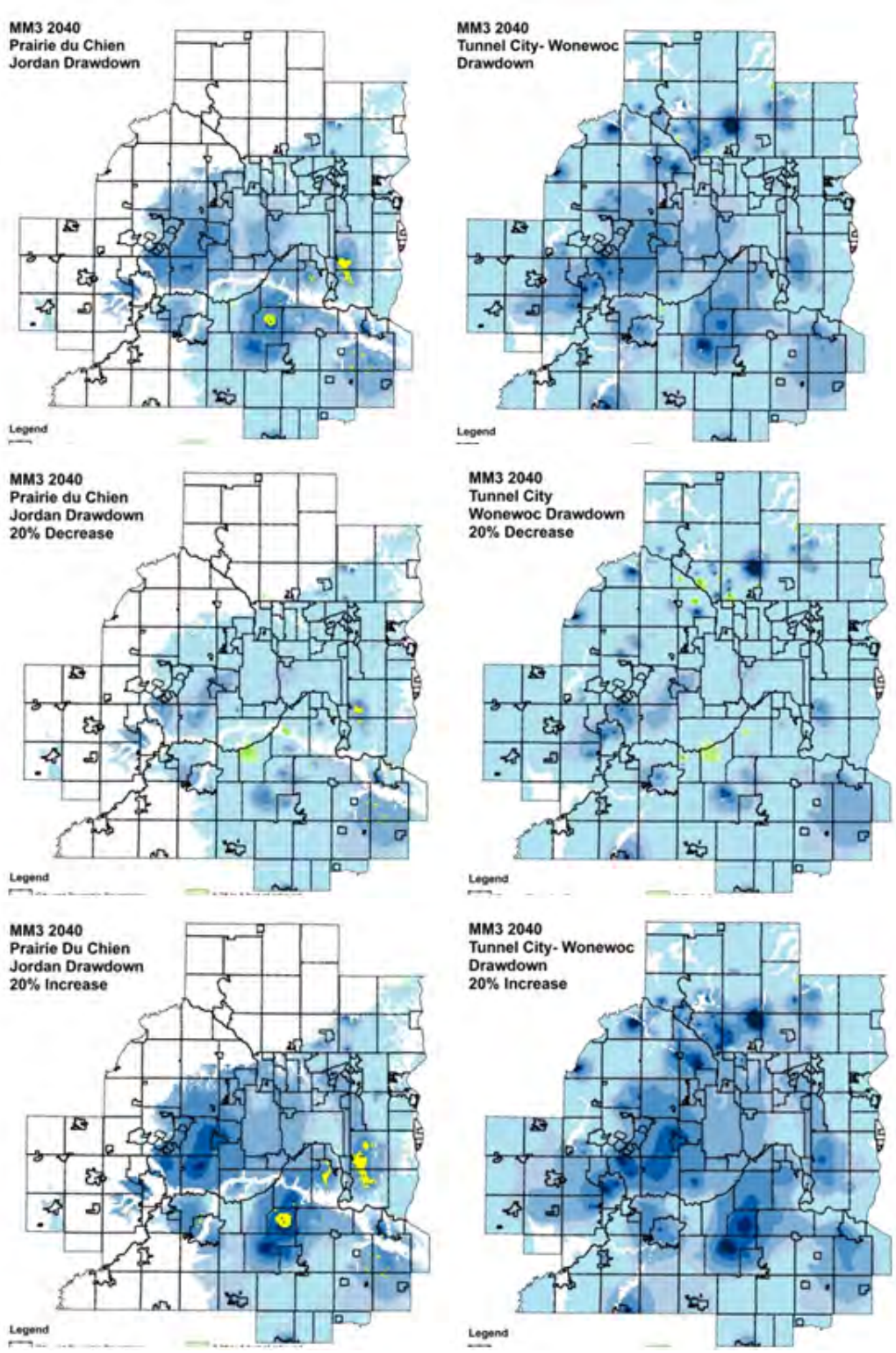
- Prairie du Chien-Jordan aquifer (left column)
- Water Table aquifer under sensitive surface waters (middle column)
- Tunnel City-Wonewoc aquifer (right column)

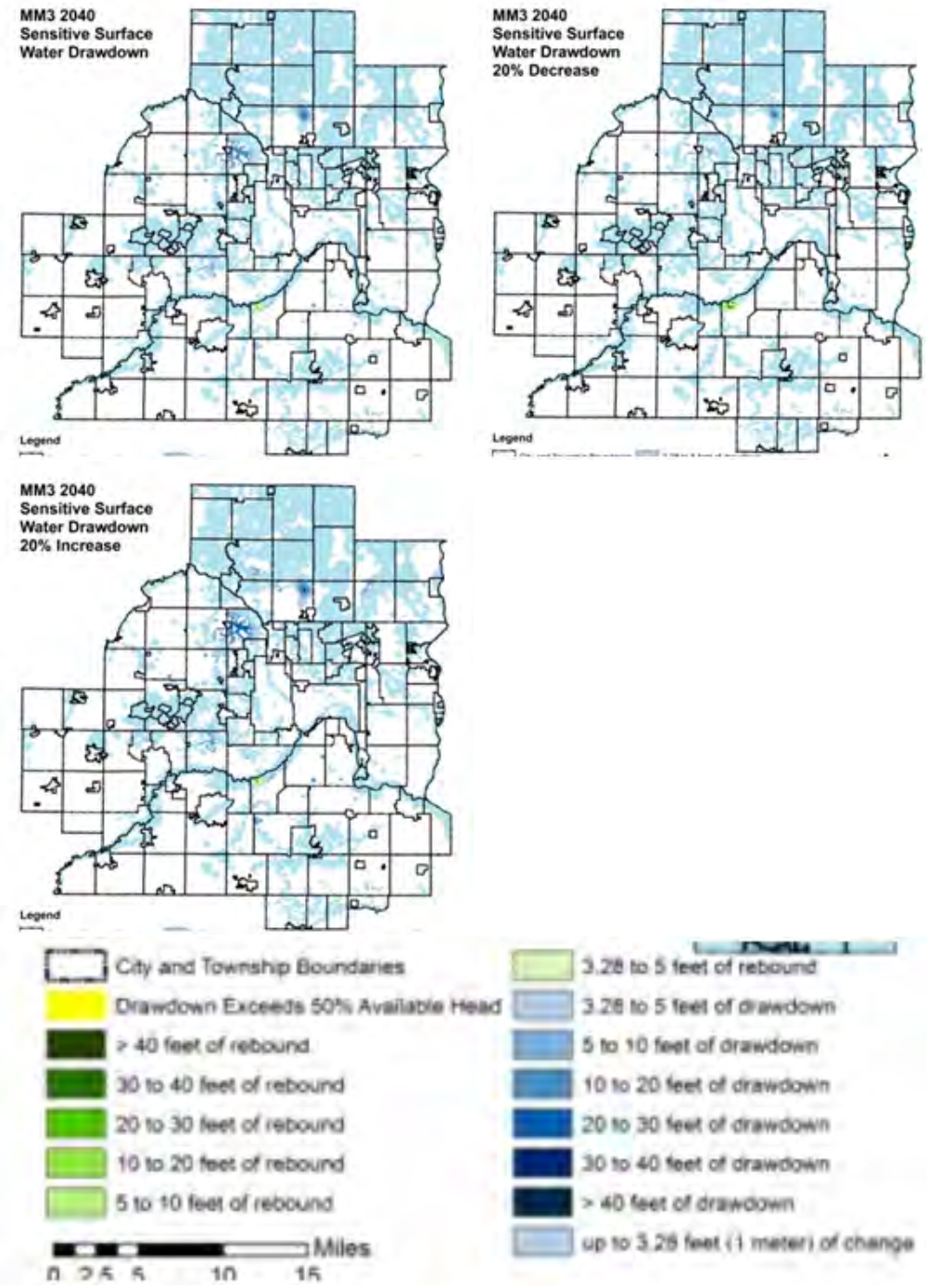
On the map:

- Green areas show areas where water levels are likely to rise compared to baseline 2010 pumping conditions
- Blue-green areas illustrate places that are likely to experience relatively minor or no water level decline
- Darker blue shows areas where water levels are likely to drop the most
- Yellow illustrates where confined aquifers are especially sensitive to water level declines and where local monitoring, analysis and planning should be done to ensure that groundwater pumping does not exceed safe yield conditions, as defined in Minnesota Rules (part 6115.0630)

These model results include some uncertainty, which is discussed later in this chapter. The regional groundwater flow model, and the water demand projections it evaluates, provide useful information to consider as part of regional growth planning; it is the best tool available to illustrate “the big picture” pattern of aquifer decline that may occur if 2040 demand is supplied solely by currently (2015) planned sources.

Figure 21. Scenarios of aquifer and water table declines from Metro Model 3 groundwater model.





Groundwater-surface water relationships

A regional evaluation of hydrogeologic conditions suggests that about half of the surface water features in the metropolitan area are likely to be directly connected to the regional groundwater flow system (Figure 22) (Metropolitan Council, 2010). When groundwater near one of these features is pumped excessively, water levels in the surface water feature may decline and water quality changes may occur.

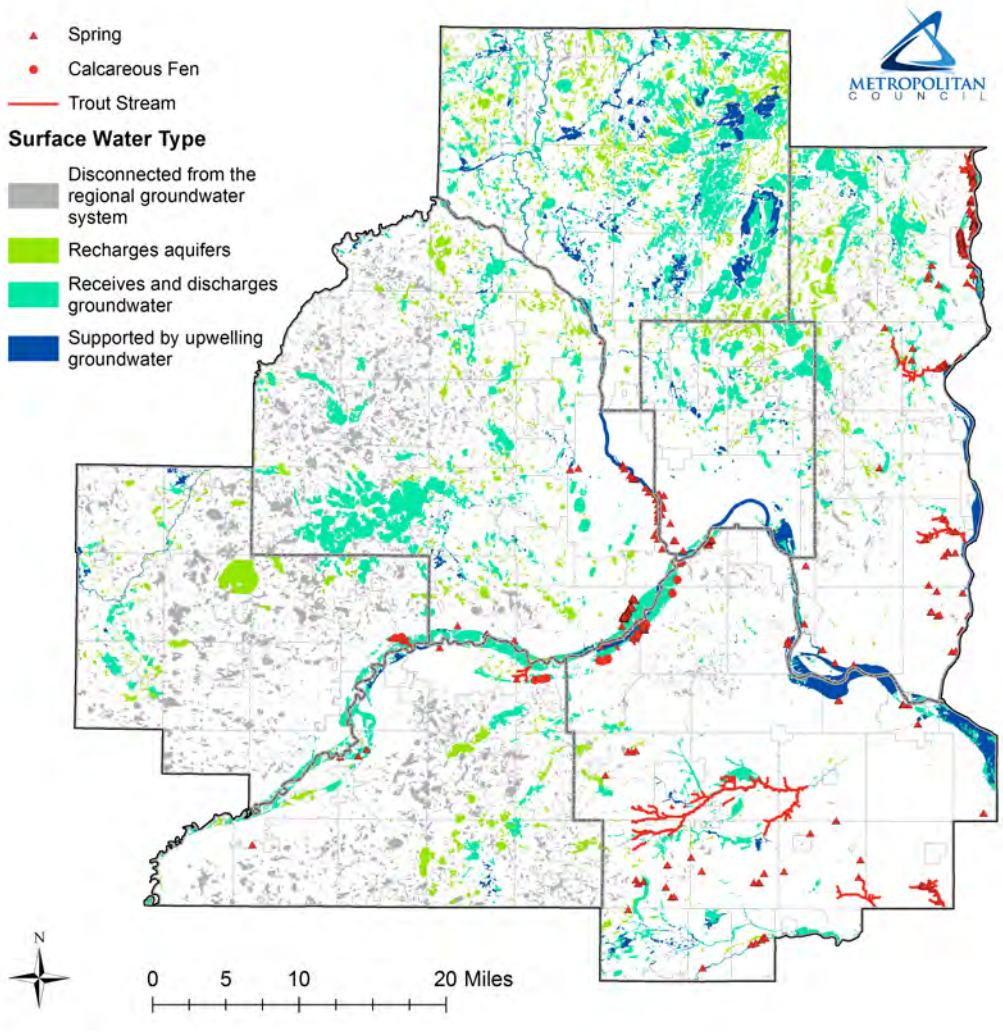
Some examples of surface waters under the influence of groundwater include:

- Itaska Lake in Anoka County
- Seminary Fen in Carver County

- Vermillion River in Dakota County
- Lake Minnetonka in Hennepin County
- Vadnais Lake in Ramsey County
- Savage Fen, Eagle Creek and Boiling Springs in Scott County
- Valley Creek in Washington County

Surface water impacts vary throughout the region, driven by differences in the level of development and by different hydrogeologic conditions that shape groundwater and surface water interactions.

Figure 22. Surface water features likely connected to regional groundwater flow system.



Minnesota Rules (6115.0670) specify that appropriation from groundwater shall be limited if the commissioner of the Department of Natural Resources determines that a direct relationship of groundwater and surface waters exists such that there would be adverse impact on the surface waters. Minn. Stat., Sec. 103G.287 specifies that the applicable laws protecting surface water uses in Section 103G.285 apply to groundwater uses where there will be a negative impact on surface waters from groundwater pumping.

The following are groundwater-dependent land or surface water features at increased risk, depending on their proximity to groundwater pumping:

- State-designated trout streams

- State-designated calcareous fens
- Springs
- Surface waters where hydrogeologic conditions suggest a connection between groundwater and surface waters such that there is a potential to impact surface water levels and stream flows – these may include: rivers, lakes and wetlands

These indicators should not be considered regulatory cut-offs. Rather they are to help provide information about planning expectations, so that there are fewer surprises when permits are requested or plans are made. Where groundwater and surface water are likely to interact, additional monitoring and assessment may be needed to evaluate impacts of increased groundwater pumping or stormwater best management practices.

Water quality

For several communities, water quality is a more challenging issue that water quantity. A recent study estimated $0.7-12 million in costs (present values over a 20 year horizon) to address the increased risk of nitrate contamination of private wells (Keeler and Polasky, 2014).

Public water suppliers are responsible for providing water that meets Safe Drinking Water Act and other state requirements. The Minnesota Department of Health is the responsible agency for all public and private water quality issues. Depending on potential contamination sources, whether the system uses wells or surface water, depth to wells, geology and past test results, the Minnesota Department of Health may test a public water supply for up to 118 different contaminants.

Surface water and groundwater supplies are susceptible both to chronic and acute contamination from natural and human-produced sources. Spills in the Mississippi River may affect the Minneapolis Water Works and Saint Paul Regional Water Services systems; large industrial contamination plumes have affected many groundwater users, and nitrate contamination is a considerable issue in some parts of the metropolitan area such as Dakota County.

Chronic contamination in both surface water and groundwater can have long-term public health and economic consequences. While chronic contamination of municipal supplies can often be treated once it is discovered, treatment costs may cause significant price increases for consumers and may, in severe cases, limit use of the water source. All costs associated with treating known contaminants in a public water supply are borne by that system. Private well owners also face considerable costs when groundwater supplies are contaminated.

The following points are important to consider when evaluating risk of water supply contamination:

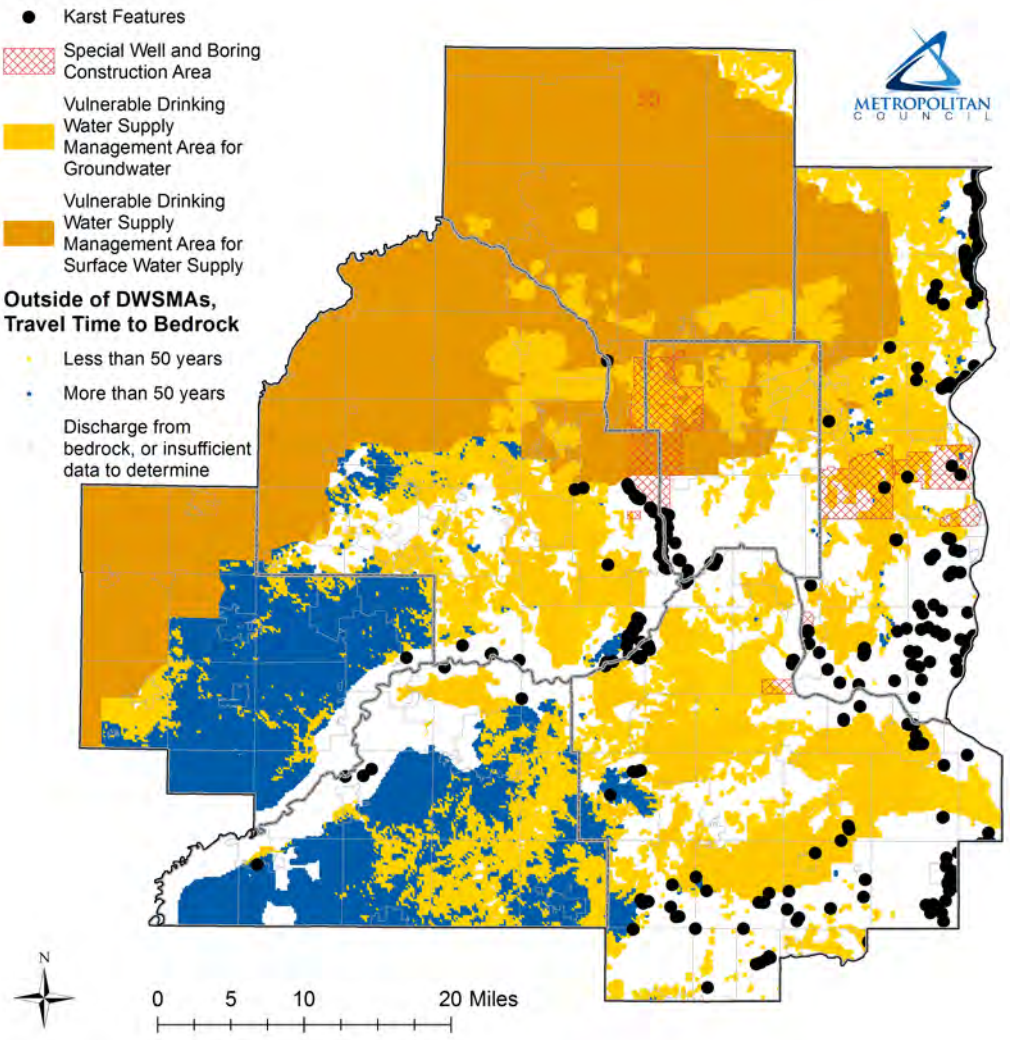
- Proximity to known areas of groundwater contamination, such as Special Well and Boring Construction Areas
- Proximity to designated Wellhead Protection Areas, Drinking Water Supply Management Areas, or Source Water Protection Areas
- Proximity to karst features such as sinkholes, which provide direct connections between land surface and underlying aquifers
- Estimated vertical travel time from land surface to bedrock aquifers

Efforts to protect and manage water supply quality (both groundwater and surface water) should consider, as shown in Figure 23:

- Vulnerable source water protection areas – for surface water (dark orange) and groundwater (light orange)
- Designated Special Well and Boring Construction Areas (red cross-hatched areas)
- Karst features (black dots)

- The relative amount of time it takes for spills or infiltrating stormwater to reach bedrock aquifers. Blue areas take more than fifty years; yellow areas take less than 50 years; white areas have insufficient data to evaluate

Figure 23. Characteristics of land and geologic features to be considered in protection and management efforts.



Contamination issues vary throughout the region, primarily driven by differences in hydrogeologic setting and in level of development. The most cost-effective way to address contamination is usually to prevent it through source water protection.

Uncertainty regarding aquifer productivity and extent

Parts of the region have limited information about aquifer productivity and extent. There is local and regional benefit in filling these information gaps. Partners such as the Minnesota Department of Natural Resource, the U.G. Geological Survey, the Minnesota Department of Health, communities and others have an important role to play in directing resources to install monitoring wells, update geologic atlases, and conduct aquifer tests.

The following are some indicators of increased uncertainty regarding water supply source sustainability:

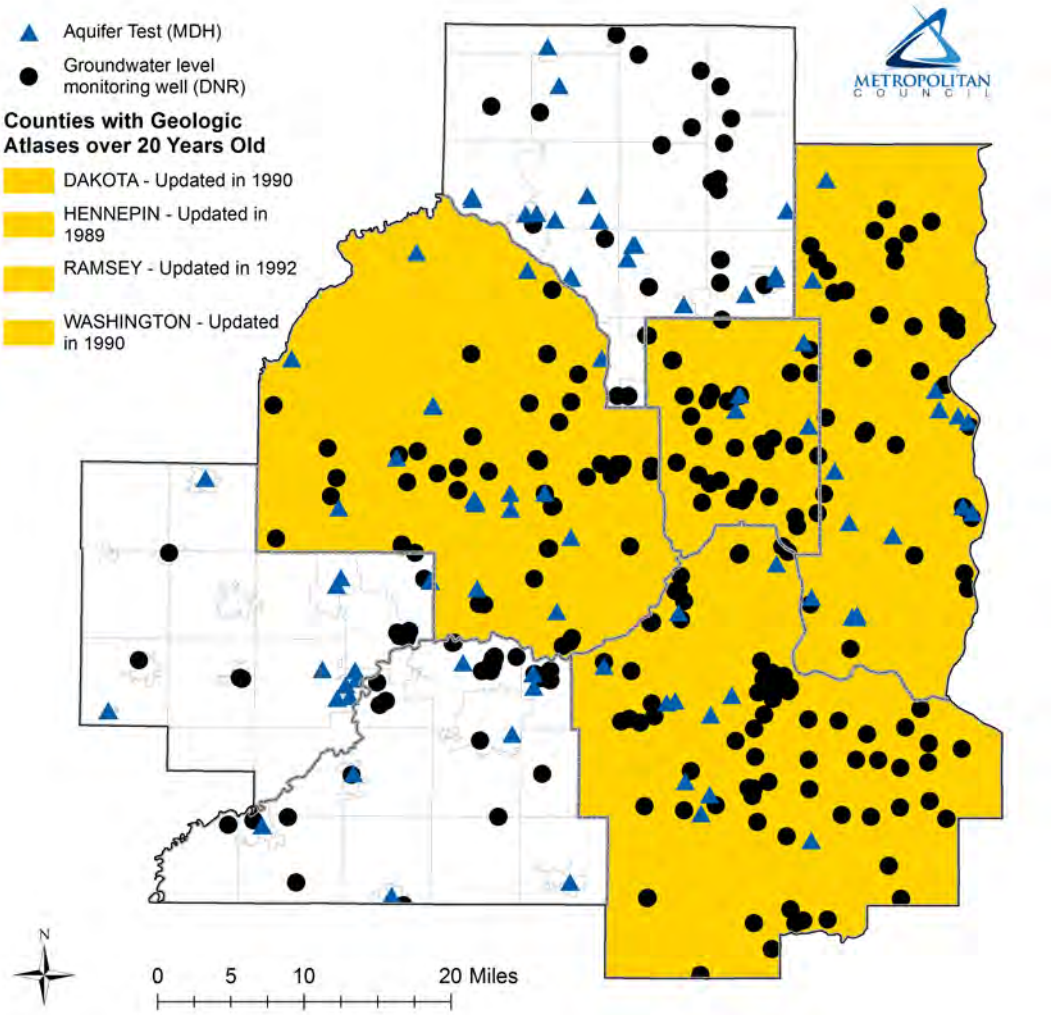
- No aquifer test in the supply aquifer has been performed within 1.5 miles of the community
- No long-term observation well data available for areas within one mile of the community

- The most recent geologic atlas is over 20 years old

Aquifer uncertainty varies throughout the region, primarily driven by differences in available data. Where wells have been drilled, for example, more data exists to support geologic mapping and other water supply assessments. Figure 23 shows the locations of:

- DNR observation wells (black circles)
- MDH aquifer tests conducted by the Minnesota Department of Health (blue triangles), and
- Counties with geologic atlases that are over 20 years old (yellow)

Figure 24. Indicators of uncertainty about aquifer sustainability.



Reliability of water sources

Fifty-two communities in the metropolitan area use only one source (either groundwater or surface water) to supply all of their water demand. Major sources in the region include the Mississippi River, four major aquifers, and potentially the reuse of stormwater and wastewater.

While communities already implement federal and state regulations and programs to identify and establish protocols for protecting the safety, security and reliability of their water supplies, there may be opportunities in some areas to improve the protection of water supplies as a priority for ensuring water supply reliability in the region.

The following may be indicators of reliability issues:

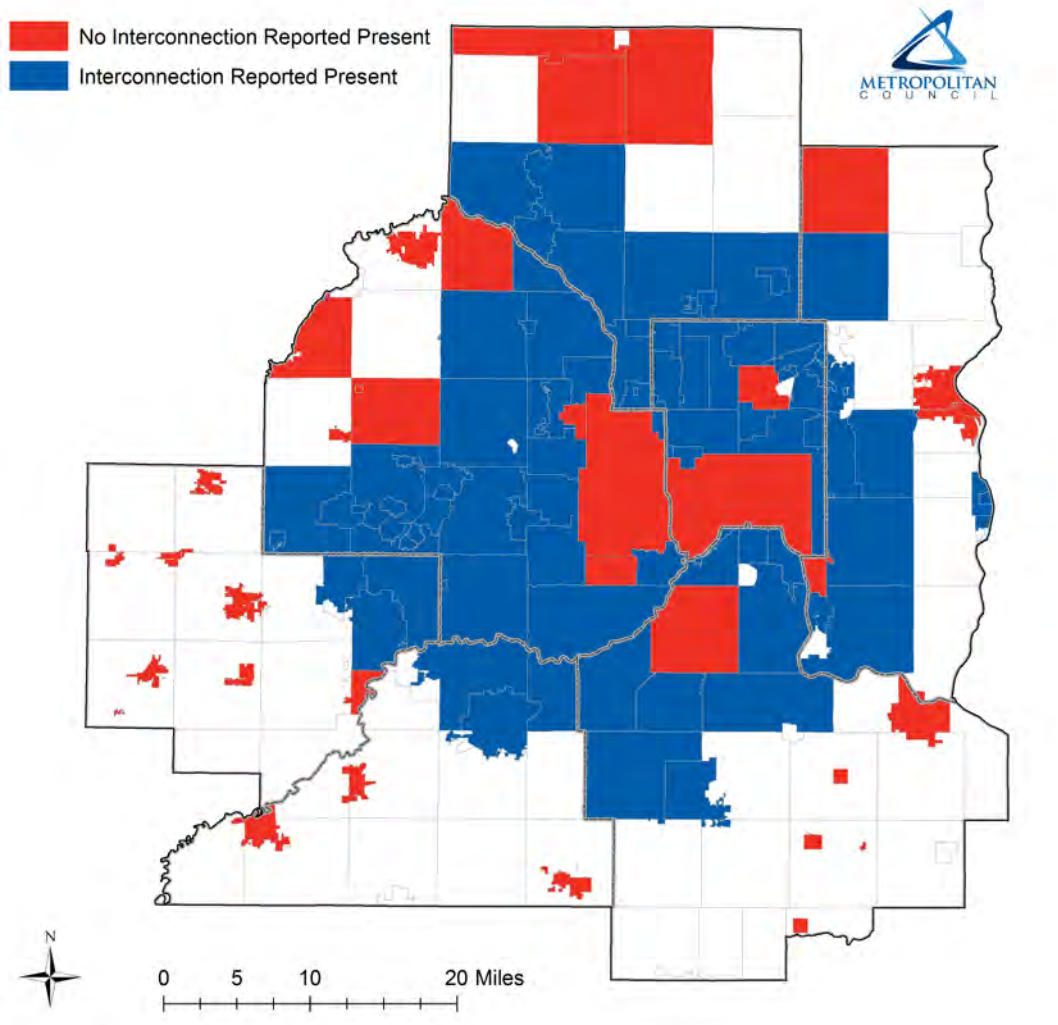
- Water supply system draws from only one water supply source, limiting back-ups in case of emergency
- No permanent emergency interconnection exists

Reliability issues vary throughout the region, primarily driven by differences in hydrogeologic conditions and level of development.

Figure 25 shows whether communities in the metro area have reported a connection to more than one water supply source (interconnection):

- Communities in blue have reported interconnections.
- Communities in red do not have interconnections.
- Communities in white do not have a public water supply system.

Figure 25. Water supply interconnection status by community.



Funding/finance

High-quality drinking water and wastewater treatment systems are essential to public health, business and quality of life. These water system investments are a critical, and costly, component of community

planning. Costs include planning and design, capital costs, operation and maintenance costs, and costs to monitor and report compliance with regulatory requirements.

Going forward, these costs are expected to increase. The American Water Works Association and others have documented that water and wastewater infrastructure in North America – including Minnesota - is aging and that many communities and wastewater treatment providers must significantly increase their levels of investment in its repair and rehabilitation to protect public health and safety and to maintain environmental standards.

Public water suppliers, wastewater utilities, community planners, and elected officials stress the need for financial support for infrastructure changes to achieve sustainable solutions. Some examples of challenges include:

- Rebuilding and building new infrastructure
- Mitigating the revenue impact of decreased water demand, due to water conservation, on existing systems
- Addressing the need for more intense monitoring and treatment in systems with mixed water sources
- Lack of reliable and adequate funding sources for implementing many stormwater reuse opportunities

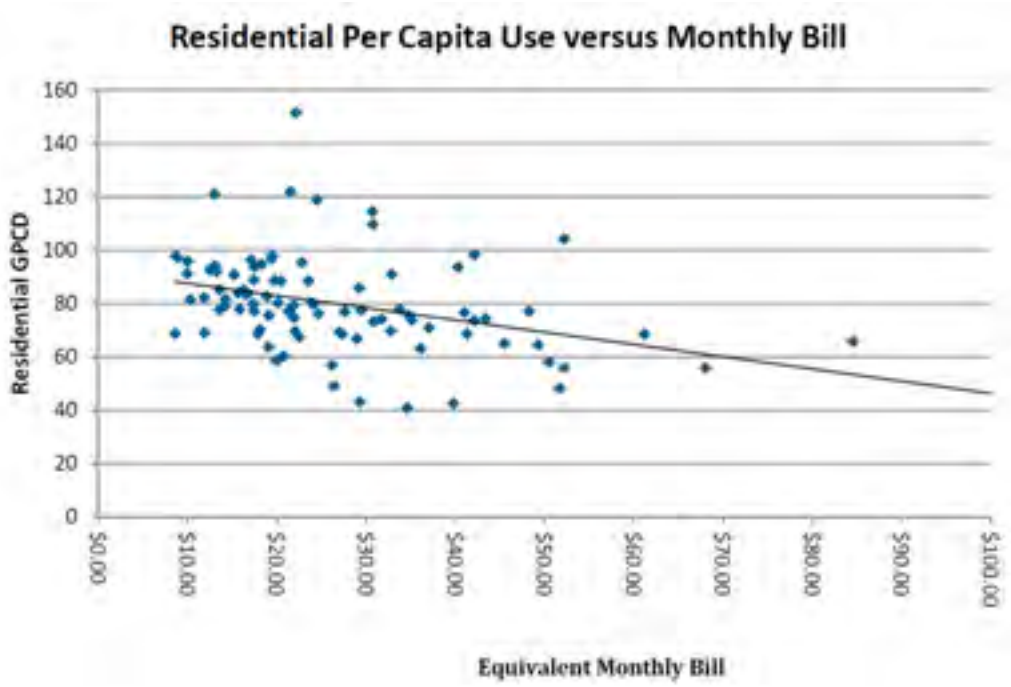
The *2015 Drinking Water Revolving Loan Fund Project Priority List* illustrates the scope of the need; the list includes requests from eight metropolitan communities for over $67 million dollars to support water supply infrastructure improvements.

To provide water supply services, public water suppliers also use a variety of rate structures. A 2015 survey of public water suppliers documents the range of rate structures, provides information about how rates among communities compare, and investigates the impact that rates have on water use (Metropolitan Council, 2015d). When water rates in the metro area are normalized to one another, the monthly household bill ranges from $8.60 to $123.31, with an average of $29.10.

For comparison, the monthly average retail rate per household for wastewater service in the Twin Cities metro area was $18.00 in 2011.

There is evidence that higher monthly water bills are correlated to lower residential per capita water use (Figure 26).

Figure 26. Correlation of monthly water bills to residential per capita water use.



Infrastructure costs are one of the biggest hurdles to expanding the use of surface water and reclaimed wastewater in the region. Water treatment requirements for surface water are usually higher than for groundwater, and most water users are located considerable distance from surface water and reclaimed wastewater sources. Even where the treatment costs are similar between groundwater and surface water, it is usually more financially feasible to gradually expand a groundwater supply system than to secure the up-front costs to construct a complete surface water system.

There are currently only two surface water treatment plants in the region, operated by Minneapolis Water Works and Saint Paul Regional Water Services. Investing in additional surface water treatment plants is a large cost. The capital cost of a new surface water treatment plant to serve select communities in the north and east metropolitan area was estimated to be $44-291 million dollars. Operations and maintenance costs for such a system are estimated to be $4-9 million per year, proportioned based on relevant Saint Paul Regional Water Services costs. Distribution costs are equally challenging. For example, an assessment of the costs and benefits of using the St. Croix River to augment White Bear Lake highlights the high costs of installing forcemain and the energy needed to pump water from the river valley up to potential users (Metropolitan Council, 2014b). In 2015, the cost to construct a 50 million gallon per day treatment plant along the Minnesota River was estimated to be $150 million (Metropolitan Council, 2015b).

Costs to collect and store large amounts of stormwater can also be costly. For example, work in Dakota County suggests that capital costs for stormwater capture and use systems for over 500,000 gallons is approximately $150,000-1,500,000 depending on the use of stormwater ponds versus underground storage systems (Metropolitan Council, 2015b).

Key factors contributing to uncertainty

This chapter provides a regional screening of some key water supply issues. The information presented here can be used in local water supply planning and technical analyses, if work is not already underway.

The analyses conducted for this plan incorporate the best regionally available technical information to answer questions of water supply availability, and much of it was collected through local studies. The information in this chapter reflects guidance by a wide variety of stakeholders based on issues identified as important at this time.

However, uncertainty is a constant factor, several questions remain unanswered, and other questions will inevitably emerge over time. Water supply planning must be done in such a way that the plans can adapt to factors such as climate changes, technology and emerging contaminants, and changing cultural priorities and attitudes.

There are different types of uncertainties related to the issues discussed in this chapter. For instance, a distinction can be made between monitoring uncertainty and uncertainty regarding future conditions. Also, science has its limitations when dealing with complex societal problems where there are many system uncertainties, and where facts and values are intertwined. And insights may change over time as new information becomes available.

Water suppliers and planners work in a dynamic environment that requires ongoing action, even in face of less than 100% certainty. This process of "learning by doing" has also been called "adaptive management' - a structured, iterative process of decision-making, with a goal of reducing uncertainty via system monitoring.

Monitoring uncertainty

Monitoring uncertainty generally refers to how well measurements represent real world conditions. Factors that commonly contribute to monitoring uncertainty include imprecise or inaccurate measurement equipment, inadequate measurement frequency, the length of the monitoring record, and the spatial distribution of the monitoring sites.

When monitoring data is used to model hydrologic conditions, uncertainty in the data contributes to uncertainty in the model results. Informed decisions must be made about what data to include in model analyses and how to weight data with higher accuracy and precision more heavily than data with greater uncertainty.

The process to develop and calibrate the regional groundwater flow model (Metro Model 3) illustrates this approach. For example, multiple water level datasets were used to calibrate the model including well logs reported in the Minnesota County Well Index (CWI), DNR observation wells, and synoptic water level measurements made by the DNR and USGS. Data compiled from CWI have the most inherent error; however they have the largest geographic extent. Data from synoptic water level datasets and DNR observation wells have the least amount of error, but they are not available everywhere. All data was used to calibrate the regional groundwater model, but the CWI data was not weighted as heavily as the higher quality data (Metropolitan Council 2014d).

In addition to improving analytical results, a thorough examination of monitoring uncertainty identifies gaps in information where resources can be directed. For example, the process of calibrating Metro Model 3 highlighted the importance of expanding monitoring networks to assess the connection between surface waters and the regional groundwater system.

Predictive uncertainty

The most common focus for discussions of predictive uncertainty related to this Master Water Supply Plan is the Metro Model 3 (Appendix 3) and water demand projections that the model evaluates (Appendix 2).

Metro Model 3 is a tool that supports a flexible process for water suppliers and planners to explore a wide variety of different water supply approaches under a range of potential future conditions.

Model uncertainty comes from four main factors:

1. Conceptual framework uncertainty
2. Model parameter uncertainty
3. Calibration uncertainty
4. Predictive uncertainty

Metro Model 3 predicts future aquifer conditions under a projected range of water demand. Because it is a steady-state model, it does not represent water levels for a specific day and time. Instead, it is intended to illustrate where aquifer water levels will come to equilibrium under a given water budget (recharge, pumping, baseflow). In other words, it illustrates where things will ultimately end up.

This ability to compare regional groundwater impacts under different demand and source assumptions is what Metro Model 3 was designed, conceptualized, and calibrated for. It is used as a planning tool to inform regional planning, support this Master Water Supply Plan, and assess potential impacts associated with changes in regional pumping and/or land use change.

The single biggest contributor to predictive uncertainty is uncertainty in future water demand. There is some uncertainty about how many people will live in the metro, where they will live, how much water they will use, or if sources of water will remain the same. This is where input from city administrators and engineers is critical; no one knows the city and its water supply better than the city or utility staff. Therefore, Metropolitan Council has worked closely with city staff to learn more about population, population served, per capita water use, water sources, and well locations.

Appendix 2 describes the method used to evaluate future water demand. The process included an exploration of predictive uncertainty resulting from the variability of the historical data the projection was based on and the use of different projection methods. Based on this work, water demand projections are represented as a range of future conditions.

The Metropolitan Council recognizes the error in the model compared to the real world. This error can be minimized when comparing model output to model output. Drawdown shows you the change between two conditions, the starting and ending place doesn't matter as much as the difference between the two conditions. Even with model error, the model is a valuable tool for informing water supply planning in the region.

Table 2 - Uses for "out of the box" Metro Model 3

Acceptable	Marginally Acceptable*	Not Acceptable
Compare regional scenarios	General well field placement	Localized well field optimization
Compare sub-regional scenarios	Estimate groundwater/ surface water connections	Site specific evaluations
Identify areas where more information is needed	Wellhead protection plans	Predicting time dependant water table elevations
Identify possible problem areas		

*The model can be used as a "back of the envelop calculation" giving the user an idea of a starting place for further analysis.

Metro Model 3 supports a flexible process for water suppliers and planners to explore a wide variety of different water supply approaches under a range of potential future conditions. This type of

exercise can inform a broad range of discussions among local water supply providers and other partners about potential water supply approaches. Working collaboratively with the local providers will be the pathway to success in the area of sustainability.

Other sources of uncertainty

Uncertainty regarding predictions of future climate, technological capabilities and limitations, and future priorities are also important factors to consider when planning approaches to supply future water needs.

For example, longer growing season and increased risk of drought may change the region's water demand, sustainable limits on water supply sources, the severity and types of issues affecting the region's water supply sources, and the priorities set by decision makers.

The *2014 Minnesota State Hazard Mitigation Plan* concludes that it is clear that temperatures are rising and weather patterns are changing, with an increase in severe weather events and extreme precipitation. The impacts of this change on water supplies are not fully understood, however.

Many difficult-to-predict technological changes have significant implications for sustainable water supply management. Examples include the development of new chemicals which may or may not lead to new drinking water quality standards, advancements in our water quality testing laboratories that allow contaminants to be detected at very low levels, and new water treatment technologies that may allow for increased use of water sources previously thought to be unusable.

6 Moving Toward water Sustainability: Outcomes

Introduction

The Master Water Supply Plan's goal is a sustainable water supply for the region, which supports the broader regional vision of moving toward sustainability described in *Thrive MSP 2040*.

This chapter identifies some measureable outcomes that can be tracked to monitor progress toward the goal of sustainability. These outcomes will help reduce the water supply issues identified in Chapter 5.

Sustainable water use

This Master Water Supply Plan has a single overarching goal: The region's water supply is sustainable now and in the future. The region's water supplies will be considered sufficient and sustainable when:

- Sustainable amounts of groundwater are planned and use
- Demand exceeding sustainable groundwater withdrawal rates is supplied by the most feasible combination of conservation, surface water, reclaimed wastewater and stormwater reuse
- Legislative changes are made that align agency directions on all aspects of water supply

Regional groundwater modeling indicates that the maximum amount of groundwater that can be sustainably withdrawn in the region, if pumping is expanded in areas near existing high capacity wells, is approximately 400-500 million gallons per day. Subregional and local hydrogeologic conditions affect the amount of groundwater that can be withdrawn in different parts of the metropolitan area. Table 1 summarizes the subregional estimates of sustainable groundwater withdrawal rates. Demand above these rates may require new investments – either exploration of new well fields and expanded distribution or development of new sources and/or more aggressive water conservation.

Table 3 - Subregional estimate of sustainable groundwater withdrawal rates.

Subregion	Estimated Sustainable Groundwater Withdrawal Rate (MGD)	Difference between Estimated Sustainable Groundwater Withdrawal Rate and 2040 Projected Groundwater Withdrawal Rate	Key types of constraints on groundwater availability
North and East	115	Approaching	Groundwater-surface water interaction, safe yield
Southeast	130	Approaching or Exceeds	Groundwater-surface water interaction, safe yield
Southwest	4	Approaching	Groundwater-surface water interaction
Northwest	140	Approaching	Groundwater-surface water interaction, safe yield
North	20	Below	Groundwater-surface water interaction
West	15	Below	Groundwater-surface water interaction

The information presented above is a general estimate of the amount groundwater sustainably available in different parts of the Twin Cities metropolitan area. This information is intended to inform regional and sub-regional planning activities and to help track progress toward regional goals. At this scale, this information is not appropriate for using in local permit decisions. More information about the method used for this estimates is in Appendix 4.

Supporting Outcomes

Water conservation

Desired Outcomes:

That, as a region, the average total municipal (including residential, commercial, and industrial) per capita water use is 90 gallons or less per person per day; the ratio of summer to winter monthly water use is equal to or less than the 1990-1994 average ratio as discussed in Chapter 3; and the per capita residential water use is equal to or less than 75 gallons per capita per day.

Based on its policy on water conservation and reuse, the Council will work with partners to identify emerging issues and challenges for the region and to work together on solutions that include the use of water conservation.

Analysis of historical and projected water use and population data shows that decreasing the average total municipal per capita water use to 90 gallons per person per day, 2040 population growth could occur with no regional increase in water use by municipal public water supply systems.

By decreasing the summer versus winter monthly ratio to 1990s levels, the region could achieve a 15% reduction in total water use, reducing the need for infrastructure expansion for many communities.

Measures

- Regional average total municipal water use per person
- Winter versus summer water use
- Regional average residential water use per person

Increased collaboration

Desired Outcomes:

That work groups are formed and active in all hydrogeologic subregions and include participation by all water sectors including regulatory agencies and public and private entities, and supported by the Metropolitan Council.

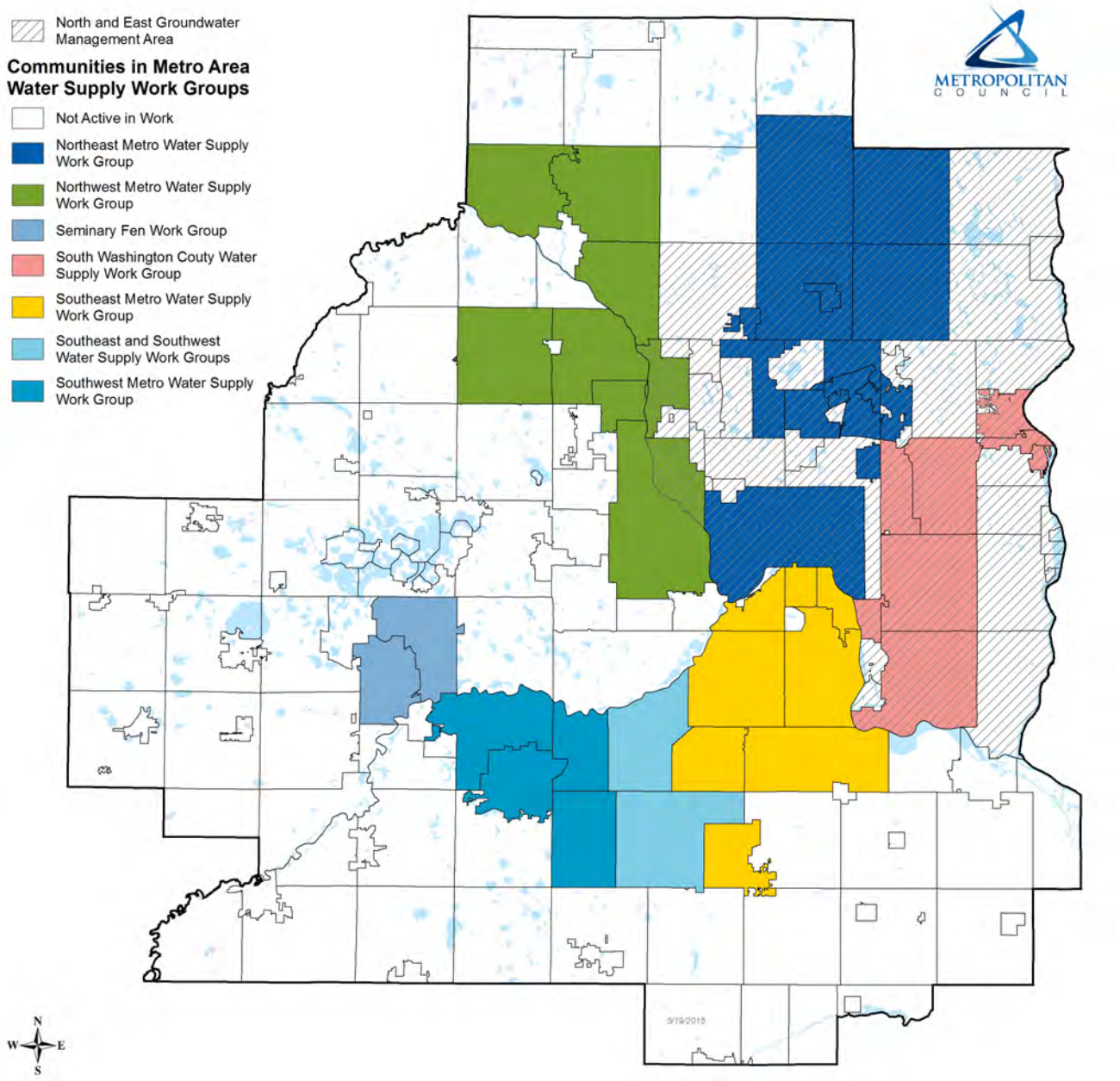
That all public water suppliers have emergency supplies through interconnectivity or multiple sources of water, including emergency connections.

As the Metropolitan Council works with local partners to identify and implement the best options for their situations, subregional feasibility analyses will be done, guided by local work groups, to evaluate the costs and benefits of different approaches. This information can inform local water supply plan updates, permits, environmental review documents, county groundwater plans, and source water protection plans, as appropriate. Figure 27 shows participating communities in the work groups.

Measures

- Number of partners participating in Council-facilitated work groups
- Number of partnerships reported in local water supply plans (updated on 10-year cycle)
- Number of subregional solutions acted on and implemented

Figure 27. Communities participating in subregional work groups in 2015.



Improved planning and plan implementation

Improved local planning assistance

Desired Conditions:

By 2016, the Council will provide a level of technical assistance that ensures that communities clearly understand water supply-related plan and permit expectations for consistency with Council policy and the Master Water Supply Plan. Local comprehensive plans, including implementation plans that support regional water supply sustainability, will be approved by 2020.

A community's comprehensive plan is expected to accommodate the population and employment forecasts and to meet the densities specified in the Council's *Thrive MSP 2040* plan.

A community's comprehensive plan must include:

- A water supply plan that is informed by the Twin Cities metro area Master Water Supply Plan and meets the Department of Natural Resources plan requirements
- A local surface water management plan that is consistent with Minnesota Rules Chapter 8410 and Council policy and does not adversely impact the regional wastewater system, and
- A comprehensive sewer plan that is consistent with the regional wastewater system plan.

Measures

- Communication, internal and external
- Record of planning guidance provided, including workshops, presentations, planning tools provided, and other related information
- Approved community comprehensive plans

Implementation of alternative water source projects

Desired Outcomes:

Use of surface waters, reclaimed wastewater and stormwater for appropriate water uses becomes an option explored by communities and implemented by many.

As partners collaborate to identify and implement the best water supply options for different parts of the region, it may become clear that the least expensive, most expedient water supply options may not be sustainable. In those cases, alternative water supply sources may be needed.

Subregional work groups are exploring the costs and benefits of alternative water supply approaches. Examples of existing projects and lessons learned are highlighted in Appendix 5.

Measure

- Projects accomplished

Source water is assessed and protected

Aquifer levels are protected and enhanced

Desired Outcomes:

Groundwater is adequately monitored across the region, and aquifer levels in all groundwater observation wells in the seven county metropolitan area stabilize at sustainable levels.

Groundwater levels are the most direct indicator of groundwater sustainability. Trends in groundwater levels will be monitored regularly to evaluate impacts of changes in water supply management. Due to the slow recharge rates of some aquifers, it is expected that a significant delay may occur between water supply management changes and response in groundwater levels. Groundwater level monitoring must occur over the long-term.

Measure

- Trend in groundwater observation wells and piezometers, including those located at fens and trout streams, taking into account long term changes in recharge due to changes in weather patterns and climate

Source water areas are protected

Desired Outcomes:

Potential contaminant sources are reduced and/or restricted in areas identified as sources of public drinking water supplies.

Protection of source water is achieved by preventing drinking water from becoming polluted by. Potential sources of contamination are managed in the area that supplies water to a public well or surface water intake. Much is done to prevent pollution, such as the wise use of land and chemicals. Public health is protected and expense of treating polluted water or drilling new wells is avoided though source water protection efforts.

Measures

- Number of wells sealed in wellhead protection areas
- Planning and zoning controls for wellhead protection areas

7 Taking Action

Introduction

Currently, over 100 independent water supply systems operate throughout the seven county Twin Cities metropolitan area, and regional sustainability hinges on collaboration among these many systems. There is no simple solution, no one answer. Rather, the future of water management will involve many partnerships and enhancements to a highly complex set of systems. The approaches will be varied, they will be creative, and they will require nimble thinking.

Now is the time to be thoughtful about our water future and take action to protect our water supply. Water supply planning should not be done "after the fact", when options are limited, more costly, or possibly more harmful to the natural environment. The plans made now for the growth and expansion of the region should lay out a combination of steps that will keep our water supply safe and plentiful for generations to come.

In partnership with key water supply stakeholders, the Metropolitan Council will help the region achieve a sustainable water supply by implementing the water supply policies of the Council's *Water Resources Policy Plan* consistent with the principles and information provided in this Master Water Supply Plan.

This chapter provides more detail about how the policies and strategies are translated into action by the Council and partners. More information about the Council's responsibilities and partners' potential roles related to these actions are discussed in Chapter 8.

Approach

Providing sustainable water supplies across the region is a challenging and ongoing endeavor. Our water supplies and the resources they support are a dynamic system that changes through time. Public water suppliers, planners, scientists and engineers have been working together on this challenge for over a century (Hall et al, 1911); this will continue to be a critical effort especially with growth or change in climate.

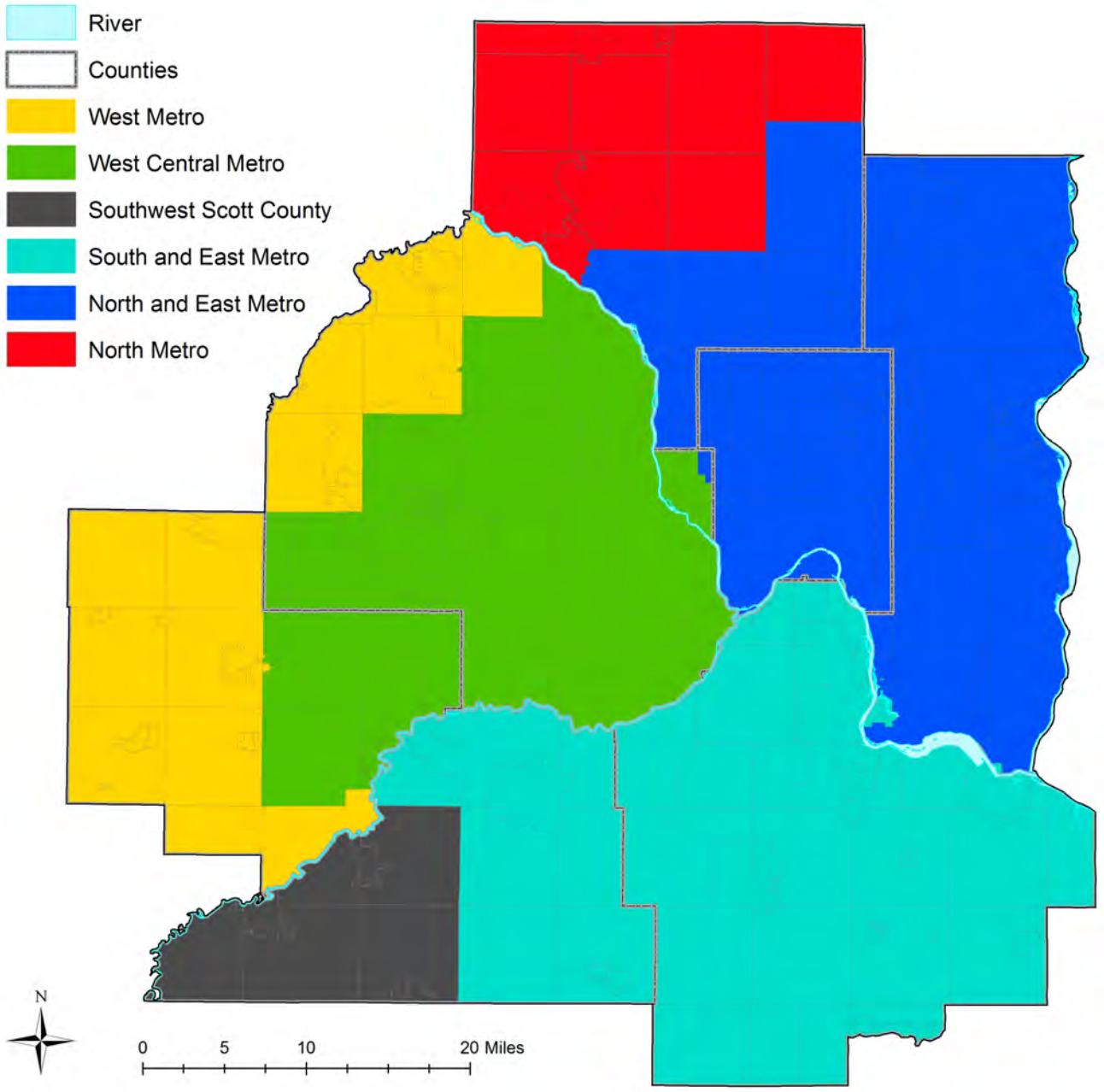
While this is an iterative process, experience shows that efforts tend to be most successful when the process includes certain steps (Table 4) (Appendix 5). The Metropolitan Council's approach to regional water supply plan implementation supports these steps by promoting a region-wide process for water supply education, subregional collaboration, water supply research, and technical and planning assistance.

Table 4 - Steps in the Metropolitan Council's approach to support sustainable water supply planning.

Step	Council Role	Local Role
Increased Public Knowledge	Support public forums, meetings, training opportunities	Support public forums, meetings, training opportunities
Water Supply Problem Identification and Analysis	Regional and subregional source assessments, mapping	Local monitoring and aquifer testing and analysis, mapping
Identification of Possible Solutions	With partners, identify sustainable water supply approaches	Identify local details for each category of possible approach
Analysis of the Feasibility of Possible Solutions	Provide technical assistance	Guide analyses, provide local inputs, review results
Selection of Preferred Approaches	Bring forward approaches that provide regional benefit while serving local needs	Select approaches that serve local needs while proving regional benefit
Project Approval and Funding	Support local efforts to seek funding; commit resources as appropriate for wastewater reuse-related projects	Seek resources and request additional funding as needed
Build, Operate and Maintain	Implement wastewater reuse as appropriate	Implement approaches as appropriate

This Master Water Supply Plan recognizes that subregional and local differences in water availability and potential issues. To ensure that planning support is provided across the region's varied hydrogeologic settings, the Council has identified six sub-regional planning areas based on hydrologic boundaries and generally reflecting groupings of similar resources and other development characteristics (Figure 28). This subregional framework does not impose regulatory limitations or requirements; it is solely for purposes of planning and technical analysis.

Figure 28. Map of hydrogeologic subregions.



Funding

Funding for Master Water Supply Plan implementation strategies comes from multiple sources.

- The Council's property tax levy, separate from its wastewater rates, helps to support outreach and data management components of water supply-related strategies.
- Fees derived from the cost of wastewater service support water supply-related strategies are tied to meeting wastewater regulatory requirements, implementing MCES infrastructure rehabilitation and repair needs, and providing wastewater capacity for growth consistent with the Council's *Thrive MSP 2040*.
- State revenue – the Clean Water Fund in particular - supports technical projects undertaken by the Council with regard to water supply planning.

Schedule of milestones

The current state of the region's water supply has taken many years to develop; it will take many years to change. The timeline in Figure 31 illustrates the major milestones, and subsequent text provides more detail, including key milestones from each strategy.

Figure 29. Timeline of major milestones toward water sustainability.

Year(s)	Major Milestone
Ongoing	Outreach, education, data collection and analyses, tool development
2020	Subregional work groups established and functioning in each hydrogeologic subregion All local water supply plans are guided by the Master Water Supply Plan, and local controls are adopted
2025	All local water plans and watershed management plans are informed by the Master Water Supply Plan
2024	Master Water Supply Plan updated in coordination with the to update of *Water Resources Policy Plan* and to reflect updated regional development framework
2027	All wellhead protection plans are informed by the Master Water Supply Plan
2021-2030	Water supply technical information informs Crow River and Northeast Area wastewater reclamation facilities
Post-2040	Water supply technical information informs East Bethel Wastewater Reclamation Facility Expansion Long-term Capital Improvement Program continues to support wastewater reclamation and reuse

Progress

The 2010 Master Water Supply Plan described activities intended to meet 6 regional objectives:

1. Improve the predictive accuracy of the Twin Cities Metropolitan Area Groundwater Flow Model Version 2.00 (Metro Model 2).
2. Assess local conditions in areas where this plan predicts that issues may arise should withdrawals continue at projected levels and from traditional sources.
3. Develop a more thorough understanding of aquifer extent, capacity, and recharge, as well as long-term trends in the levels of the region's surface and groundwater systems to manage future water supply availability.
4. Develop a better understanding of the distribution of natural and manmade contaminants and source water vulnerability.
5. Guide water supply development toward regionally optimal locations and sources.
6. Incorporating new information and using updated tools will improve the evaluation of new pumping sources, locations, and pumping rates to determine regionally optimal withdrawal scenarios.

Since then, many projects have been undertaken and multiple sub-regional work groups have been formed and begun analyses of various water supply approaches. Examples include:

- Update of the Metro Model 2 to Metro Model 3
- Mapping of aquifer properties to provide better local and regional information about aquifer extent, capacity, recharge and vulnerability to contamination
- An updated Conservation Toolbox and a new *Stormwater Reuse Guide*

More information about these and other efforts are available on the Council website at *http://www.metrocouncil.org/Wastewater-Water/Planning/Water-Supply-Planning/Studies-Projects-Workgroups-(1).aspx*

One of the outcomes of previous work, particularly efforts by sub-regional water supply work groups, is the identification of remaining gaps in information and implementation tools. Some key information and tools are still needed to support the approach outlined in Table 4 above.

New strategies

The rest of this chapter outlines strategies to address water supply needs that were identified through previous projects, by subregional work groups, and through the update of the *Water Resources Policy Plan.* In partnership with others, the Metropolitan Council will:

1. Collaborate with partners to update the Master Water Supply Plan
2. Review and comment on plans and permits
3. Conduct technical studies
4. Facilitate collaboration to address water supply issues
5. Promote and support water conservation
6. Investigate reusing treated wastewater
7. Support investments in water supply

For each strategy, information is provided about key partners and their possible roles and what successful achievement of the strategy might look like.

The desired achievements identified for each strategy reflect input from the region's many water supply stakeholders. However, their success is dependent on the availability of Metropolitan Council and partners' funding and staffing resources.

Strategy 1: Collaborate with partners to update the Master Water Supply Plan

The Metropolitan Council will collaborate with state agencies, watershed organizations, and community water suppliers to update the regional Master Water Supply Plan as new information becomes available and as the comprehensive development guide for the metropolitan area, *Thrive MSP 2040*, is updated. The Council promotes water sustainability through the Master Water Supply Plan, and through the review of local water supply plans, surface water management plans, comprehensive plans, and comprehensive sewer plans.

The Council's work to support collaboration and coordination is guided by Minnesota statutes (473.1565), and it supports the Council's policy on sustainable water supplies (*Water Resources Policy Plan*). This effort also supports community efforts to improve water supply resiliency through the identification and evaluation of potential water supply issues and economically and technically feasible water supply alternatives.

This collaboration with agency partners is critical to ensure inclusion of all opinions and points of view regarding the region's water supplies. For example, increased collaboration will address the issue of regulatory complexity that was repeatedly raised by stakeholders during the update of the Master

Water Supply Plan. Collaboration may reduce or eliminate contradictory regulations, may better leverage program funds to support common goals, and coordinate guidance. This may help communities and water suppliers focus on actions that provide multiple water resource benefits and shift the region to a more sustainable mix of water supply approaches.

Progress will be documented through outreach event and work group meeting materials, progress reports, public comments on the draft plan, and plan approval notification.

Key Partners	Suggested Roles
Metropolitan Council	• Lead the effort to update the Master Water Supply Plan and provide staff support, guided by policy and technical work groups • Provide public engagement opportunities throughout the process
Communities/ Water Suppliers	• Co-lead work groups to provide guidance regarding policy and to share relevant technical information
DNR	• Provide staff participation on policy and technical work groups to provide guidance regarding policy and to share relevant technical information
Others	• Provide staff participation on policy and technical work groups to provide guidance regarding policy and to share relevant technical information

Achievements (what successful achievement of this strategy might look like)
• The Master Water Supply Plan continues to reflect regional policies and provides the most up-to-date information about the region's water supplies, emerging issues, and water supply alternatives • Consistent and regular communication of regulatory and planning expectations • Ongoing relationship building among potential partners

Strategy 2: Review and comment on plans and permits

The Council promotes water sustainability through the Master Water Supply Plan, and through the review of local water supply plans, surface water management plans, comprehensive plans, and comprehensive sewer plans. The Council will review and comment on plans that include, but may not be limited to:

- As required by Minnesota Statutes, local water supply, source water protection, surface water, comprehensive sewer, and county groundwater plans
- As requested by the Minnesota Department of Natural Resources, Groundwater Management Areas and water appropriation permits

The Council's work to support water supply planning is guided by Minnesota statutes (473.1565), and it supports the Council's policy on sustainable water supplies (*Water Resources Policy Plan*).

Through this process, which includes local planning assistance, local plans will be better coordinated and will better incorporate water sustainability considerations in all areas of Council policy and actions, including overall development patterns, water management, transportation, housing, and regional parks. Progress will be documented through formal review comments.

A successful outcome of this work is that, by 2016, the Council will provide a level of technical assistance that ensures that communities clearly understand water supply-related plan and permit expectations for consistency with Council policy and the Master Water Supply Plan. Local comprehensive plans, including implementation plans that support regional water supply sustainability, will be approved by 2020. Chapter 6 provides more information.

Key Partners	Suggested Roles
Metropolitan Council	• Provide local planning assistance to communities in the development of local water supply plans, through the Local Planning Handbook, participation on planning teams, and other venues • Review local water supply plan, using review criteria outlined in the Local Planning Handbook and coordinate comments with DNR, communities and others • Review wellhead protection plans and share comments with MDH, communities, and water suppliers • Review water appropriation permits upon request, and share comments with DNR, communities, and water suppliers • Review county groundwater plans and share comments with counties, communities, and others • Support DNR, communities and water suppliers in developing and implementing a plan for the North and East Metro Groundwater Management Area, and other areas as needed. May include directing technical work to fill information gaps and promote water conservation/reuse
Communities/ Water Suppliers	• Fulfill statutory obligations for water supply planning, water supply-related permits • Complete local water supply plan template, with for input from neighboring and overlapping jurisdictions, adopt final plans • Complete source water protection plan, with input from neighboring and overlapping jurisdiction, adopt final plans, and submit to Metropolitan Council and DNR • Work with DNR in the development and implementation of a Ground Water Management Area, should one be designated • Input on county groundwater plans, watershed management plans
DNR	• Issue water appropriation permits and amendments, supported by a process to solicit and incorporate recommendations from partners • Lead the development and implementation of Groundwater Management Area plans • Approve local water supply plans • Provide local technical and planning assistance to communities in the development of local water supply plans and to permit holders in the development of water appropriation permits
Others	• As a neighboring or overlapping jurisdiction, provide input on local water supply plans, source water protection plans, county groundwater plans, permits, Ground Water Management Area plans • As a responsible agency, adopt or approve plans as required

Achievements (what successful achievement of this strategy might look like)

- Regional technical and planning information exchanged with partners as part of collaborative efforts. Examples: development of local water supply plans, Groundwater Management Areas, source water protection plans, county groundwater plans, etc.
- Technical and planning assistance provides clear guidance and support for local planning. Example: *Local Planning Handbook*
- By 2020, updated local comprehensive plans, including water supply plans, that reflect the Master Water Supply Plan and supported by adoption of local controls and capital improvement plan
- By 2027, all wellhead protection plans reflect the Master Water Supply Plan and local water supply plans

Strategy 3: Technical studies

In partnership with others, the Council will:

- Fill gaps in technical assessments of lake, stream, river, and groundwater data.
- Maintain a regional database that contains easily accessible water quality, quantity and other water related information collected as part of the Council's monitoring programs.
- Complete technical studies to understand regional and subregional long-term water supply availability and demand including modeling and other approaches.
- Support community efforts to identify and evaluate the economic and technical feasibility of water supply approaches and best practices that increase water conservation, enhance groundwater recharge, and make the best use of groundwater, surface water, reclaimed wastewater, and stormwater.

The Council's work to maintain a base of technical information is guided by Minnesota statutes (473.1565), and it supports the Council's policy on assessing and protecting regional water resources (*Water Resources Policy Plan*). This technical information helps the Council to promote the wise use of water; better address the reliability, resiliency, security, and cost-effectiveness of the region's water supplies; and to identify subregional and local water sustainability solutions that balance regional needs and local objectives.

Technical information generated through these efforts will also support the other strategies outlined in this chapter. Progress will be documented through progress reports and project deliverables.

Successful outcomes of this work is may include: 1) Groundwater is adequately monitored across the region, and aquifer levels in all groundwater observation wells in the seven county metropolitan area stabilize at sustainable levels; 2) potential contaminant sources are reduced and/or restricted in areas identified as sources of public drinking water supplies. Chapter 6 provides more information.

Key Partners	Suggested Roles
Metropolitan Council	• Carry out regional and subregional technical studies by convening subregional work groups, managing consultant contracts, and provide technical expertise
Communities/ Water Suppliers	• Co-lead subregional work groups to shape scope of work, review interim and final deliverables
DNR	• Participate in subregional work groups to shape scope of work, review interim and final deliverables
Others	• Participate in subregional work groups to shape scope of work, review interim and final deliverables

Achievements (what successful achievement of this strategy might look like)

- Improved public review process supported through technical advisory committees and other venues
- Better identification and prioritization of areas by monitoring partners. Examples of projects identified by stakeholders include: identification of areas where enhanced groundwater monitoring is needed to better characterize groundwater and surface water interaction
- Ongoing monitoring of key resources
- Identification of subregional indicators for desired conditions
- Regional and subregional technical studies provide information to support regional and local water supply planning and implementation. Examples of projects identified by stakeholders through the Master Water Supply Plan update process include:
  - The effectiveness of new water conservation technologies and planning and zoning controls are evaluated
  - Identification of high-potential recharge areas
  - Subregional groundwater modeling, including transient and optimization models, in all six hydrogeologic areas
  - Evaluation of how stormwater reuse potential varies across the metro
  - Data collection and analyses supporting revision of curve runoff numbers and stormwater, recharge, and groundwater models
  - Stormwater reuse tools supported and projects implemented
  - Evaluation and development of best management practices to mitigate local water supply issues
  - Examples of how conservation makes financial benefit for a range of community types
- Data developed to better estimate the costs and benefits of stormwater capture and recharge projects

Strategy 4: Facilitate collaboration to address water supply issues

The Metropolitan Council will facilitate discussions on water supply issues that transcend community boundaries, though subregional work groups and on an ad hoc basis as needed.

This effort supports the Council's policy on sustainable water supplies (*Water Resources Policy Plan*) and helps the Council to promote the wise use of water; better address the reliability, resiliency, security, and cost-effectiveness of the region's water supplies; and to identify subregional and local water sustainability solutions that balance regional needs and local objectives.

Subregional discussions help to address the issue of water conflicts among different users, options for funding/finance, and sharing information to ensure everyone is working from the same base of the best available information.

This inclusive effort supports a common understanding of the region's water supply issues and vision, and it generates endorsement of collaborative efforts to achieve sustainability. Progress will be documented through deliverables such as work group meeting materials, public forums, and presentations to local and sub-regional organizations.

Successful outcomes of this work may include: 1) that work groups are formed and active in all hydrogeologic subregions and include participation by all water sectors including regulatory agencies and public and private entities, and supported by the Metropolitan Council; 2) that all public water suppliers have emergency supplies through interconnectivity or multiple sources of water, including emergency connections. Chapter 6 provides more information.

Key Partners	Suggested Roles
Metropolitan Council	• Provide staff and materials to facilitate subregional work groups as needed • Provide staff and education materials for public forums, workshops and educational events to share findings of technical work with stakeholders • Develop process and tools to collect and manage data as needed
Communities/ Water Suppliers	• Support staff and community participation on subregional work groups to provide guidance regarding policy and to share relevant technical information
DNR	• Support staff and community participation to provide guidance regarding policy and to share relevant technical information
Others	• Support staff and community participation to provide guidance regarding policy and to share relevant technical information

Achievements (what successful achievement of this strategy might look like)

- Improved collaboration supported in a variety of ways. Examples: training opportunities for emergency response and other issues, subregional work groups, etc.
- Increased awareness of regional, subregional and local water supply issues and solutions through support for educational events such as water supply displays at local events and subregional and regional water forums/public meetings.
- Consistent and regular communication of regulatory and planning expectations, how the need for technical projects was identified and scoped through work group and other public meetings, and how potential solutions to water supply issues are identified
- Process employed to reach some consensus on "desired conditions" that shape definition of sustainable water supply and on possible approaches that might be implemented to achieve it
- Enhanced information and resource sharing to identify and fill gaps in monitoring networks and technical information
- Local technical work leveraged to increase the value of regional and subregional studies and the impact of water supply project implementation, due to resource sharing
- Enhanced information sharing and technical guidance (including lessons learned) implementing alternative water supply approaches such as water conservation, enhancing recharge, and expanding the use of groundwater, surface water and reclaimed stormwater and wastewater

Strategy 5: Promote and support water conservation

The Metropolitan Council will promote and support water conservation measures, including education, outreach and tool development.

These efforts are guided by Minnesota statutes (473.1565), and they support the Council's policy on water conservation and reuse (*Water Resources Policy Plan*) and help the Council to promote the wise use of water.

The value of water conservation was a common theme at public meetings and other outreach for this Master Water Supply Plan. Some challenges that need to be overcome were also identified, including:

- Mitigating the impact of decreased water use on utility revenue
- Lack of funding for local education, incentive and enforcement activities
- Different conservation approaches for different users (e.g. residents, industries, agricultural irrigators, schools)
- Building public support

Successful outcomes of this work include a regional average total municipal (including residential, commercial, and industrial) per capita water use of 90 gallons or less per person per day; a ratio of summer to winter monthly water use is equal to or less than the 1990-1994 average ratio; and a per capita residential water use equal to or less than 75 gallons per capita per day. Chapter 6 provides more information.

Key Partners	Suggested Roles
Metropolitan Council	• Maintain and improve the Conservation Toolbox • Partner with Minnesota Technical Assistance Program (MnTAP) to conduct water audits for industry and commerce • Develop planning goals and metrics for assessing the wise use of water and water efficiency • Support a grant program for demand reduction
Communities/ Water Suppliers	• Connect key local water users, decision-makers with information to shape water use • Adopt policies, ordinances and fee structures that promote the water conservation • Identify and implement demand reduction measures • Showcase projects
DNR	• Adopt and enforce policies to ensure permitted water users are incorporating conservation practices in their operations • Provide water conservation education through existing DNR education programs
Others	• Support water conservation efforts

Achievements (what successful achievement of this strategy might look like)

- Achievement of water conservation outcomes identified in Chapter 6
- Agency partnerships enhance information about municipal, industrial and agricultural conservation and reuse opportunities
- A grant program is initiated and supported to implement water conservation, reuse and/or cooperative water use practices
- Tools such as the Conservation Toolbox are developed, maintained and promoted
- Documented increase in water conservation awareness and implementation
- Evaluation of effectiveness of conservation best management practices for long-term reductions and for emergency/contingency planning across different community settings

Strategy 6: Investigate reusing treated wastewater

The Council will investigate reusing treated wastewater to supplement groundwater and surface water as sources of nonpotable water to support regional growth, and when cost-effective, implement reuse.

These efforts support the Council's policy on water conservation and reuse (*Water Resources Policy Plan*).

A successful outcome of this work is that use of surface waters, reclaimed wastewater and stormwater for appropriate water uses becomes an option explored by communities and implemented by many. Chapter 6 provides more information.

Key Partners	Suggested Roles
Metropolitan Council	• Collaborate with the Plumbing Board and other partners to explore reuse opportunities • Lead by example to maximize wastewater reuse within Council wastewater treatment facilities • If feasible, integrate nonpotable water systems into plans for future regional wastewater reclamation facilities – East Bethel is an example • Facilitate collaboration with regulatory agencies to clarify reuse project requirements • Collaborate with partners to demonstrate reuse
Communities/ Water Suppliers	• Partner with Metropolitan Council to reuse treated wastewater, where feasible
MPCA, MDH	• Collaborate, advise, regulate
Others	• Collaborate, advise

Achievements (what successful achievement of this strategy might look like)

- Increase wastewater reuse within Council wastewater treatment facilities – that is, lead by example
- Water audits conducted at all Metropolitan Council wastewater treatment facilities
- Collaborate with the Interagency Water Reuse Work Group to address the key implementation challenges associated with a nonpotable water system for toilet flushing and irrigation uses
- State regulations governing reuse are clarified
- Enhanced information about industrial reuse opportunities
- Reuse demonstrated through partnerships between Metropolitan Council and nonpotable water users
- Integrate nonpotable water systems into plans for future regional wastewater reclamation facilities.
- Wastewater investments consider regional water supply benefits
- Implement groundwater recharge and irrigation (for example, golf courses) in East Bethel and demonstrate reuse with University of Minnesota at UMore park, as demonstration projects for the region

Strategy 7: Support investments in water supply

The Council will support cost-effective investments in water supply infrastructure to promote efficiency and sustainable use and protect the region's water supply by:

- With partners, developing criteria to identify water supply projects with regional and local benefit
- Promoting equitable cost-sharing structure(s) for regionally-beneficial water supply development projects
- Supporting cost-benefit analyses of alternative water supply options

- Identifying funding mechanisms for regionally-beneficial water supply development projects

This work is guided by Minnesota statutes (473.1565), and it supports the Council's policy on investment (*Water Resources Policy Plan*). These efforts help address the reliability, resiliency, security, and cost-effectiveness of the region's water supplies.

A successful outcome of this work is that use of surface waters, reclaimed wastewater and stormwater for appropriate water uses becomes an option explored by communities and implemented by many. Chapter 6 provides more information.

Key Partners	Suggested Roles
Metropolitan Council	• Support local effort in seeking funding for regionally beneficial infrastructure projects • Provide assistance for local and subregional efforts to develop cost-sharing structures and other approaches to secure funding for regionally beneficial infrastructure projects by connecting local planners and subregional work groups with funding sources • Gather information and collaborate on methods to estimate costs
Communities/ Water Suppliers	• In partnership with neighbors, lead discussion/direction to explore and implement various water supply approaches as needed • Collaborate on methods to estimate costs and benefits of various approaches
DNR	• Collaborate, advise
Others	• Collaborate, advise

Achievements (what successful achievement of this strategy might look like)

- Criteria developed to identify water supply projects with regional benefit
- Promotion of equitable cost-sharing structure(s) for regionally-beneficial water supply development projects
- Cost-benefit analyses of alternative water supply options completed, with key costs estimated in a way that allows for comparison between alternative approaches
- Funding mechanisms for regionally-beneficial water supply development projects identified
- Where feasible, interconnections among water supply systems are promoted
- Legislative funding requests for regionally-beneficial projects are supported

8 Roles and Responsibilities

Introduction

Everyone has a responsibility for ensuring a sustainable water supply planning. Collaborative actions are needed at the individual level, the community level, the regional level, and the state and federal level. This chapter describes those responsibilities and highlights the roles and responsibilities that support the implementation of the Master Water Supply Plan and achieving regionally sustainable water management.

This Master Water Supply Plan recognizes that community public water suppliers are responsible for managing the largest category of non-consumptive water use in the metropolitan area; they are required to provide a safe and adequate supply of water.

Metropolitan Council's water supply role is to work with partners to develop a regional plan, maintain a base of technical information, provide assistance to communities in developing their local water supply plans, and to identify approaches for emerging issues.

Minnesota Department of Natural Resources supports sustainable use of water through the water appropriation permit program, approval of local water supply plans, information collection and analysis activities, law enforcement responsibilities, education and technical assistance opportunities.

Sustainable water management is most successful when these efforts are coordinated. Despite an ever increasing level of coordination among the state agencies, there remains confusion among stakeholders as to who does what and where to get the information and answers they seek.

Summary of Roles

The metropolitan area's water supply management activities are divided among multiple partners; the *Anoka County 2014 Water Resources Report* provides an excellent summary of partner responsibilities. This Master Water Supply Plan focuses on a few key partners driving the successful implementation of the plan: high volume private water supply (well) owners, communities and public water suppliers, the Metropolitan Council, and the Minnesota Department of Natural Resources. Other agencies, counties, and watershed management organizations provide additional support. Coordination of these many water management activities occurs in four areas that support sustainable water supplies:

1. **Ongoing local implementation and support for local implementation** is at the heart of the Master Water Supply Plan strategy for sustainable water supplies.
2. **Monitoring and assessment** determines the condition of the region's source waters and informs future implementation actions.
3. **Regulation** helps ensure the best use of water resources for economic, environmental and social interests and provides for equity and fairness among water users
4. **Planning** is where information comes together in regional, subregional, and local commitments for prioritized, targeted, and measureable action.

Key Partners

- *Private Water Supply (Well) Owners* develop, maintain and use infrastructure (primarily wells) for domestic, industrial or agricultural purposes.
- *Communities/Public Water Suppliers* provide water to customers in compliance with Safe Drinking Water Act standards, set rates to support system, develop and maintain infrastructure, monitor drinking water quality and quantity, ensure emergency procedures are in place, develop and

enforce demand reduction measures (for droughts or contamination), plan for land use, water supply and capital improvements, and may regulate water use and well drilling.

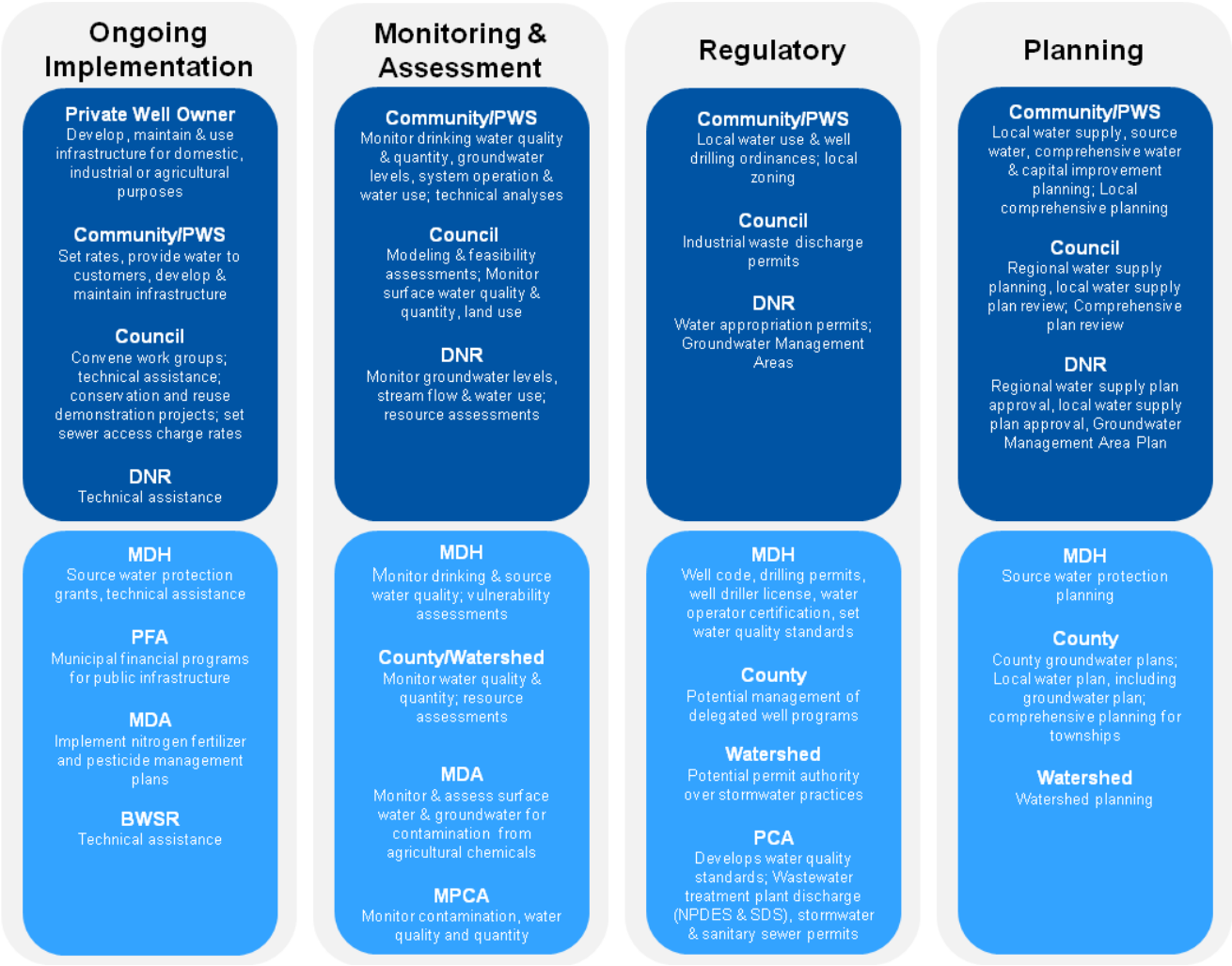
- *Metropolitan Council* provides water supply and surface water planning support and direction, operates state's largest wastewater treatment system, and provides regional water quality and quantity monitoring.
- *Minnesota Department of Natural Resources* collects and analyzes information on water, regulates water use and riparian land use activities, manages public land, and approves water supply plans.

Supporting Partners

- *Minnesota Department of Health* ensures public drinking water systems protect sources and meet federal drinking water standards, regulates water well construction and sealing to protect groundwater, assesses drinking water contaminant risks to public health, licenses professions impacting drinking water, administers the Drinking Water Revolving Fund (DWRF), Source Water Protection Grants, wellhead protection plan development funding and other funding programs..
- *Minnesota Pollution Control Agency* develops water quality standards, monitors surface water and groundwater quality in non-agricultural settings, and restricts discharges of pollutants through use of permits, provides water conservation outreach through GreenSteps and other programs.
- *Minnesota Department of Agriculture* is responsible for fertilizer and pesticide regulation and management, activities include implementing the state Nitrogen Fertilizer and Pesticide Management Plans to protect groundwater; develops voluntary best management practices; monitors groundwater in agricultural settings; registers products with potential water impacts; and trains and licenses applicators.
- *Minnesota Public Facilities Authority* manages municipal financing programs to help communities build and upgrade drinking water, wastewater and storm water infrastructure.
- *Minnesota Board of Water and Soil Resources* provides resources and technical assistance to local governments, manages conservation easements, and provides oversight to local water management entities.
- *Counties/Soil and Water Conservation Districts* prepare and adopt county groundwater plans, set priorities, address issues, and build local capacity for the protection and management of groundwater.
- *Watershed Management Organizations:* work to conserve the natural resources of the state by land use planning, flood control, and other conservation projects.
- *Minnesota Legislature* provides policy direction and, in some cases, directs funding

Figure 30 shows roles and responsibilities in water supply planning – primary ones as dark blue boxes and supporting (light blue boxes).

Figure 30. Roles and responsibilities supporting water supply planning. Dark blue activities directly support the outcomes of this Master Plan; light blue provide secondary don't directly relate to the regional outcomes in Chapter 6 but are still key water supply planning functions.



Private Water Supply (Well) Owners

Role

Regardless of size, owners of private wells and surface water intakes can take steps to use water as efficiently as possible and protect intakes or wellheads from becoming contaminated.

Responsibilities

Master Water Supply Plan Implementation

- Learn about and implement, as appropriate, water demand management strategies
- Collaborate and convene with state, regional and local partners to maintain, and enhance the protection of the quality and quantity of the region's water supply (for example, participate or promote your water sector's participation on subregional water supply work groups)
- Partner with agencies to comply with water supply regulations and implement up-to-date best management practices for water conservation and pollution prevention

Additional activities

- Develop, maintain, and use water supply infrastructure – wells and surface water intakes - for private water needs such as domestic, industrial and/or agricultural purposes

- If applicable, fulfill wastewater and stormwater management requirements

Communities/Public Water Suppliers

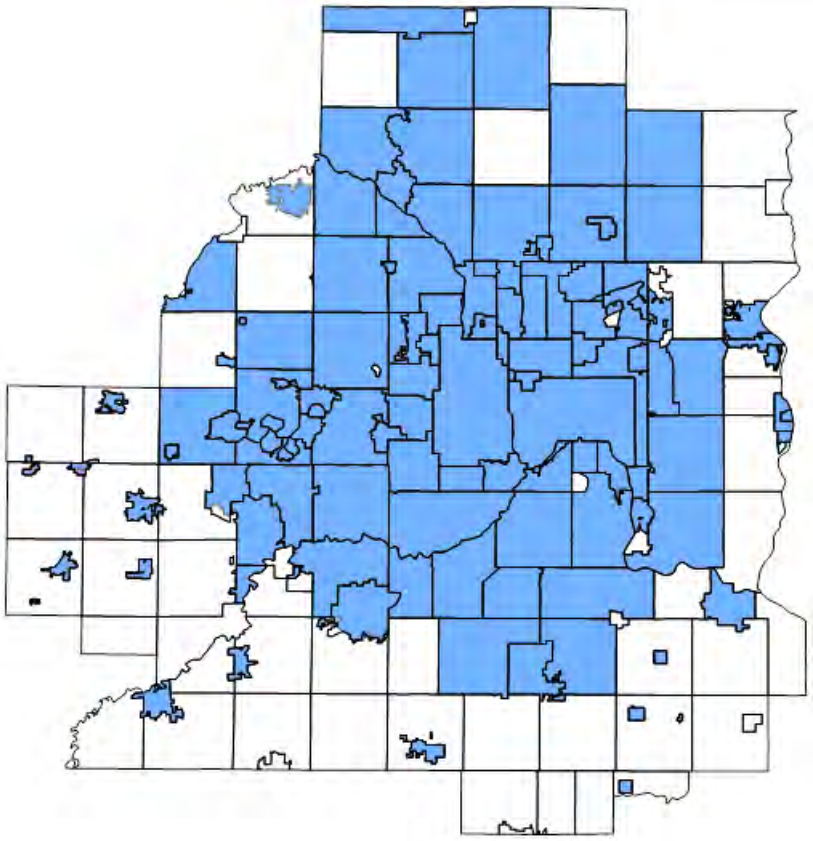
Role

The Metropolitan Council recognizes that water supply roles and responsibilities vary across the region. Some communities are fully served by public water supply systems and others have none. However, all communities can plan for sustainable water supply.

The *2014 AWWA State of the Water Industry Report* noted that communities with public water supplies are faced with two major challenges: first, conducting today's business operation and maintenance, and second, thoroughly planning for tomorrow's business operation and maintenance – including adapting to changing water demand.

Communities without public water supplies also have an important role to play, encouraging the use of environmentally sensitive development techniques and promoting best management practices for agricultural activities in order to protect the integrity of the region's water supply and the quality and quantity of surface and groundwater resource.

Figure 31. Communities with (blue) and without (white).



Responsibilities

Master Water Supply Plan Implementation

- Collaborate and convene with state, regional and local partners to protect, maintain, and enhance the protection of the quality and quantity of the region's water supply
- Comply with regulations
- Accommodate planned growth – including local controls and capital improvement programs – consistent with Council allocations of forecasted population

- Encourage the use of environmentally sensitive development techniques
- Promote best management practices for agricultural activities, where appropriate
- Prepare and implement local water supply plans that reflect this Master Water Supply Plan and source water (wellhead) protection plans, consistent with Minn. Rules Part 4720, in all communities with municipal water supply

Additional activities

- Develop and maintain water supply infrastructure
- Manage finances of infrastructure, including setting water rates
- Monitor drinking water quality and quantity, groundwater levels, system operation, and water use
- Conduct technical analyses
- Develop and adopt local comprehensive plans (including the local water supply plan), source water protection plans, comprehensive water plans, and capital improvement plans
- Develop and enforce ordinances and zoning addressing issues such as water conservation, wellhead protection, and well drilling within municipal water supply service areas
- Stay up to date about and implement best management practices for water conservation and pollution prevention
- Educate residents and customers about pollution prevention, water conservation, and stormwater management
- If county has an approved Groundwater Plan, then ensure that the community's water supply plan is consistent with it
- Use local zoning to promote land use that minimizes potential contaminant sources in drinking water management areas and that uses water efficiently including land use that maximizes opportunities for reuse of stormwater and/or reclaimed wastewater
- If delegated to a local board of health by the Minnesota Department of Health, manage delegated well programs for regulating of water wells, monitoring wells, and/or dewatering wells such as Minneapolis and Bloomington

Metropolitan Council

Role

The mission of the Metropolitan Council Environmental Services division is to provide wastewater services and integrated planning to ensure sustainable water quality and water supply for the region.

The role of the Council in water supply planning is to:

- Work with partners to develop a regional plan
- Maintain a base of technical information
- Provide assistance to communities in developing their local water supply plans, and
- Identify approaches for emerging issues

The Metropolitan Area Water Supply Advisory Committee and other work groups guide the Council in this work.

The Council is not a water supplier. The regional planning process has been designed and applied to ensure local water suppliers have control of and responsibility for their water supply systems.

Responsibilities

Master Water Supply Plan Implementation

- Collaborate with state agencies, watershed organizations, and community water suppliers to update the regional Master Water Supply Plan.
- Support community efforts to improve water supply resiliency by cooperatively identifying economically and technically feasible water supply alternatives.
- As required by Minnesota Statutes, review and comment on local water supply plans.
- As requested by the DNR, review and comment on Groundwater Management Areas and water appropriation permits.
- As required by Minnesota Statutes, review and comment on wellhead protection and county groundwater plans.
- Facilitate discussions on water supply issues that transcend community boundaries, through subregional work groups and on an ad hoc basis as needed.
- Collaborate with partners to perform special studies as needed.
- Work with our partners to fill gaps in assessments of lake, stream, river, and groundwater data.
- In partnership with others, complete technical studies to understand regional and subregional long-term water supply availability and demand.
- Support community efforts to identify and evaluate the economic and technical feasibility of water supply approaches and best practices that increase water conservation, enhance groundwater recharge, and make the best use of groundwater, surface water, reclaimed wastewater, and stormwater.
- In partnership with others, research and promote low impact development, land use practices, agricultural best practices, and cooperative water use practices that minimize impacts on aquifers and maximize groundwater recharge, where practical.
- Promote and support water conservation measures, including education, outreach and tool development.
- Investigate reusing treated wastewater to supplement groundwater and surface water as sources of water to support regional growth, and when cost-effective, implement reuse.
- Support cost-effective investments in water supply infrastructure to promote sustainable use and protect the region's water supplies
- Evaluate impacts of planned growth and water demand on aquifer levels and water supply sustainability

Additional water supply-related activities

- Promote residential development patterns that protect natural resources, the quality and quantity of our water resources, and our water supply
- Monitor surface water quality and quantity
- Issue industrial wastewater discharge permits
- Monitor groundwater quality and quantity at recharge sites such as the East Bethel wastewater reclamation facility

Minnesota Department of Natural Resources

Role

The DNR plays an important role in supporting sustainable use of water through its water appropriation permit program, approval of local water supply plans, information collection and analysis activities, law enforcement responsibilities, education and technical assistance opportunities.

The DNR assists public water suppliers in developing local water supply plans to address the unique needs and resource characteristics of the individual communities. These plans are required of every public water supplier serving more than 1,000 people, but DNR staff also work closely with smaller

public water suppliers that want to engage in water supply planning. DNR ensures that water use permits for public water suppliers are congruent with that community's local water supply plan. In the metropolitan area, the DNR collaborates with the Metropolitan Council on water supply planning activities. Through its local water supply plan review and approval process, the DNR ensures that local water supply plans reflect the Metropolitan Council's Master Water Supply Plan efforts.

Responsibilities

Master Water Supply Plan Implementation

- Develop a local water supply plan template and notify public water suppliers of the timeline for completing their plan
- In partnership with Metropolitan Council, review local water supply plans for consistency with the metropolitan area master water supply plan
- Administering the water appropriation permit program to ensure water appropriation permits are consistent with approved local water supply plans
- In partnership with the Metropolitan Council, providing advice for plan development and implementation, including guidance on demand reduction methods and water conservation

Additional water supply-related activities

- Monitor groundwater and basin water levels, stream flow, and climate
- Map natural resources, including geologic atlases and ecological surveys
- Develop sustainability thresholds
- Establish Groundwater Management Areas in areas with difficult groundwater-related resource challenges

Minnesota Department of Health

Role

The Minnesota Department of Health (MDH) has three primary areas of responsibility that relate to water supply planning:

- Regulate public water supplies under the federal Safe Drinking Water Act and state rules and statutes
- Regulate well construction including designation of special well and boring construction areas
- Assessment of drinking water contaminant risks

The MDH Drinking Water Protection Program protects public health by ensuring a safe and adequate supply of drinking water at all public water systems, which are those that serve water to the public. The MDH Well Management Program protects both public health and groundwater by assuring the proper construction of new wells and borings, and the proper sealing of unused wells and borings.

The MDH Environmental Surveillance and Assessment Program operates in collaboration with local, state, and federal environmental and health agencies and academic institutions to collect and assess data regarding exposures to chemicals and other substances that may pose health risks to the public.

Water supply planning activities include assisting public water supplies with infrastructure planning and response to drinking water contaminant issues, and planning for wellhead protection for public water supplies. A number of advisory groups provide input and advice to the MDH on drinking water issues. These include the Water Utility Council, the Advisory Council on Wells and Borings, and the Advisory Council on Water Supply Systems and Wastewater Treatment Facilities. In addition, the MDH provides technical assistance to local government, public water supply staff and the public, and access to water planning information through resources like the County Well Index.

Responsibilities

Master Water Supply Plan Implementation

- Partner with the Metropolitan Council to provide guidance to communities for considering source water protection in local comprehensive plans
- Administer the code governing wells, certify well operators, and in partnership with DNR issue permits that are consistent with DNR preliminary well screening criteria and MDH requirements

Additional water supply-related activities

- Monitor public drinking water supplies for contaminants regulated under the Safe Drinking Water Act
- Educate water suppliers about public health and drinking water, including water supply management and protection
- Assist local government, business, and the public in managing risks to and from drinking water supplies through:
  - Protecting the sources that supply drinking water to the public by mapping drinking water sources, identifying source water areas, identifying risks of impacts to water supplies
  - Supporting capacity for developing and implementing source water protection plans
  - Applying groundwater models and interpreting hydrogeology
  - Identifying interactions between groundwater and surface water
  - Identifying recharge areas
  - Identifying potential contaminant sources
  - Evaluating future water demand
  - Evaluating risk of land use changes to water quality and quantity
- Develop human health guidance
- Evaluate and communicate scientific information about the potential for health risks from exposures to newly identified health hazards in drinking water
- Identify ambient groundwater quality through initial sampling of private wells
- Collect and maintain information for the state about well construction and well logs as it relates to drinking water wells (County Well Index)
- Provide cost share funds for sealing unused wells that could become a pathway for contaminants to enter drinking water sources
- Oversee, along with the Minnesota Public Facilities Authority, the Drinking Water Revolving Loan Fund
- Delegate specific responsibilities for the regulating water wells, monitoring wells, and/or dewatering wells to local boards of health, such as Dakota County, Minneapolis, and Bloomington

Minnesota Pollution Control Agency

Role

The Minnesota Pollution Control Agency's mission is to protect and improve the environment and enhance human health.

Responsibilities

Master Water Supply Plan Implementation

- Partner with the Metropolitan Council to provide guidance to communities to consider source water protection as part of stormwater management

Additional water supply-related activities

Although MPCA is not directly responsible for water supply infrastructure or management, several activities indirectly affect water supply sources in the region:

- Monitor ambient groundwater quality as an early warning system identifying threats to the quality of shallow and vulnerable aquifers.
- Consult and provide support to the DNR for water supply concerns and dropping lake levels in the North and East Metro Groundwater Management Areas
- Participate on the Interagency Groundwater/Drinking Water collaborative team working with the Clean Water Fund
- Investigate and remediate non agricultural contaminated sites, including monitoring to assess the containment of contaminant plumes from Superfund sites, petroleum releases and closed landfills.
- Monitor the waters of the state to assess their quality, using a systematic intensive watershed approach to determine physical, chemical and biological integrity.
- Promote protection of drinking water use and identify source water protection areas in certain projects with limits on the Total Maximum Daily Load of pollutants (TMDL) and in Watershed Restoration and Protection Strategies (WRAPS)
- Maintain and update standards and rules to be consistent with other rules and statutes protecting water supply sources
- Adapt monitoring, prevention, regulation and remediation efforts for contaminants of new/emerging concern
- Identify and investigate interactions between groundwater and surface water
- Work with local government units to promote and implement best management practices that protect surface and groundwater quality
- Ensure compliance with the Minnesota Groundwater Protection Act
- Minimize and regulate pollutant discharges via permits, technical/financial assistance, and enforcement

Minnesota Department of Agriculture

Role

The mission of the department is to enhance Minnesotan's quality of life by ensuring the integrity of the food supply, the health of the environment, and the strength of the agricultural community. The Minnesota Department of Agriculture (MDA) is the lead agency for all aspects of pesticide and fertilizer environmental and regulatory functions.

Responsibilities

Master Water Supply Plan Implementation

- Partner with Metropolitan Council to provide guidance to communities to consider agricultural best management practices within source water protection areas.

Additional water supply-related activities

While MDA is not directly responsible for water supply infrastructure or management, several of its activities indirectly affect water supply sources in the region.

MDA is responsible for or involved in many water quality programs and initiatives. These include but are not limited to the following:

- Serve as lead agency for groundwater contamination from pesticide and fertilizer non-point source pollution

- Conduct monitoring and assessment of agricultural chemicals (pesticides and nitrates) in ground and surface waters
- Oversee agricultural chemical remediation sites and incident response
- Regulate use, storage, handling and disposal of pesticides
- Regulate storage, handling and disposal of fertilizer

Minnesota Public Facilities Authority

Role

The Minnesota Public Facilities Authority (PFA) is a multi-agency authority that provides municipal financing programs and expertise to help communities build public infrastructure that preserves the environment, protects public health, and promotes economic growth.

Master Water Supply Plan Implementation

- To be defined

Additional water supply-related activities

- Administer three revolving loan funds and other programs to help local units of government fund public infrastructure projects

Program(s) funding source(s)

- State General Fund
- Clean Water Fund
- Federal Funds

Funding provided to Local Governmental Units for Implementation

- Clean Water Revolving Fund
- Drinking Water Revolving Fund

Board of Water and Soil Resources

Role

The Board of Water and Soil Resources (BWSR) is the state soil and water conservation agency, and it administers programs that prevent sediment and nutrients from entering our lakes, rivers, and streams; enhance fish and wildlife habitat; and protect wetlands.

Responsibilities

Master Plan Implementation

- To be defined

Additional water supply-related activities

Although BWSR is not directly responsible for water supply infrastructure or management, several activities indirectly affect water supply sources in the region:

- Identify strategies for groundwater protection
- Identify potential locations for infiltration projects/BMPs that may include wetland restoration, enhancements, or creation
- Technical assistance to Soil and Water Conservation Districts
- Direct private land soil and water conservation programs through the action of SWCDs, counties, cities, townships, watershed districts, and water management organizations.

- Link water resource planning with comprehensive land use planning.
  - Approve county groundwater plans
  - Approve watershed management organization plans
- Provide resolution to water policy conflicts and issues. To implement the comprehensive local water management acts
- Provide the forum (through the board) for local issues, priorities, and opportunities to be incorporated into state public policy
- Advise local governmental units that administer for the Wetland Conservation Act
- Coordinate state and federal resources to realize local priorities

Statutory Requirements/Authority

- Minnesota Statutes Chapter 103B.101
- Minnesota Statutes Chapters 103C, 103D, 103F
- Minnesota Statutes Chapters 103A.211, 103A.305, 103A.315, 103A.311
- Minnesota Statutes Chapters 103B.201, 103B.255, 103B.301
- Minnesota Statutes Chapters 103G

Counties

Role

In 1987, metropolitan counties were given the authority to prepare and adopt groundwater plans. That provided a mechanism for counties to set priorities, address issues, and build local capacity to protect and manage of groundwater.

This is an important issue in the metropolitan area. Counties in the area rely heavily on their groundwater for their domestic, municipal, industrial, and agricultural water supplies. Additionally, the metropolitan area has productive aquifers, but they have limits. Development and urban sprawl can increase demands on groundwater and disrupt groundwater recharge areas.

A number of successes have come out of this planning process. Every county in the metro area has technical capacity to deal with groundwater issues at some level. Metropolitan counties with approved groundwater plans can use matching grants to implement items in their plans.

Responsibilities

Although counties are not directly responsible for water supply infrastructure or management, they may engage in several activities that indirectly affect water supply sources in the region.

Master Water Supply Plan Implementation

- In close coordination with cities that develop their own groundwater plans, write, coordinate, and administer county groundwater plans that reflect the Master Water Supply Plan
- Review local water supply plans and recommend Metropolitan Council approval, if a county groundwater plan has been adopted (persuant to Minnesota Statutes 473.859, Subd. 6)

Additional water supply-related activities

- Convene local stakeholders to ensure and enable coordination with respect to groundwater issues and activities
- Conduct comprehensive planning for townships (except Ramsey and Hennepin)
- Establish and enforce standards to prevent contamination of groundwater

- If delegated to a local board of health by the MDH, manage delegated well programs for regulating water wells, monitoring wells, and/or dewatering wells, such as in Dakota County
- Coordinate monitoring networks and monitoring groundwater and surface water quality and quantity
- Regulate individual sewage treatment systems, if a program exists
- Regulate feedlots
- Enforce building codes
- Monitor water resources
- Test private wells
- License solid and hazardous wastes
- Provide well sealing grants and technical assistance
- Educate the public, businesses, organizations and others about water appropriation and conservation
- Identify sensitive areas that may be vulnerable to adverse water supply impacts

Soil and water conservation districts

Role

Soil and Water Conservation Districts (SWCDs) are local units of government that manage and direct natural resource management programs at the local level. Districts work in both urban and rural settings, with landowners and with other units of government, to carry out a program for the conservation, use, and development of soil, water, and related resources.

One crucial niche districts fill is that of providing soil and water conservation services to owners of private lands.

Responsibilities

SWCDs provide needed technology, funding and educational services. Counties and Soil and Water Conservation Districts may collaborate or delegate all responsibilities to one or the other.

Master Water Supply Plan Implementation

- Write, coordinate, and administer county groundwater plans, if they are developed, that reflect the Master Water Supply Plan
- Review local water supply plans and recommend Metropolitan Council approval, if a County Groundwater Plan has been adopted persuant to Minnesota Statutes 473.859, Subd. 6

Additional water supply-related activities

- Monitor groundwater and surface water resources
- Promote best management practices that protect and enhance water supplies, particularly in rural areas

Watershed management organizations

Role

The organization of watershed management responsibilities varies across the metropolitan area. Watershed management may occur through Watershed Management Organizations (WMOs), Watershed Districts, or counties. Regardless of the management structure, watersheds work to conserve the natural resources of the state by land use planning, flood control, and other conservation projects using sound scientific principles for the protection of public health and welfare and wise use of the natural resources.

In the metro area, watershed activities are guided by the Metropolitan Area Surface Water Management Act (*Minnesota Statutes 103B.201 to 255*) which requires watersheds to prepare and implement watershed management plans.

Responsibilities

Master Plan Implementation

Although watersheds are not directly responsible for water supply infrastructure or management, several activities may indirectly affect water supply sources in the region.

- Foster incentivize low-impact development practices to reduce irrigation and increase infiltration
- Use communication media to disseminate information about source water protection
- Monitor groundwater-surface water connections

Additional water supply-related activities

Watersheds have the option to engage in water supply management, shaped by Minnesota statutes and rules. If this option is pursued, responsibilities might include:

- Fund water supply protection activities (well sealing, for example)
- Support stormwater infiltration approaches that protect and enhance groundwater
- Monitor groundwater and surface water quality and quantity to evaluate water supply sustainability
- Issue permits for water appropriations, if the watershed management organization has permitting authority
- Complete a watershed management plan that is consistent with the Minnesota Rules 8410
- If a county has an approved groundwater plan, ensure that the community's own groundwater plan is consistent with it.

Funding sources for implementation

Drinking water infrastructure

For building or maintaining infrastructure for drinking water, there are several funding options available to municipalities and drinking water utilities. These include traditional revenue generating methods such as utility water rates, and other customer fees and charges for specific benefits or services.

Large capital projects often require multiple funding sources to finance projects and minimize the impact on user rates. Projects of this type can be financed through municipal revenue bonds, which are generally paid for over time by water rates, or with other sources, including low-interest loans or grants that may be available through state and federal programs.

Several programs relevant to water utilities in Minnesota are described below. Some of the funding programs target small communities and rural areas, and may have limited applicability in more urbanized areas. These qualifications are noted, where possible.

Table 5 - Funding sources for drinking water infrastructure.

Program	Rural Development, U.S. Department of Agriculture
Objective	Provide loans and grants for development of water systems in rural areas and towns with a population of 10,000 or less.
Applicant	Public entities, non-profit organizations, and Indian tribes. Several areas in the seven-county metropolitan area are ineligible.
Uses	Construction, land acquisition, legal fees, engineering fees, capitalized interest, equipment, initial operation and maintenance costs, project contingencies, and any other cost that is determined by the Rural Development program to be necessary for the completion of the project. Projects must be primarily for the benefit of rural users.
Population	Less than 10,000 in rural areas.
Terms/ Conditions	Must show that applicant is unable to secure funds at affordable rates otherwise. Rates are set quarterly. Loans are made based on the applicant's authority and the life expectancy of the system's project.
Website	*http://www.rurdev.usda.gov/UWP-dispdirectloansgrants.htm*
Program	Small Cities Development Grant Program, Minnesota Department of Employment and Economic Development
Objective	Provide grants to help cities and counties with funding for public infrastructure. Benefits individuals and households with low and moderate incomes, eliminates urgent threat to public health or safety.
Applicant	Cities, township and counties. In seven-county metropolitan area, only Carver County and Scott County are eligible.
Uses	Public facility improvements, including wells, water towers, distribution systems.
Population	Cities with population of 50,000 or less. Counties with population of 200,000 or less.
Terms/ Conditions	Maximum grant is $600,000. Must benefit low and moderate-income persons or households. Timeline to complete projects is normally 30 months.
Website	*http://mn.gov/deed/government/financial-assistance/community-funding/*
Program	Drinking Water Revolving Fund, Minnesota Department of Employment and Economic Development

Objective	Provide loans to help communities build drinking water storage, treatment and distribution systems to comply with standards in the Safe Drinking Water Act.
Applicant	Cities, counties, townships, sanitary districts or other governmental subdivisions responsible for providing public drinking water. Projects must be on the MDH Project Priority List (PPL) and the Public Facility Authority's Intended Use Plan (IUP). Must be certified by MDH before loan approval.
Uses	Allowable costs include land costs, site preparation, construction, engineering, equipment and machinery, bond issuance, and certain fees and contingency costs. Projects that are primarily to serve growth are not eligible
Population	No cap or minimum. Rate discounts may apply for applicants with populations less than 2,500.
Terms/ Conditions	Discounted loan rates. Loans are amortized up to a maximum of 20 years or up to 30 years if the average annual resident cost would exceed 1.2% of median household income.
Website	*http://www.mn.gov/deed/government/public-facilities/funds-programs/drinking-*

Storm water infrastructure

There are several potential funding sources for local stormwater infrastructure projects. These may include user rates and charges, grants, or low-interest loan programs. Revenues generated from stormwater utility fees and charges can be used to fund capital projects.

Similarly, watershed districts (and some water management organizations) can fund capital projects with revenues collected through their taxing authority, or through special fees. Additional opportunities may be available to public entities through either community partnerships or partnerships among a combination of public and private entities. In some cases, granting organizations will support nonprofit, nongovernmental or educational programs, but are restricted from directly funding government operations.

Community partnerships, where a school, non-profit, or other similar organization is the primary grant applicant and the governmental agency is a partner or subrecipient, may open other granting opportunities where the costs and implementation responsibilities could be shared between organizations. Often, collaborative arrangements, multidisciplinary or public-private partnerships, and the involvement of community stakeholders are supported by granting organizations.

The table below summarizes two state programs that could potentially be used to finance stormwater projects in Minnesota. Some programs focus on water quality improvement projects, so water quality benefits of any candidate project would have to be clearly demonstrated.

Table 6 - Funding sources for stormwater infrastructure

Program	Point Source Implementation Grant Program, Minnesota Department of Employment and Economic Development
Objective	Provide grants to local units of government to assist with the cost of wastewater or stormwater projects. Projects should befocused on water quality.
Applicant	Cities, counties, townships, sanitary districts. Must be on the MPCA's Project Priority List (PPL).
Uses	Build, repair and improve public wastewater or stormwater systems. Must address an issue involving the total maximum daily load (TMDL) of identified pollutants.
Population	No cap or minimum.
Terms/ Conditions	Provides grants for up to 50% of eligible costs up to $3 million.
Website	http://www.mn.gov/deed/government/public-facilities/funds-programs/point-source-grants.jsp

Program	Projects and Practices, Board of Water and Soil Resources
Objective	Provide grants for on-the-ground projects and practices that will protect or restore water quality in lakes, rivers or streams, or will protect groundwater or drinking water. Must be consistent with approved state or local water management document or plan.
Applicant	Soil and Water Conservation Districts, Watershed Districts, Watershed Management Organizations, Counties, Cities, and joint powers board of these organizations.
Uses	Eligible activities can consist of structural practices and projects, non-structural practices and measures, project support, and grant management and reporting.
Population	No cap or minimum.
Terms/ Conditions	Requires minimum 25% nonstate match. Minimum request of $30,000
Website	*http://www.bwsr.state.mn.us/cleanwaterfund/FY12_BWSR_CWF_Policy_Final.pdf*

Program	Targeted Storwwater Grant, Metropolitan Council
Objective	Provide grants for projects that serve as visual demonstration projects, are easy to replicate, focus on highly urbanized areas, include long-term monitoring and provide information on challenges and opportunities.
Applicant	More information needed
Uses	More information needed
Population	More information needed
Terms/ Conditions	More information needed
Website	More information needed

Other sources

Other sources, although more difficult to secure, include special appropriations from state or federal government. These include the State and Tribal Assistance Grant (STAG) program administered by the regional offices of the U.S. Environmental Protection Agency, or other infrastructure funding included in special legislation or appropriations.

In the past, these funds have, in the past, helped to finance a portion of the costs associated with water infrastructure projects. Projects that are selected for special funding provisions often demonstrate collaborative approaches to resource or infrastructure challenges, and present solutions with regional benefits. Financial hardship to the affected communities or rate payers may also be considered, among other criteria.

Shared water infrastructure projects have secured special funding consideration in Minnesota in the past. The Joint Powers Water Board, a shared utility that serves Albertville, Hanover and Saint Michael secured approximately $1 million in grant money to establish a joint utility in 1977. The Burnsville/ Kraemer Quarry water project received $5.5 million in state funding in 2008 for construction of a new water treatment plant that serves the Cities of Burnsville and Savage. Rural water systems in Minnesota have also secured federal and state funding for capital improvements and expansion.

The size and scope of major infrastructure projects often require a combination of funding sources, which can include rate payer-generated funds, bonds, low-interest loans, or grants. Many of the loan or grant programs require some component of matching funds; pursuing a diversified financing strategy is recommended to maximize opportunities, and minimize the impact on rate payers. As supply and resource availability issues continue to emerge in the region, a shared-system approach to water supply may provide both supply reliability and a framework for equitable resource use, as well as economic opportunities.

9 Annotated Bibliography

American Water Works Association. 2014. AWWA State of the Water Industry Report.

The American Water Works Association (AWWA) has been formally tracking issues and trends in the water industry since 2004 through the State of the Water Industry (SOTWI) study. The Association continues to conduct this annual survey in order to: identify and track significant challenges facing the water industry, provide data and analyses to support water professionals as they develop and communicate strategies to address current issues, discover and highlight potential problems or concerns on the water industry's horizon, and inform decision makers and the public of the challenges faced by the industry.

Anoka County Community Health and Environmental Services. 2014. *Water Resources Report.* Anoka County: Anoka, MN.

This report addresses the environmental health issues identified for Anoka County. Natural resources management, environmental protection and environmental health protection share many goals. For example, the protection and management of Mississippi River water quality is a goal of a natural resources program such as the Clean Water Act, and a public health program including the Safe Drinking Water Act. This report will be used to address environmental health issues identified in Anoka County through the Community Health Services assessment and planning process, and will be incorporated into the Community Health Improvement Plan (CHIP). Appendix A provides a detailed summary of the authority and responsibility for water resources management, including information about federal, state and local entities.***Website***

Barr Engineering Company. 2015 (DRAFT). *Technical Memorandum to Metropolitan Council: Metro Pumping Optimization 3*.

This technical memorandum describes the optimization of pumping in the seven-county metropolitan area. The goal of the optimization was to maximize total pumping from existing wells while meeting constraints on baseflow, hydraulic head, and flow direction as specified by the Metropolitan Council. The optimization uses the steady-state version of the Twin Cities Metropolitan Area Groundwater Flow Model, Version 3.0 (Metro Model 3; Metropolitan Council, 2014).

Dadaser-Celik, Filiz and Stefan, Heinz G.. 2009. Stream Flow Response to Climate in Minnesota, Project Report No. 510. University of Minnesota, St. Anthony Falls Laboratory. Prepared for Legislative Citizens Committee on Minnesota Resources. St. Paul, MN.

The variability of stream flows in Minnesota, and the relationship between stream flows and climate are the focus of this report. We analyze historical flow records of Minnesota streams to determine how much frequency and magnitude of flows have been affected by climate and land use changes. Flow duration analysis, high and low flow ranking, and flood frequency analysis were applied to recorded mean daily stream flows, 7-day average low flows, and annual peak flows. Data from 36 gauging stations located in five river basins of Minnesota (Minnesota River, Rainy River, Red River of the North, Lake Superior, and Upper Mississippi River Basins) covering the 1946-2005 period were used. ***Website***

Dickinson, Mary Ann. 2014. The Real Relationship Between Conservation and Rising Water Rates. Downloaded from National Geographic website on April 29, 2015 at http://voices.nationalgeographic.com/2014/10/05/the-real-relationship-between-conservation-and-rising-water-rates/

This article discusses three reasons why water efficiency is a smart investment for both utilities and consumers and not solely a revenue buster as is currently perceived:

- Water rates will rise regardless of whether water conservation occurs.
- Water efficiency has been proven to actually slow down the increases in consumer rates.

Efficiency is often the cheapest source of new supply and can help avoid the expensive costs of adding new storage or treatment capacity. ***Website***

Hall, C.W. et al. 1911. Geology and Underground Waters of Minnesota. Work done in cooperation with the Minnesota State Board of Health. United States Geological Survey: Washington D.C.

The purpose of this investigation was to determine to the fullest extent practicable the principal facts in regard to the underground waters – their quantity, head, mineral content, sanitary conditions, and their depths below the surface – as well as the best methods for drilling to the them and finishing wells for their utilization and to consider all other questions relating to their recovery for human use.***Website***

Keeler, Bonnie L. and Stephen Polasky, 2014, Land-use change and costs to rural households: a case study in groundwater nitrate contamination. Environmental Research Letters 9 074002. IOP Science Publishing Ltd. Published June 30, 2014.http://iopscience.iop.org/1748-9326/9/7/074002/article

Loss of grassland from conversion to agriculture threatens water quality and other valuable ecosystem services. Here we estimate how land-use change affects the probability of groundwater contamination by nitrate in private drinking water wells. We find that conversion of grassland to agriculture from 2007 to 2012 in Southeastern Minnesota is expected to increase the future number of wells exceeding 10 ppm nitrate-nitrogen by 45% (from 888 to 1292 wells). We link outputs of the groundwater well contamination model to cost estimates for well remediation, well replacement, and avoidance behaviors to estimate the potential economic value lost due to nitrate contamination from observed land-use change. We estimate $0.7–12 million in costs (present values over a 20 year horizon) to address the increased risk of nitrate contamination of private wells. Our study demonstrates how biophysical models and economic valuation can be integrated to estimate the welfare consequences of land-use change.***Website***

Kessler, Erich and Lorenz, D.L., 2010, Low-flow characteristics of the Mississippi River upstream from the Twin Cities Metropolitan Area, Minnesota, 1932-2007: U.S. Geological Survey Scientific Investigation Report 2010-5163, 14 p

The U.S. Geological Survey, in cooperation with the Metropolitan Council, conducted a study to characterize regional low flows during 1932–2007 in the Mississippi River upstream from the Twin Cities metropolitan area in Minnesota and to describe the low-flow profile of the Mississippi River between the confluence of the Crow River and St. Anthony Falls. Probabilities of extremely low flow were estimated for the streamflow-gaging station (Mississippi River near Anoka) and the coincidence of low-flow periods, defined as the extended periods (at least 7 days) when all the daily flows were less than the 10th percentile of daily mean flows for the entire period of record, at four selected streamflow-gaging stations located upstream. The likelihood of extremely low flows was estimated by a superposition method for the Mississippi River near Anoka that created 5,776 synthetic hydrographs resulting in a minimum synthetic low flow of 398 cubic feet per second at a probability of occurrence of 0.0002 per year.***Website***

Kloprogge, Penny, Eronene van der Sluijs and Arjan Wardekker. 2007. Uncertainty Communication: Issues and Good Practice. Copernicus Institute – Research Institute

for Sustainable Development and Innovation, Universiteit Utrecht: Utrecht, The Netherlands.

Dealing with uncertainty is essential because assessment results regarding complex environmental issues are of limited value if the uncertainties have not been taken into account adequately. A careful analysis of uncertainties in an environmental assessment is required, but even more important is the effective communication of these uncertainties in the presentation of assessment results. This report explores the issue of uncertainty communication in detail, and contains more detailed guidance on the communication of uncertainty.***Website***

Maupin, M.A., Kenny, J.F., Hutson, S.S., Lovelace, J.K., Barber, N.L., and Linsey, K.S.. 2014. Estimated use of water in the United States in 2010: U.S. Geological Survey Circular 1405.

This report, "Estimated use of water in the United States in 2010," is the 13th in a series of U.S. Geological Survey (USGS) Circular reports that have been published every 5 years since 1950. The 60-year span of national reports represents the longest compilation record of water-use data by a Federal agency in the United States.***Website***

Metropolitan Council. 2010. Evaluation of Groundwater and Surface-Water Interaction: Guidance for Resource Assessment: Twin Cities Metropolitan Area, Minnesota. Prepared by Barr Engineering. Metropolitan Council: Saint Paul, MN.

This project provides a screening method to identify areas where groundwater withdrawals are most likely to have an impact on surface waters. In these areas, further characterization of the groundwater-surface water connection may be an important part of local water supply development. This study was conducted to: (1) prioritize surface water features for impact monitoring and resource assessment and (2) recommend monitoring and analysis techniques that will provide early warning to water supply managers to help avoid impacts on surface water features from groundwater pumping. ***Website***

Metropolitan Council. 2011. Stormwater Reuse Guide. Prepared by CDM Smith. Metropolitan Council: Saint Paul, MN.

The Metropolitan Council Stormwater Reuse Guide introduces effective alternative techniques for stormwater reuse for the purpose of reducing demand on Twin Cities metropolitan area potable water supplies. Tailored for city planners, engineers, and green thinkers, the Guide provides step-by-step instructions that describe how to bring a stormwater reuse project from concept, to assessment, to implementation. A stepwise series of tools are provided to characterize the source stormwater, identify the intended use, assess the feasibility of the concept, and then select and implement the appropriate collection, storage, treatment, and distribution components of the project. The Guide is designed to be visually appealing and easy to navigate, both electronically and on paper. The Guide is a creation of the Metropolitan Council in partnership with CDM Smith, Short Elliott Hendrickson (SEH), and Hoisington Koegler Group.***Website***

Metropolitan Council. 2013a. Assessing the Opportunity and Barriers for Water Conservation by Private Industrial Water Users: For the Twin Cities Metropolitan Area. Prepared by the Minnesota Technical Assistance Program. Metropolitan Council: Saint Paul, MN.

This project supports the intent of the Metropolitan Council to better understand the industrial water use needs of private well water users in an eleven county area including Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington, and Wright counties. Through this project, the Metropolitan Council and MnTAP will identify opportunities for industrial water conservation as well as factors that motivate implementation of operational changes to capture water

conservation savings. The project will fill an existing knowledge gap in water conservation data in the metropolitan area. Data gained from this project will be used in water supply planning projections for the metropolitan area. Private industrial water users will receive site-specific water conservation recommendations.***Website***

Metropolitan Council. 2013b. Groundwater Digest. Metropolitan Council: Saint Paul, MN.

This digest explains how groundwater "works" and why it is important to the region.***Website***

Metropolitan Council. 2014a. Assessing the Opportunity and Barriers for Water Conservation by Private Industrial Water Users. Prepared by Minnesota Technical Assistance Program (MnTAP). Metropolitan Council: Saint Paul, MN.

This project supported the intent of the Metropolitan Council to better understand the industrial water use needs of private well water users in an eleven county area including Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington, and Wright counties. Through this project, the Metropolitan Council and MnTAP worked to identify opportunities for industrial water conservation as well as factors that motivated implementation of operational changes to capture water conservation savings. The project helped to fill an existing knowledge gap in water conservation data in the metropolitan area. Data gained from this project will be used in water supply planning projections for the metropolitan area. Private industrial water users received site-specific water conservation recommendations and will continue to be followed up with through at least 2015 to see if additional assistance is useful.***Website***

Metropolitan Council. 2014b. Feasibility Assessment of Approaches to Water Sustainability in the Northeast Metro. Prepared by Short Elliott Hendrickson Inc. Metropolitan Council: Saint Paul.

The Metropolitan Council retained Short Elliott Hendrickson Inc. (SEH) to complete this technical assessment of the capital and operational costs, as well as the potential benefits, of alternative approaches to water supply in the northeast metro area. The report also looks specifically at the direct augmentation of White Bear Lake with water from the major rivers in the region. This study has been carried out with input from and engagement with local stakeholders, including community public water utilities, through a water supply work group. This group continues to meet regularly to discuss the study along with other water supply topics of importance to group members.

Metropolitan Council. 2014c. October 1, 2014 Memo to Twin Cities Metropolitan Area Water Suppliers: Water Demand Projection Method and Preliminary Results.

This memorandum provides a summary of the methods used to project water demand for the public water supply systems in the Twin Cities Metropolitan Area. This work is being done in support of the regional Master Water Supply Plan update that is currently in progress. Presented are the data sources used, assumptions made, and exceptional cases and how they were addressed.

Metropolitan Council. 2014d. Twin Cities Metropolitan Area Regional Groundwater Flow Model, Version 3.0. Prepared by Barr Engineering. Metropolitan Council: Saint Paul, MN.

This report summarizes the result of work to update the regional groundwater flow model, which meets the requirements of Minn. Stat., Sec. 473.1565 calling for the Council to engage in planning activities which must include "development and maintenance of a base of technical information needed for sound water supply decisions including surface and groundwater availability analyses, water demand projections, water withdrawal and use impact analyses, modeling, and similar studies".

The report is organized into six major sections. The introduction provides an overview of the Council and the need for the project. The next five sections discuss methods and results.

Website

Metropolitan Council. 2015. *Conservation Toolbox.* Prepared by CDM Smith. Metropolitan Council: Saint Paul, MN.

This online tool supports efforts to conserve water.

Metropolitan Council. 2015b. Regional Feasibility Assessments: Technical Analysis Supporting Long-Term Reliability and Sustainability of Water Supplies in the Twin Cities Metropolitan Area. Prepared by HDR. Metropolitan Council: Saint Paul, MN.

Metropolitan Council recognition of water supply planning as an integral component of long-term regional and local comprehensive planning has led to the implementation of a number of projects to provide necessary technical information to form the basis for sound water supply decisions. This Regional Feasibility Assessments study will inform the Council and the participating communities about the potential to diversify water sources to support a sustainable and reliable long-term regional water supply in the Twin Cities Metropolitan Area.

Alternative water supply approaches evaluated include:

- Enhanced recharge
- Surface water
- Groundwater
- Stormwater

Metropolitan Council. 2015c. Thrive MSP 2040. Metropolitan Council: Saint Paul, MN.

Under state law, the Council prepares a long-range plan for the Twin Cities region every 10 years. Thrive MSP 2040 sets the policy foundations for systems and policy plans developed by the Council: the Transportation Policy Plan, the Water Resources Policy Plan, the Regional Parks Policy Plan, and the Council's first Housing Policy Plan update in nearly 30 years.

Metropolitan Council. 2015d (DRAFT). Water Billing and Consumption Analysis: Water Usage Practices in 189 Cities and Townships in the Twin Cities Metropolitan Area, Minnesota. Prepared by CDM Smith. Metropolitan Council: Saint Paul, MN.

This project included collection and dissemination of data regarding water costs and conservation programs in the seven-county metropolitan area, including:

- Evaluating all water rate structures of the communities in the seven-county metro area. The information on rates by community was correlated with community per capita values, peaking ratios, and other water use characteristics.
- Evaluating all water conservation programs in the communities in the seven-county metro area.
- Developing and analyzing water use characteristics by community and sector to determine trends in water use, including inter-community comparisons.

Website

Miller, T.P., J.R. Peterson, C.F. Lenhart, and Y. Nomura. 2012. The Agricultural BMP Handbook for Minnesota. Minnesota Department of Agriculture.

The purpose of this handbook is to present the findings of a comprehensive inventory of agricultural Best Management Practices (BMPs) that address water quality impairments in Minnesota. This

handbook provides water quality practitioners with the information necessary to identify suitable agricultural BMPs for agricultural watershed in Minnesota.***Website***

Minnesota Department of Health. 2014. Aquifer Test Database Design Documents.

These are database design documents generated by the Aquifer Test Workgroup whose members included representatives of Federal, State and Local Agencies. This database is designed to satisfy the needs of the various groups to track aquifer tests performed in Minnesota. These tests are primarily conducted on high-capacity wells but may include tests of other types of wells such as those used for domestic supply, or groundwater contamination. The purpose collecting and managing the information is to provide robust scientifically-justified support to decision-makers at all levels to promote the wise use of water resources and protect drinking water and the environment. This database is a filing system for all data collected during a test, not just a list of calculated aquifer properties.

Minnesota Department of Health. 2015. *County Well Index.* http://www.health.state.mn.us/divs/eh/cwi/.

The CWI database contains basic information, such as location, depth, and static water level, for wells drilled in Minnesota. The database contains construction and geological information from the well record (well log) for many wells. CWI Online also provides mapping of wells onto aerial photos, allowing users to visually identify well locations.***Website***.

Minnesota Department of Health – Well Management. Special Well and Boring Construction Areas (Formerly known as Special Well Construction Areas and before that "Well Advisories"). http://www.health.state.mn.us/divs/eh/wells/swca/. Accessed February 26, 2015.

Minnesota Department of Health website describing Special Well and Boring Construction Areas. A Special Well and Boring Construction Area is sometimes also called a well advisory. It is a mechanism which provides for controls on the drilling or alteration of public and private water-supply wells, and monitoring wells in an area where groundwater contamination has, or may, result in risks to the public health. The purposes of a Special Well and Boring Construction Area are to inform the public of potential health risks in areas of groundwater contamination, provide for the construction of safe water supplies, and prevent the spread of contamination due to the improper drilling of wells or borings. ***Website***

Minnesota Department of Natural Resources. 1989. Drought of 1988. Saint Paul, Minnesota.

The 1988 drought broke long-standing records; strained water use controversies; enhanced public concern about water resources; and generally challenged the energies, talents and perseverance of water managers and the public at large.

Little could be done to manage natural disasters such as the 1988 drought; however impacts can be managed and minimized. Although drought impacts are very damaging to some industries and the environment, it also creates the opportunity to learn and improve future ability to manage such crises. ***Website***

Minnesota DNR - Division of Fisheries. Minnesota Trout Streams [map]. Scale Not Given. March 2002. http://deli.dnr.state.mn.us (December 2014)

This layer shows legally designated trout streams and trout stream tributaries as identified in Minnesota Rules Chapter 6264. See *http://www.revisor.leg.state.mn.us/arule/6264/0050.html* for legal descriptions and restrictions associated with designated trout waters. This data layer is a subset of

the DNR 24K streams layer, a statewide streams-hydrography data set cooperatively developed amongst many units of government within Minnesota.

Minnesota DNR - Division of Ecological Resources - Natural Heritage & Nongame Research Program. Calcareous Fens - Source Feature Points [map]. Scale Not Given. August 2008. http://deli.dnr.state.mn.us (December 2014)

Pursuant to the provisions of Minnesota Statutes, section 103G.223, this database contains points that represent calcareous fens as defined in Minnesota Rules, part 8420.1020. The calcareous fens in this shapefile correspond to the fens listed in Identification Order No. 08-001, which was published in the State Register on June 2, 2008 (32 SR 2148-2154). The current list of fens is posted on the DNR web site at *http://files.dnr.state.mn.us/publications/waters/calcareous_fen_list_nov_2009.pdf*

Minnesota DNR - Division of Waters. 2009. Minnesota Statewide Drought Plan. Saint Paul, MN.

This plan provides a framework for preparing for and responding to droughts to minimize conflicts and negative impacts on Minnesota's natural resources and economy.***Website***

Minnesota Department of Natural Resources. 2013. *Permit Information Report: Active Permit Information (Excel spreadsheet file).*

Minnesota water use data were gathered from permit holders who report the volume of water used each year. Permit information reports are generated directly from the main database files. The Permit Information Report was updated 2/4/2013. ***Website***

Minnesota Department of Natural Resources. 2015. Ground Water Level Data Retrieval. http://climate.umn.edu/ground_water_level/ (February 20, 2015)

Since 1944, DNR has managed a statewide network of water level observation wells (obwells). Data from these wells are used to assess ground water resources, determine long term trends, interpret impacts of pumping and climate, plan for water conservation, evaluate water conflicts, and otherwise manage the water resource. Soil and Water Conservation Districts under contract with DNR measure the wells monthly and report the readings to DNR. Readings are also obtained from volunteers at several locations.

Hydrographs, well descriptions and water level data are available for each well in the Ground Water Level Observation Well Database. ***Website***

Minnesota Department of Public Safety – Division of Homeland Security and Emergency Management. 2014. Minnesota State Hazard Mitigation Plan 2014. Minnesota Department of Public Safety: St. Paul, MN.

The State All Hazard Mitigation Plan represents the efforts of the state of Minnesota in fulfilling the responsibility for hazard mitigation planning. The purpose of this Plan is to identify the State's major hazards, assess the vulnerability to those hazards, and take steps to reduce vulnerability using the technical and program resources of Minnesota agencies. The Plan identifies goals and recommended actions and initiatives for state government to reduce and/or prevent injury and damage from hazardous events. The intent of the plan is to provide unified guidance for ensuring coordination of recovery-related hazard mitigation efforts following a major emergency/disaster, and to implement an on-going comprehensive state hazard mitigation strategy intended to reduce the impact of loss of life and property due to disasters.***Website***

Minnesota Geological Survey. 2011. Distribution of Vertical Recharge to Upper Bedrock Aquifers, Twin Cities Metropolitan Area. Minnesota Geological Survey: Minneapolis, MN.

This report summarizes work performed by the Minnesota Geological Survey (MGS) in partial fulfillment of work as described under contract 10I021 between the University of Minnesota and the Metropolitan Council. The goal of this investigation was to provide datasets that would assist the Metropolitan Council with regional ground water planning. Specifically, vertical travel times were calculated from a regional water table surface to bedrock in order to gain a better understanding of recharge to upper bedrock aquifers in the extended Twin Cities Metropolitan Area (TCMAx). A focus of this investigation, therefore, was on the permeability of unconsolidated sediments overlying the bedrock surface, and the regional distribution of vertical hydraulic gradient.

Minnesota Pollution Control Agency. 2014. Water Governance Evaluation: Update 2014 – Recommendations to streamline, strengthen, and improve sustainable water management. Minnesota Pollution Control Agency: St. Paul, MN.

This report is a follow-up to the 2013 Water Governance Evaluation, prepared by the Minnesota Pollution Control Agency (MPCA) in collaboration with the other state water management agencies at the direction of the Legislature. This 2014 progress report focuses on:

- initiatives that have been completed or are in progress
- new initiatives that the group has identified; and
- issues in need of further legislative action or direction

Website

State of Minnesota. 2014. Clean Water Fund Performance Report: A Report of Clean Water Funds Invested, Actions Taken, and Outcomes Achieved. Minnesota Pollution Control Agency: St. Paul, MN.

The Framework includes a set of performance measures that will convey the most meaningful information about clean water activities to key audiences across Minnesota. These performance measures generally fall into the following categories:

- Environmental and drinking water measures to track whether our water is getting cleaner
- Partnership and leveraging measures to track local government and citizen actions supported by the Clean Water Fund
- Organizational performance measures to track state government-led actions supported by the Clean Water Fund
- Financial measures to track how much and where Clean Water Fund money is being spent

The Framework also describes the connection between short-term activities and long-term results. The multi-agency Team grouped the measures into three other categories: financial investments, actions taken, and outcome measures. Together these measures track how Clean Water Fund investments result in actions taken and ultimately, clean water outcomes achieved. In the early years of the Clean Water Fund, more progress will be reported in short-term actions taken than long term outcomes. ***Website***

University of Minnesota, Department of Geology and Geophysics; Minnesota DNR - Division of Waters. Karst Feature Inventory Points [map]. Scale Not Given. January 2003. http://deli.dnr.state.mn.us (December 2014)

Since the early 1980s, the Minnesota Geological Survey and Department of Geology and Geophysics at the University of Minnesota have been mapping karst features and publishing various versions of their results in the form of 1:100,000 scale County Geologic Atlases. In the mid 1990s, the Minnesota Department of Natural Resources was assigned responsibility for the hydrogeology portions of the County Atlases and is now responsible for the karst mapping. Dalgleish and Alexander (1984),

Alexander and Maki (1988), Witthuhn and Alexander (1995), Green and others (1997), Shade and others (2001), and Tipping and others (2001) published sinkhole distribution maps for Winona, Olmsted, Fillmore Counties, Leroy Township, Pine and Wabasha Counties respectively. Published Atlases of Washington, Dakota, and the counties of the Twin Cites Metro area contain limited information on sinkhole occurrences. This karst feature database of Southeastern Minnesota has been developed to allow sinkhole and other karst feature distributions to be displayed and analyzed across existing county boundaries in a GIS environment. The karst inventory points are point features such as sinkholes, springs, and stream sinks.

U.S. Geological Survey. 2015. National Water Information System: Web Interface. USGS Current Conditions for Minnesota. URL: http://waterdata.usgs.gov/mn/nwis/uv? (May 2015)

This website provides data about historical and current stream conditions.***Website***

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Water Supply Profiles

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- Shoreview Water Supply Profile
- Spring Lake Park Water Supply Profile
- St. Anthony Water Supply Profile
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- Lilydale Water Supply Profile
- Louisville Twp. Water Supply Profile
- Marshan Twp. Water Supply Profile
- Mendota Water Supply Profile
- Mendota Heights Water Supply Profile
- Miesville Water Supply Profile
- New Market Twp. Water Supply Profile
- New Trier Water Supply Profile
- Nininger Twp. Water Supply Profile
- Northfield Water Supply Profile
- Prior Lake Water Supply Profile
- Randolph Twp. Water Supply Profile
- Randolph Water Supply Profile
- Ravenna Twp. Water Supply Profile
- Rosemount Water Supply Profile
- Savage Water Supply Profile
- Sciota Twp. Water Supply Profile
- Shakopee Water Supply Profile
- South St. Paul Water Supply Profile
- Spring Lake Twp. Water Supply Profile
- Sunfish Lake Water Supply Profile
- Vermillion Twp. Water Supply Profile
- Vermillion Water Supply Profile
- Waterford Twp. Water Supply Profile
- West St. Paul Water Supply Profile

West Central Metro Water Supply Profile

- Bloomington Water Supply Profile
- Brooklyn Center Water Supply Profile
- Brooklyn Park Water Supply Profile
- Carver Water Supply Profile
- Champlin Water Supply Profile
- Chanhassen Water Supply Profile
- Chaska Water Supply Profile
- Crystal Water Supply Profile
- Dahlgren Twp. Water Supply Profile
- Deephaven Water Supply Profile
- Eden Prairie Water Supply Profile
- Edina Water Supply Profile
- Excelsior Water Supply Profile
- Fort Snelling (unorg.) Water Supply Profile
- Golden Valley Water Supply Profile
- Greenwood Water Supply Profile
- Hopkins Water Supply Profile
- Laketown Twp. Water Supply Profile
- Long Lake Water Supply Profile
- Loretto Water Supply Profile
- Maple Grove Water Supply Profile
- Medicine Lake Water Supply Profile
- Minneapolis Water Supply Profile
- Minnetonka Beach Water Supply Profile
- Minnetonka Water Supply Profile
- Minnetrista Water Supply Profile
- Mound Water Supply Profile
- New Hope Water Supply Profile
- Orono Water Supply Profile
- Osseo Water Supply Profile
- Plymouth Water Supply Profile
- Richfield Water Supply Profile
- Robbinsdale Water Supply Profile
- Shorewood Water Supply Profile
- Spring Park Water Supply Profile
- St. Bonifacius Water Supply Profile
- St. Louis Park Water Supply Profile
- Tonka Bay Water Supply Profile
- Victoria Water Supply Profile
- Wayzata Water Supply Profile
- Woodland Water Supply Profile

North Metro Water Supply Profile
- Andover Water Supply Profile
- Anoka Water Supply Profile
- Bethel Water Supply Profile
- East Bethel Water Supply Profile
- Ham Lake Water Supply Profile
- Linwood Twp. Water Supply Profile
- Nowthen Water Supply Profile
- Oak Grove Water Supply Profile
- Ramsey Water Supply Profile
- St. Francis Water Supply Profile

Southwest Scott County Water Supply Profile
- Belle Plaine Twp. Water Supply Profile
- Belle Plaine Water Supply Profile
- Blakeley Twp. Water Supply Profile
- Helena Twp. Water Supply Profile
- Jordan Water Supply Profile
- New Prague Water Supply Profile
- Sand Creek Twp. Water Supply Profile
- St. Lawrence Twp. Water Supply Profile

West Metro Water Supply Profile
- Benton Twp. Water Supply Profile
- Camden Twp. Water Supply Profile
- Cologne Water Supply Profile
- Corcoran Water Supply Profile
- Dayton Water Supply Profile
- Greenfield Water Supply Profile
- Hamburg Water Supply Profile
- Hanover Water Supply Profile
- Hollywood Twp. Water Supply Profile
- Independence Water Supply Profile
- Maple Plain Water Supply Profile
- Mayer Water Supply Profile
- New Germany Water Supply Profile
- Norwood Young America Water Supply Profile
- Rockford Water Supply Profile
- Rogers Water Supply Profile
- San Francisco Twp. Water Supply Profile
- Waconia Twp. Water Supply Profile
- Waconia Water Supply Profile
- Watertown Twp. Water Supply Profile
- Watertown Water Supply Profile
- Young America Twp. Water Supply Profile

County Water Supply Profiles
- Anoka Water Supply Profile
- Carver Water Supply Profile
- Dakota Water Supply Profile
- Hennepin Water Supply Profile
- Ramsey Water Supply Profile
- Scott Water Supply Profile
- Washington Water Supply Profile

Watershed Water Supply Profiles
- BASSETT CREEK Water Supply Profile
- BLACK DOG Water Supply Profile
- BROWNS CREEK Water Supply Profile
- CAPITOL REGION Water Supply Profile
- CARNELIAN-MARINE-ST. CROIX Water Supply Profile
- CARVER COUNTY Water Supply Profile
- COMFORT LAKE FOREST LAKE Water Supply Profile
- COON CREEK Water Supply Profile
- EAGAN-INVER GROVE Water Supply Profile
- ELM CREEK Water Supply Profile
- LOWER MINNESOTA RIVER Water Supply Profile
- LOWER MISSISSIPPI RIVER Water Supply Profile
- LOWER RUM RIVER Water Supply Profile
- MIDDLE ST. CROIX RIVER Water Supply Profile
- MINNEHAHA CREEK Water Supply Profile
- MISSISSIPPI Water Supply Profile
- NINE MILE CREEK Water Supply Profile
- NORTH CANNON RIVER Water Supply Profile
- PIONEER-SARAH CREEK Water Supply Profile
- PRIOR LAKE-SPRING LAKE Water Supply Profile
- RAMSEY-WASHINGTON METRO Water Supply Profile
- RICE CREEK Water Supply Profile
- RILEY-PURGATORY-BLUFF CREEK Water Supply Profile
- SCOTT Water Supply Profile
- SHINGLE CREEK Water Supply Profile
- SOUTH WASHINGTON Water Supply Profile
- SUNRISE RIVER Water Supply Profile
- UPPER RUM RIVER Water Supply Profile
- VADNAIS LAKE AREA Water Supply Profile
- VALLEY BRANCH Water Supply Profile
- VERMILLION RIVER Water Supply Profile
- WEST MISSISSIPPI Water Supply Profile

Purpose

This appendix summarizes water use, source, and potential issues for each community, county and watershed in the seven-county Twin Cities metropolitan area.

The information in each water supply profile is generally based on regional information and should be refined with more locally specific characteristics to better evaluate potential issues.

The profiles provide a useful starting place for local planning and can be used in several ways, including:

- To inform community water conservation programs by helping to target large water use categories
- To complete local water supply plans in a way that considers Metropolitan Council policy and the Master Water Supply Plan
- To inform water supply-related permit applications and environmental review documents

Target Audience

- Community planning staff
- Public water supply utility staff
- County planners
- Watershed planners

Methodology and Supporting Data

Overview of water systems and use in the community

Information about the current status of the community's water system came from a review of past local water supply plans, data submitted to the MN Department of Natural Resources as part of the water appropriation permit program, and information submitted to the MN Department of Health and stored in the Minnesota Drinking Water Information System (MNDWIS). The information will be updated based on information provided through the public review process for the 2015 Master Water Supply Plan.

Number of high capacity wells permitted by DNR within the community

The number of high capacity wells in each major aquifer in the community was determined by counting the number of municipal and private water appropriation permits, as reported in MN Department of Natural Resources water appropriation permit database called the State Water Use Data System (SWUDS), located within the community boundaries.

Average annual water use by permitted users since 2003, in key water use categories

The average amount of water used by major categories between 2003 and 2012 came from MN Department of Natural Resources water appropriation permit database called the State Water Use Data System (SWUDS).

Available options for water supply sources

The list of available options for water supply sources was developed through a public outreach process that included input by sub-regional work groups. More information about the approach to outreach is available in Chapter 1 of the Master Water Supply Plan. More information about these options is described in Chapter 4 of the Master Water Supply Plan.

Municipal Water Use

Municipal water treatment

Information about municipal water treatment was taken from the MN Department of Health database called the Minnesota Drinking Water Information System (MNDWIS).

Rate structure

Information about the community's water rate structure came from MN Department of Natural Resources water appropriation permit database called the State Water Use Data System (SWUDS).

2012 [OR MOST RECENT] Permitted amount for municipal water supply

2012 permitted amount for municipal water supply is reported as the total amount of water appropriated by the community for public water supply purposes. A pie chart illustrates the amount of public water supply used for residential, industrial, commercial, irrigation, and non-revenue purposes.

2012 permitted amount for municipal water supply information came from MN Department of Natural Resources water appropriation permit database called the State Water Use Data System (SWUDS).

Historical municipal water use in the community

Historic water use information came from the MN Department of Natural Resources water appropriation permit database called the State Water Use Data System (SWUDS). Summer water use is represented by the month with the highest water use (usually July or August) and winter water use is represented by the month with the lowest water use (usually January or February).

Projected water use

Projected water use was developed by the Metropolitan Council with input from public water utility and community staff. The process is described in Appendix 2 of the Master Water Supply Plan. Some highlights are summarized below.

Population Served

Population served represents the number of people receiving water from the municipal water supply system. If the community sells water to a neighbor, the population served may be larger than the population of the community.

2020, 2030, and 2040 population served was projected by Metropolitan Council with input from communities. Values in this table should be assumed to range within 20% above and below the projection.

Total Population

Total population represents the total number of people who live in the community. 2020, 2030 and 2040 total population was taken from *Thrive MSP 2040*.

NOTE!As of April 9, 2015 population data is aligned with data distributed to communities for review. They are subject to change and will be revised for system adoption.

Projected Average Daily Water Use (Million Gallons per Year)

Projected average daily water use represents the total amount of municipal water used in a year by the community for purposes that include: residential, commercial, industrial, serving neighbors, and non-revenue purposes.

2020, 2030, and 2040 average daily water use was projected by Metropolitan Council with input from communities. Values in this table should be assumed to range within 20% above and below the projection.

Total Per Capita Water Use (Gallons per Person per Day)

Total per capita water use represents the average daily water use by the community (see description above), divided by the population served (see description above).

This value represents more than water used by residents in their homes; it also includes commercial, industrial, irrigation, and residential use. This value should not be used to compare communities against one another, because it is strongly shaped by community differences in the composition of commercial, industrial and residential users.

2020, 2030, and 2040 total per capita water use was projected using the method described in Appendix 2 of the Master Water Supply Plan.

Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 [OR MOST RECENT] Levels

Total per capita water use, assuming total water use remains at 2011 levels, illustrates how much water demand may have to be reduced, on a per person basis, to supply the community's future population with the same amount of water.

2011 total per capita water use, assuming total water use remains at 2011 levels, equals 2011 data reported by communities to the MN Department of Natural Resources through the water appropriation permit program.

2020, 2030, and 2040 total per capita water use, assuming total water use remains at 2011 levels, was determined by dividing 2011 total water use by the 2020, 2030, and 2040 population served (see description above).

The following will need to be addressed as water plans are updated

The issues identified here are generally based on regional information and can be refined for more local, site specific characteristics to better evaluate vulnerability.

Local water supply plans, permit requests, and environmental review documents should acknowledge potential issues and discuss actions to explore them further using more local information.

Regional information used to identify potential water supply issues came from several sources. The criteria and data sources used to identify each potential issue are described here:

Potential for water use conflicts and well interference

Due to the pervasiveness of private wells, the potential for well interference has been identified as a potential water supply issue throughout the region.

Potential for significant decline in aquifer water levels

- DNR reports a declining trend in annual minimum water levels at an observation well within 1.5 miles of the area of interest. Trend information was taken from the 2014 Clean Water Fund Performance Report.
- Regional groundwater flow modeling of the likely range of 2040 water demand, assuming currently planned sources are used, suggests that available head will drop by more than 50% over at least 60 acres (250,000 m^2) in one or more aquifers. Details about the Metropolitan Council's water demand projection process can be found in Appendix 2; details about the modeling process can be found in Appendix 3.

Potential for impacts of groundwater pumping on surface water features and ecosystems

- A trout stream is located within 5 miles of the community, based on mapping published by MN Department of Natural Resources (cite GIS dataset name)
- A fen is located within 5 miles of the community, based on mapping published by MN Department of Natural Resources (cite GIS dataset name)
- A spring is located within 1.5 miles of a community, based on mapping published by MN Department of Natural Resources (cite GIS dataset name)

- Surface waters within 1,000 feet of the community are likely to be directly connected to the regional groundwater system, based on regional screening by Metropolitan Council (CITATION for Barr).

Significant vulnerability to contamination

- Minnesota Department of Health has designated a Special Well and Boring Construction Area has been designated within the community
- A Drinking Water Supply Management Area (DWSMA) has been designated by the Minnesota Department of Health and [CITY NAME]; all or part of the DWSMA has been designated as vulnerable
- A sinkhole (karst) has been mapped within 1.5 miles of the community (CITATION for GIS dataset)
- The estimated vertical travel time from land surface to the regional water table is less than 50 years, based on hydrogeochemical mapping done by the Minnesota Geological Survey (CITATION for MGS report)

Significant uncertainty about aquifer productivity and extent

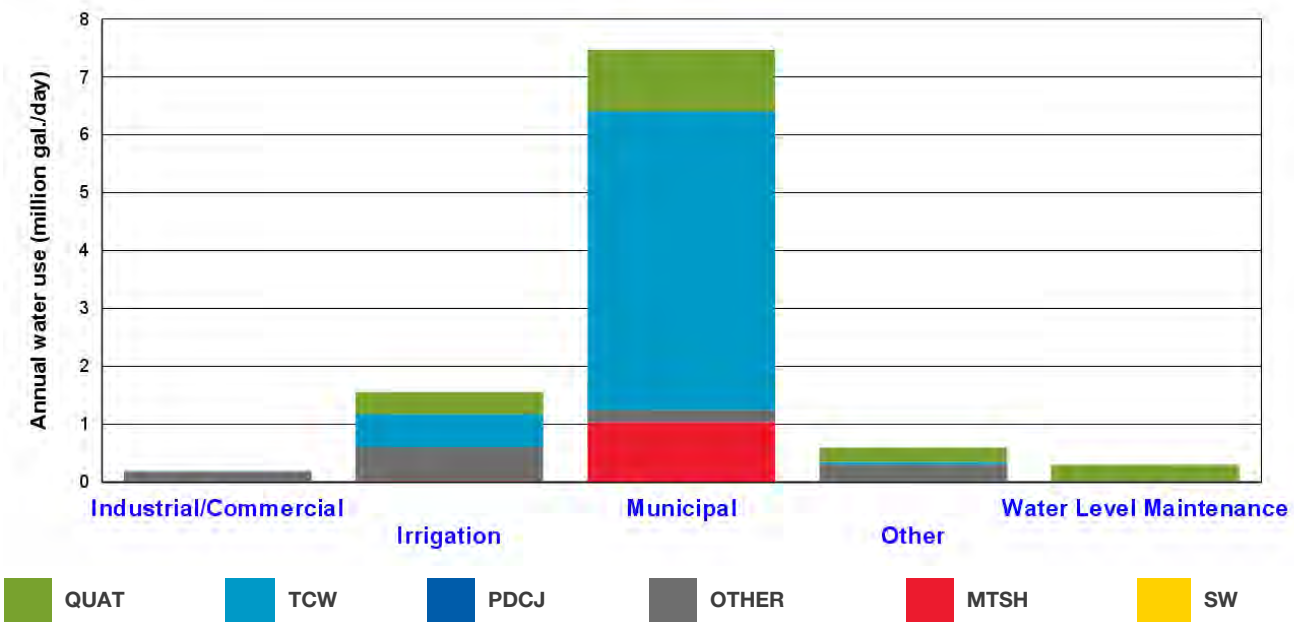
- No aquifer test or groundwater monitoring wells exist within 1.5 miles (cite MDH database)
- The most recent county geologic atlas is over 20 years old
- No DNR groundwater level observation well is located within 1.5 miles of the community (CITE DNR observation well database, online)

The following actions are recommended

Information about recommended action was developed by Metropolitan Council in partnership with state agencies, particularly DNR, and under the guidance of the Metropolitan Area Water Supply Advisory Committee and a community technical work group.

North Metro Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	107,331	118,662	138,992
Total Population	153,600	165,700	186,900
Projected Average Daily Water Use (Million Gal/Day)	2.5	2.8	3.3
Total Per Capita Water Use (Gal/Person/Day)	142	142	142
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	104	92	74

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Andover Water Supply Profile

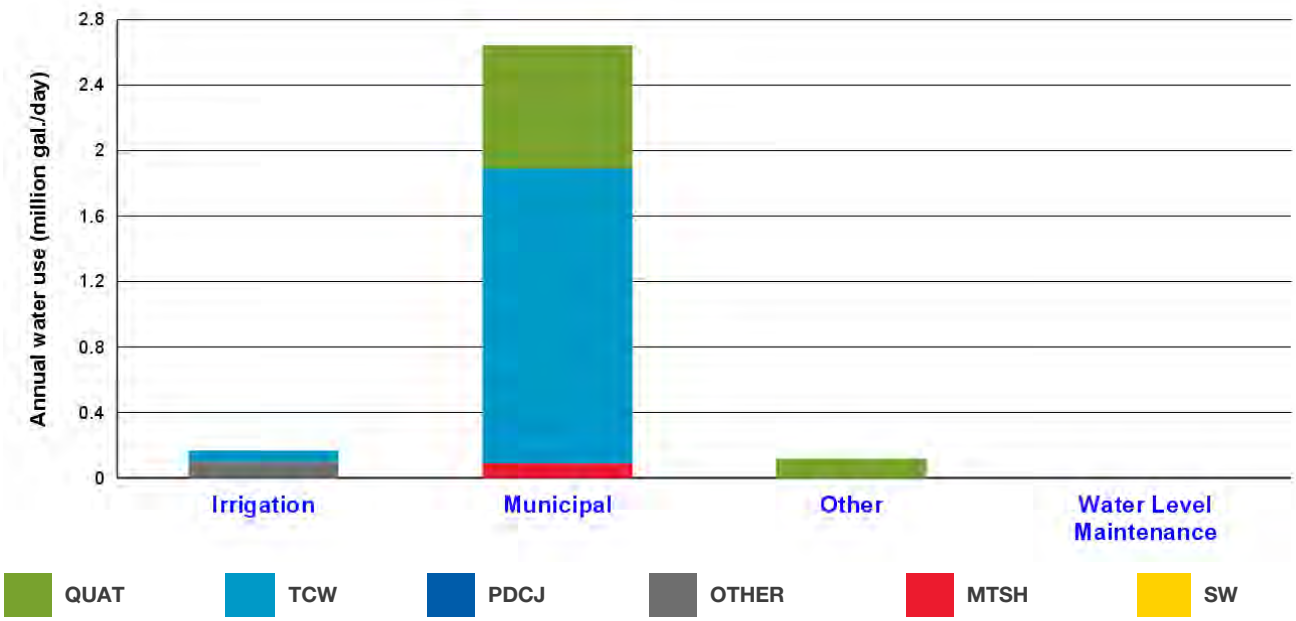
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	3	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	15	
Tunnel City-Wonewoc (TCW)	5	3	
Other	0	11	
Surface Water	0	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

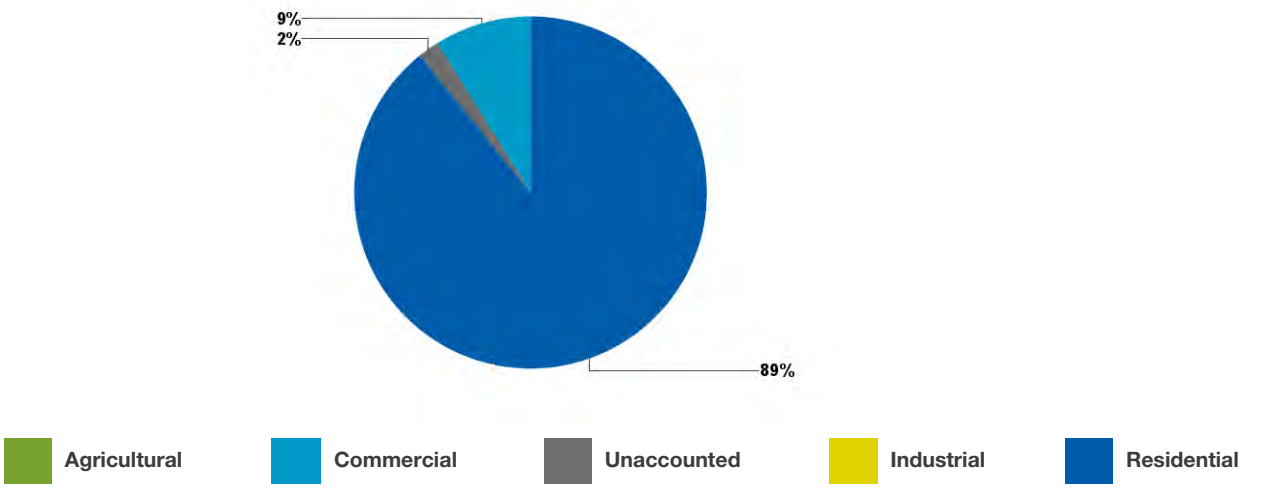
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

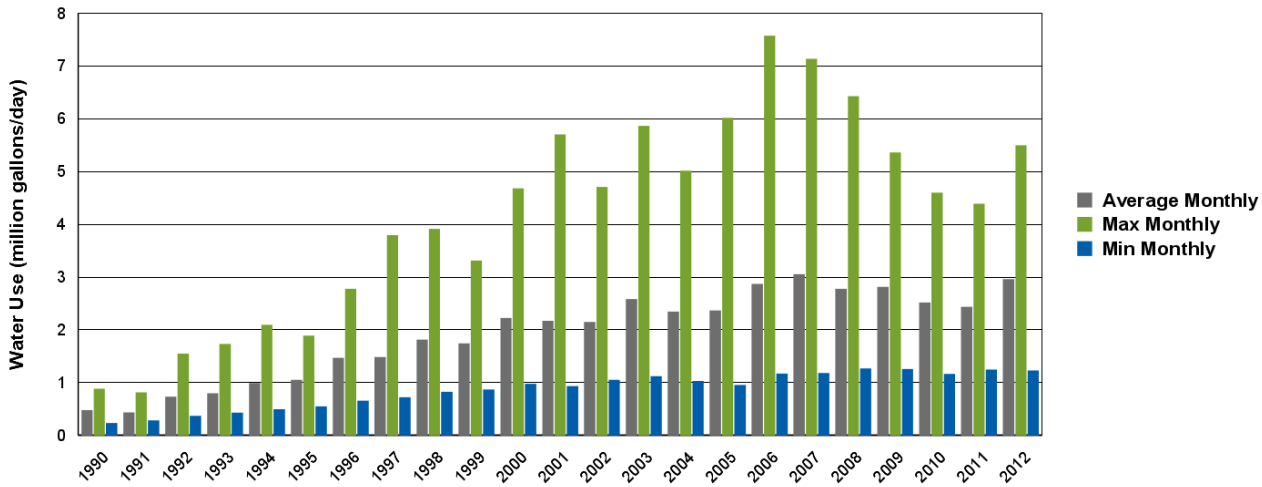
Municipal water treatment: Manganese removal, Iron removal, Disinfection, Iron/Manganese Sequestration, Other, Fluoride (Z), Corrosion control - Lead/Copper

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 1,051



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	21,265	22,465	28,565
Total Population	33,400	34,600	40,700
Projected Average Daily Water Use (Million Gal/Day)	3.3	3.5	4.4
Total Per Capita Water Use (Gal/Person/Day)	155.18	155.80	154.03
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	139	132	104

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be

developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Anoka Water Supply Profile

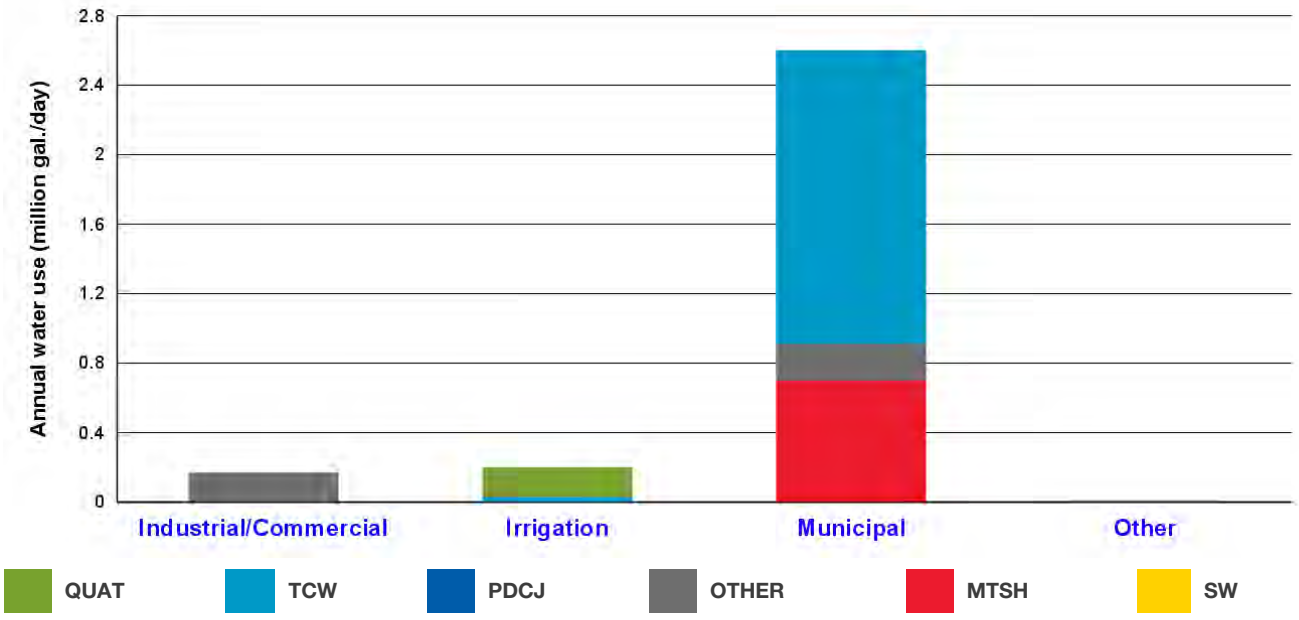
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	4	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	6	
Tunnel City-Wonewoc (TCW)	3	1	
Other	1	7	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

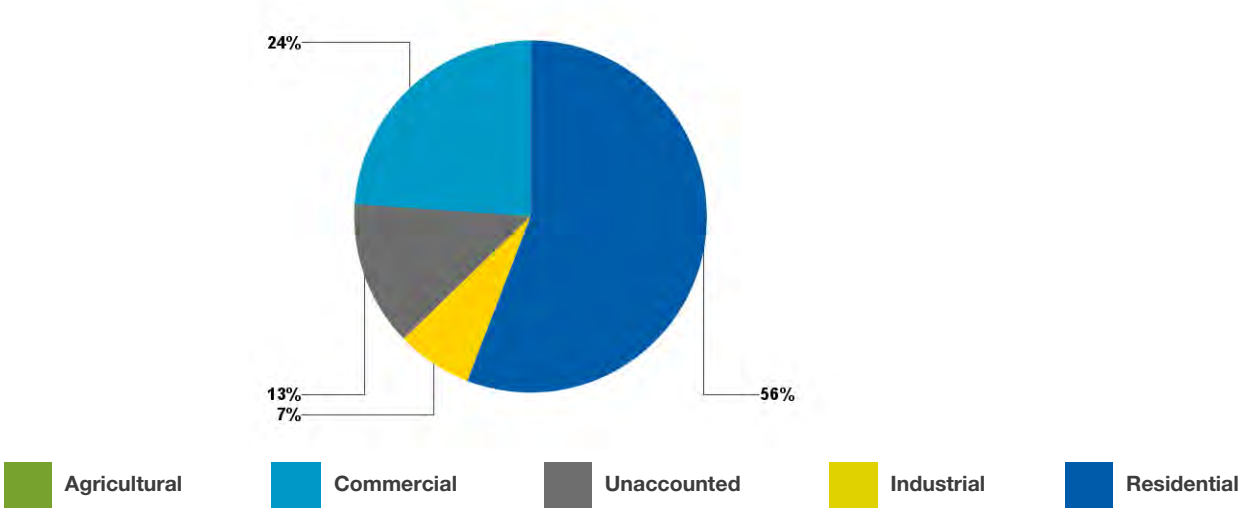
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

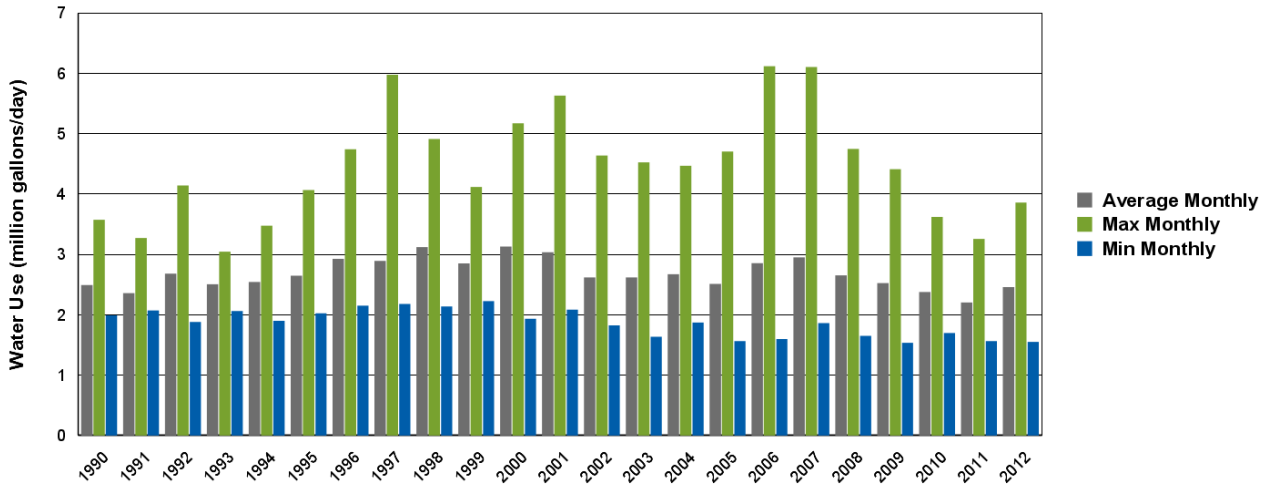
Municipal water treatment: Disinfection, Iron removal, Radionuclides removal, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 776



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	19,100	19,600	20,100
Total Population	19,100	19,600	20,100
Projected Average Daily Water Use (Million Gal/Day)	2.8	2.9	3.0
Total Per Capita Water Use (Gal/Person/Day)	146.60	147.96	149.25
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	129	126	122

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be

developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Bethel Water Supply Profile

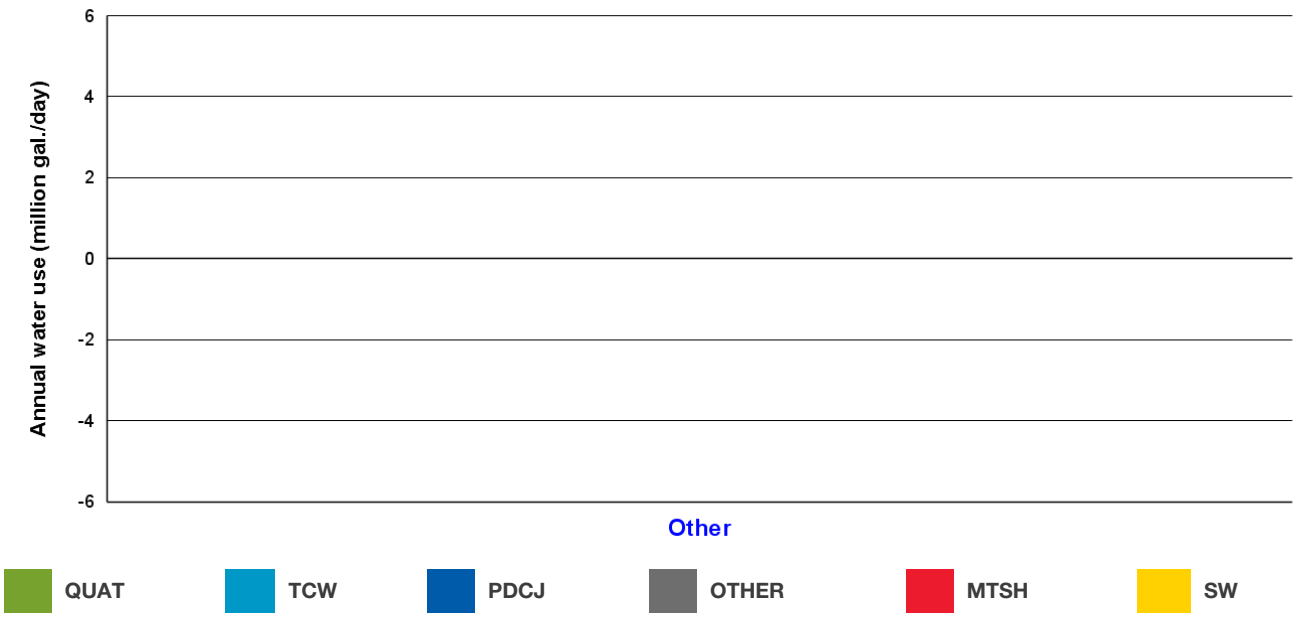
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

East Bethel Water Supply Profile

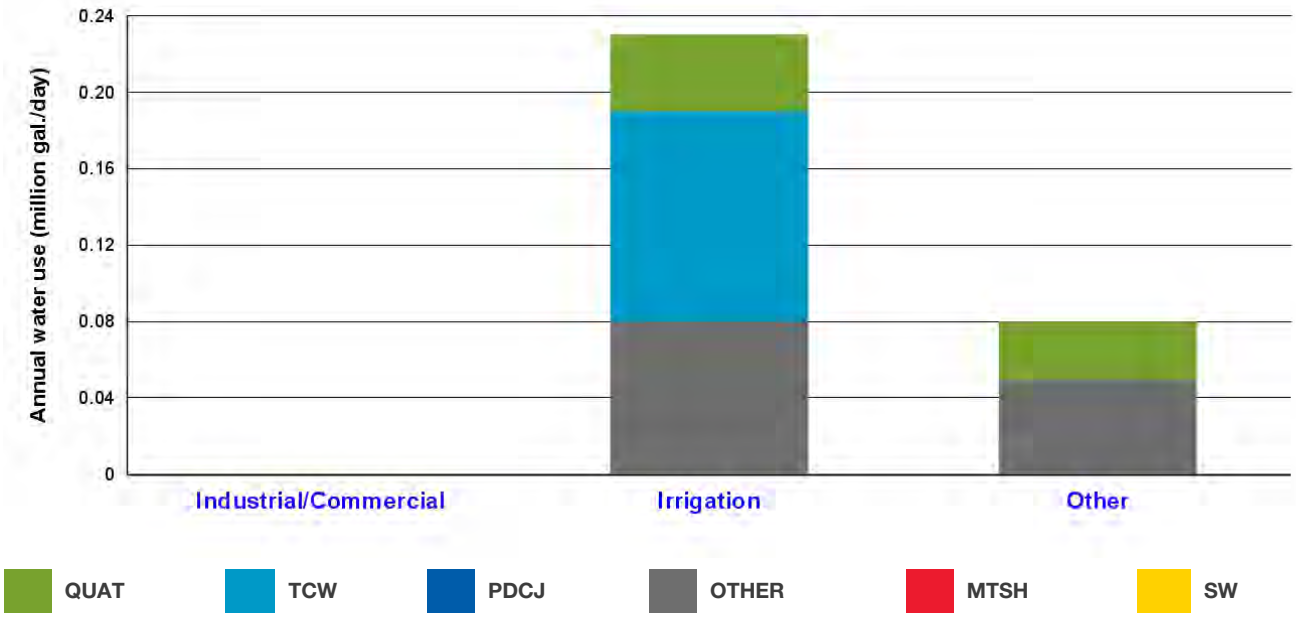
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	2	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	10	
Tunnel City-Wonewoc (TCW)	0	3	
Other	0	7	
Surface Water	0	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

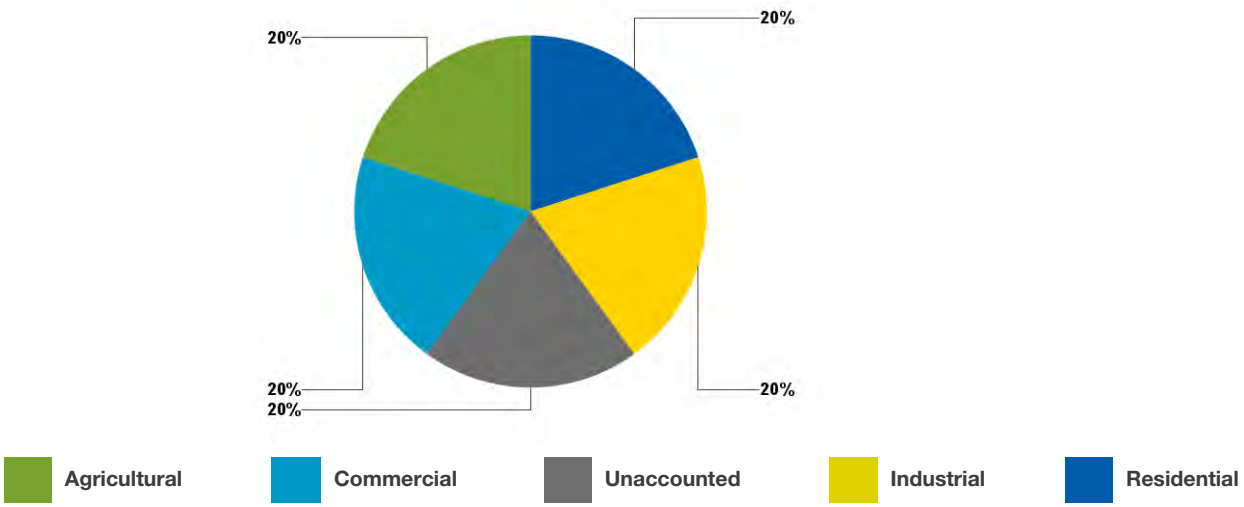
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

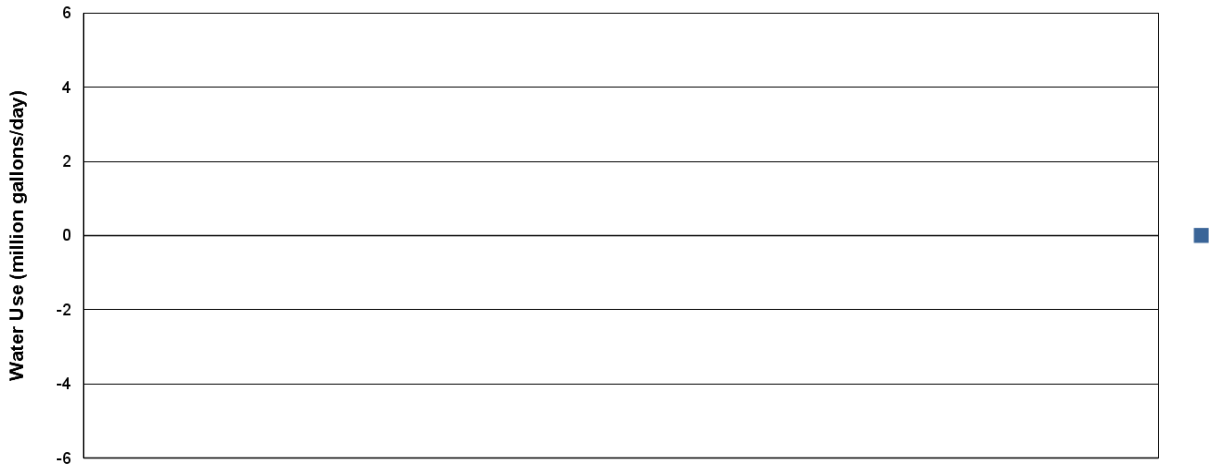
Municipal water treatment: Disinfection, Fluoride (Z), Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 0



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	961	2,861	6,961
Total Population	12,200	14,100	18,200
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.3	0.8
Total Per Capita Water Use (Gal/Person/Day)	104.06	104.86	114.93
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	N/A	N/A	N/A

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Ham Lake Water Supply Profile

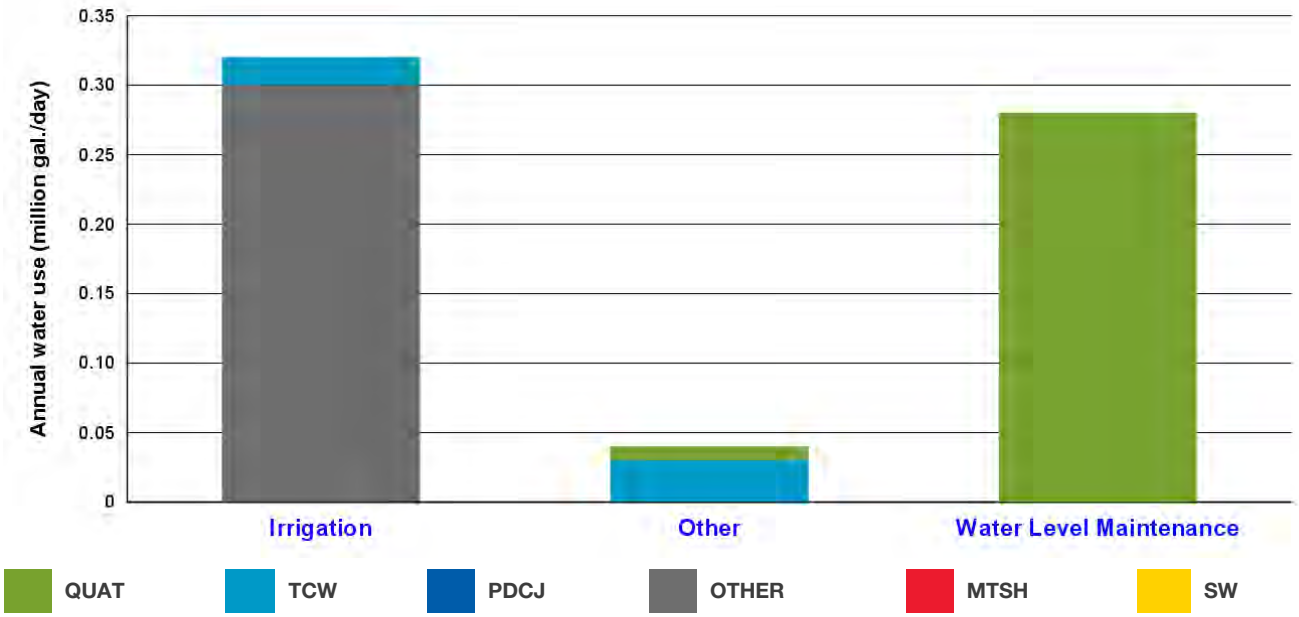
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	4	
Other	0	9	
Surface Water	0	11	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and

projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Linwood Twp. Water Supply Profile

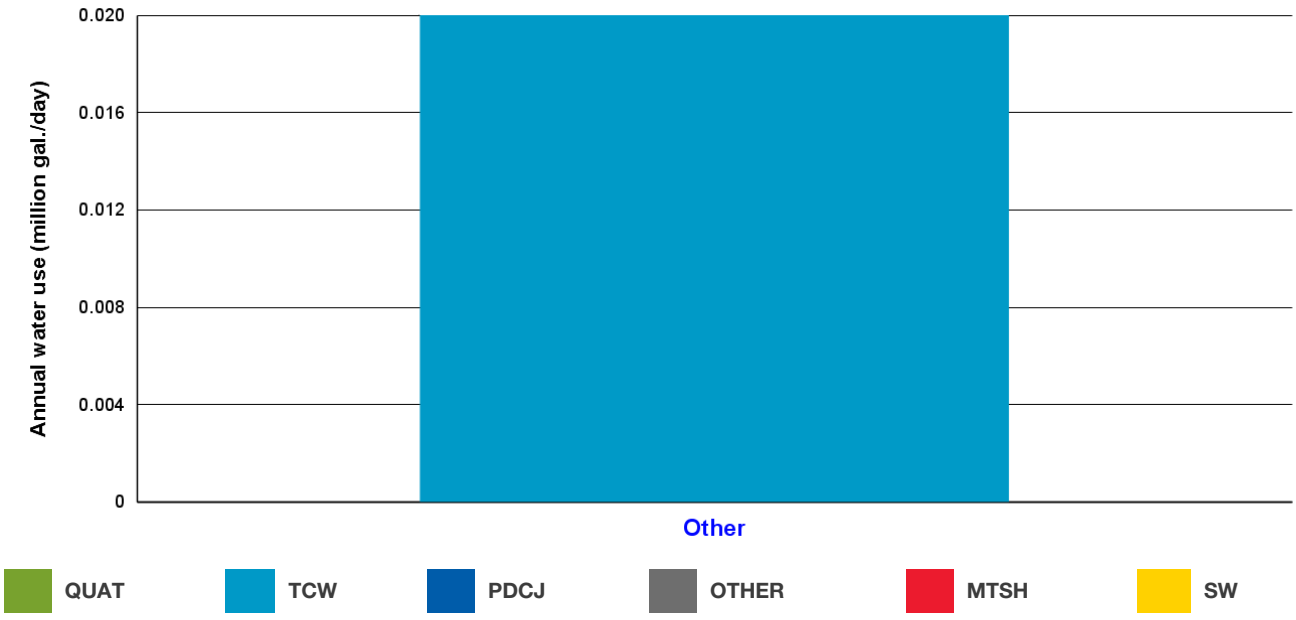
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	2	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Nowthen Water Supply Profile

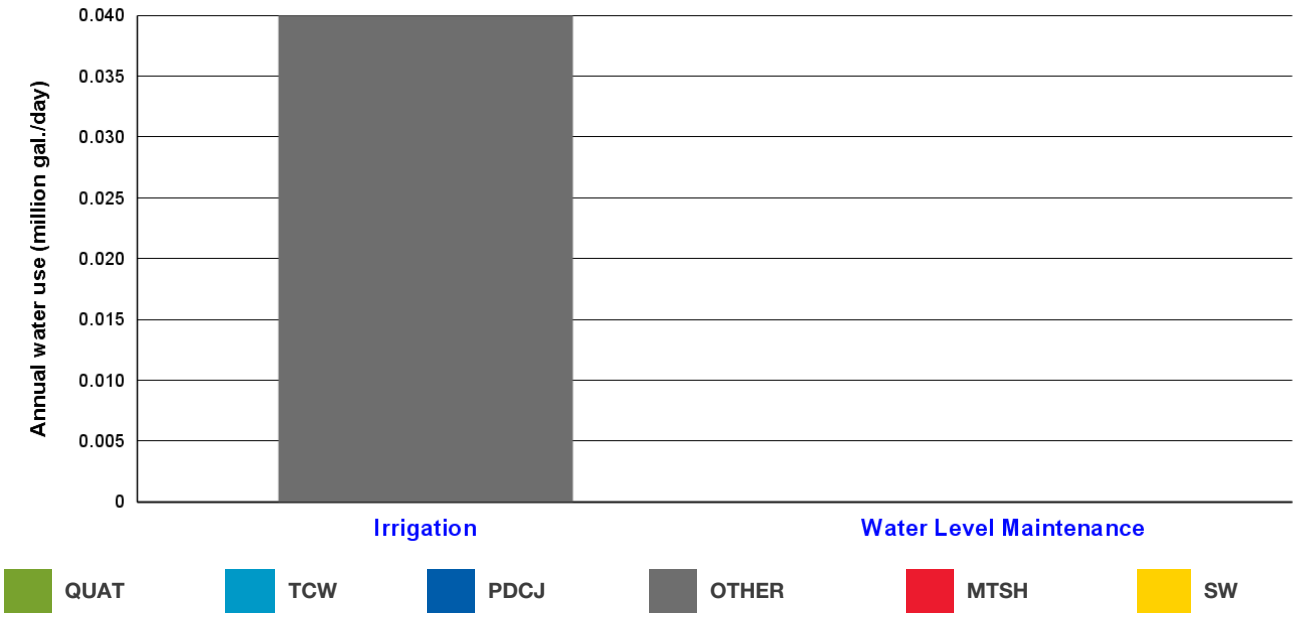
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Oak Grove Water Supply Profile

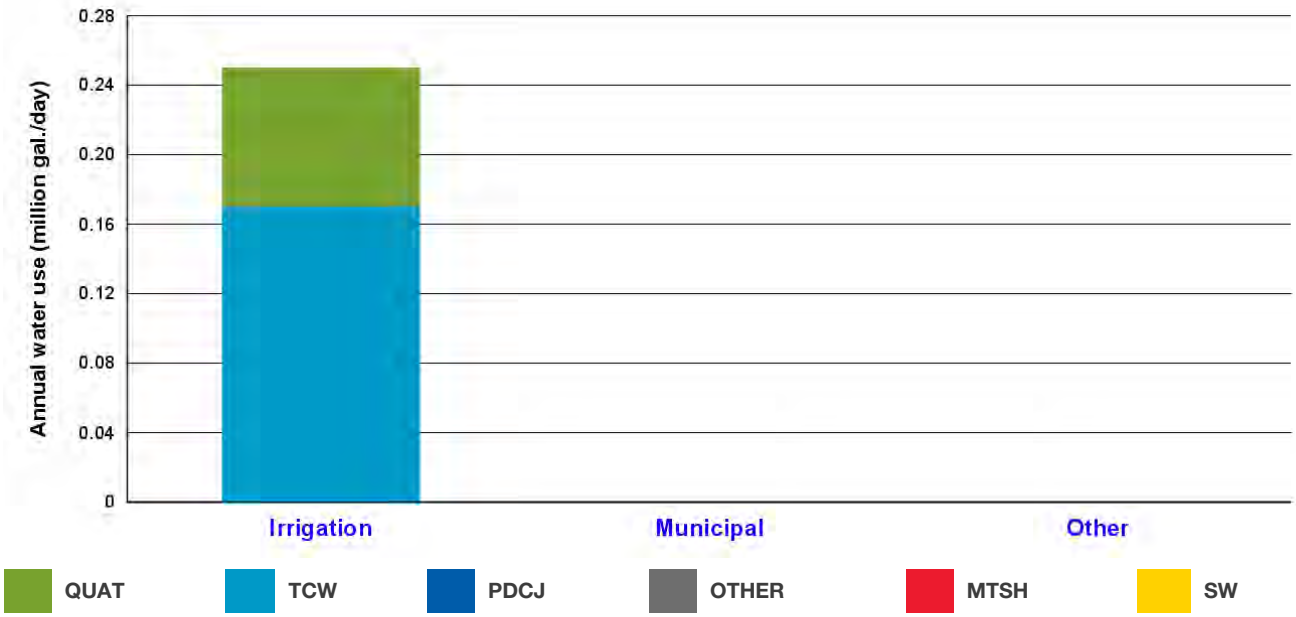
Overview of water system and use in the community:

The community owns and operates their own water supply system, which began operating with a single well in 2007.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	3	
Other	1	1	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

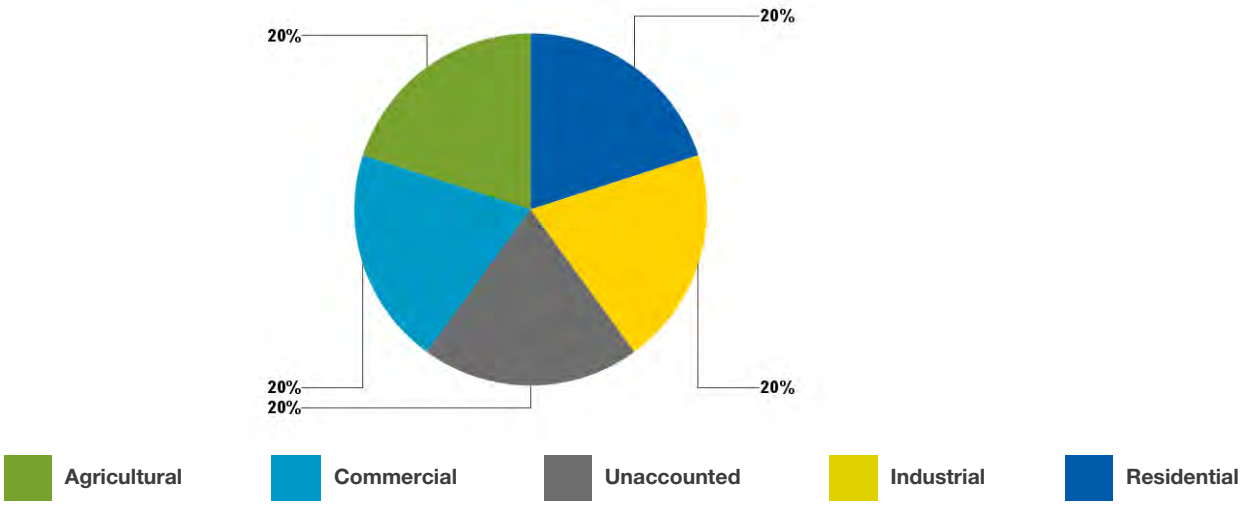
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

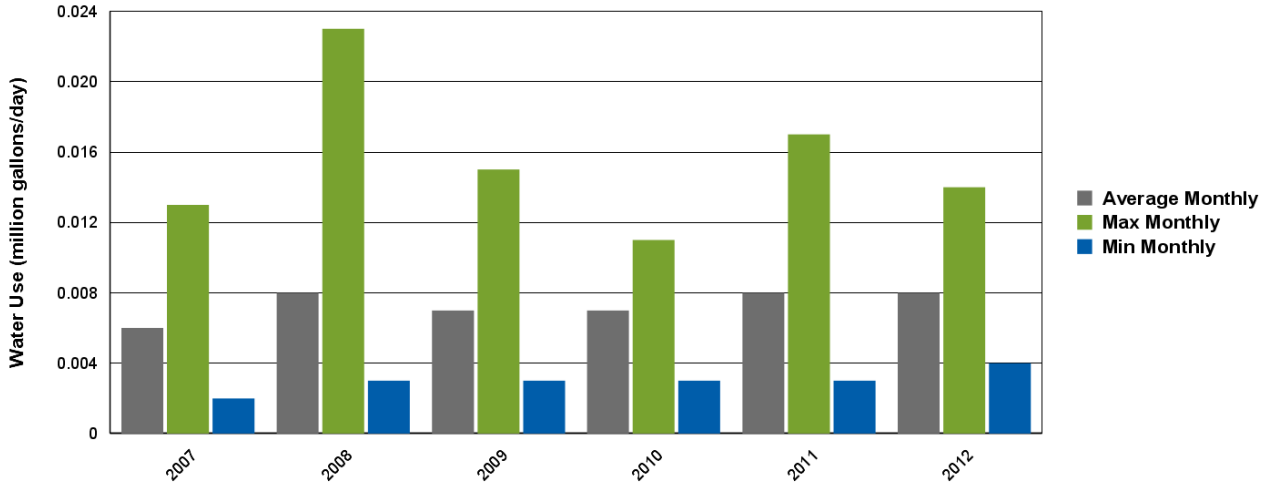
Municipal water treatment:

Rate structure: Unknown

2012 Permitted amount for municipal water supply (million gallons/year): 0



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	712	843	973
Total Population	8,300	9,200	10,200
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	140.45	118.62	102.77
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	11	10	8

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Ramsey Water Supply Profile

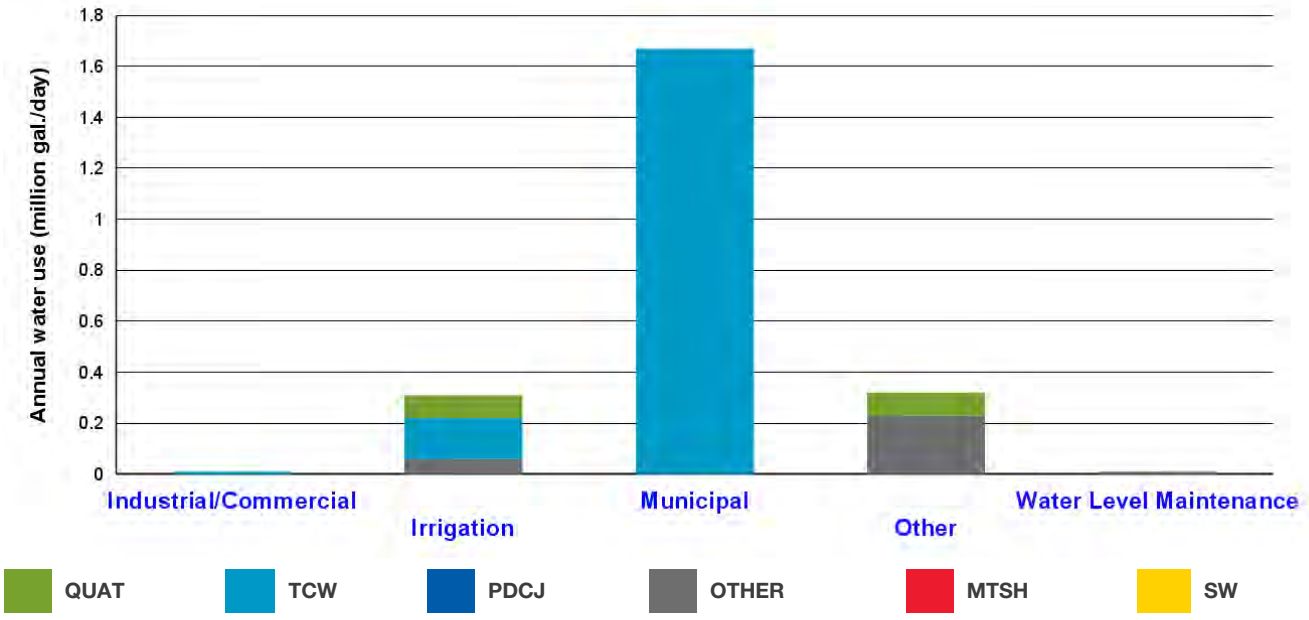
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	14	
Tunnel City-Wonewoc (TCW)	8	5	
Other	0	13	
Surface Water	0	5	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

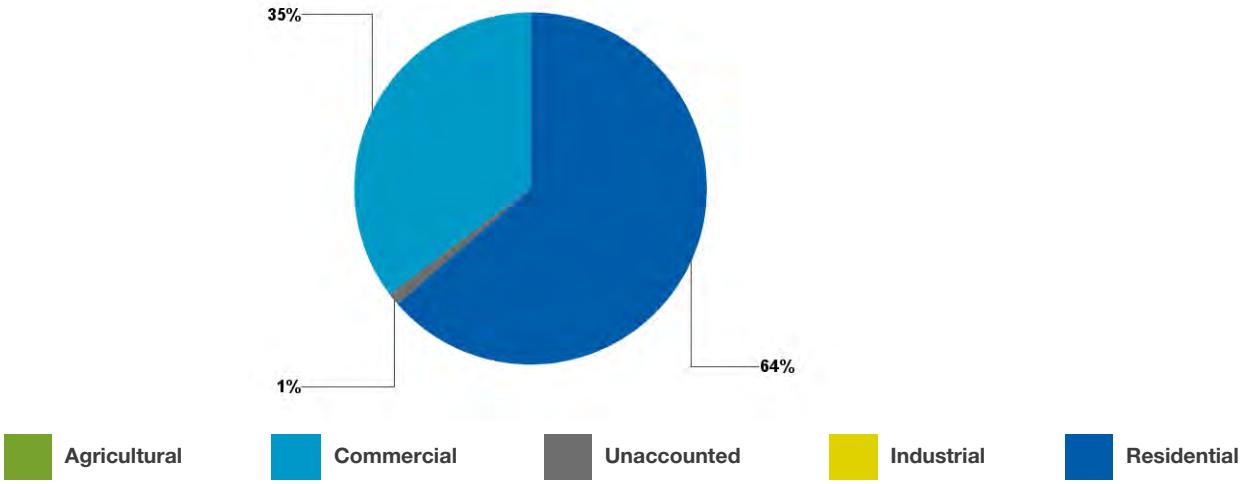
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

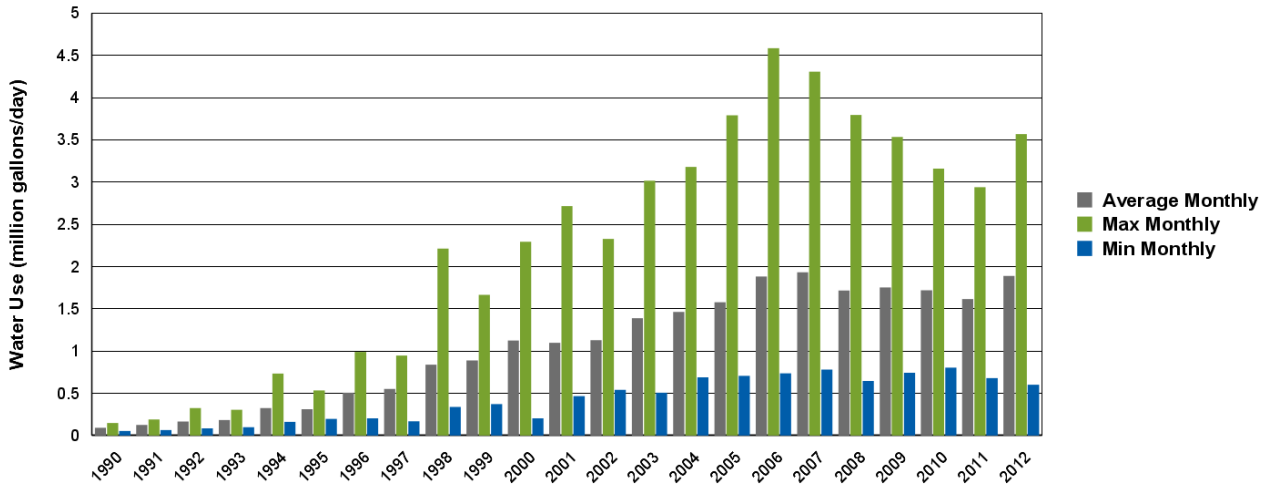
Municipal water treatment: Fluoride (Z), Disinfection, Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 679



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	13,422	15,822	20,322
Total Population	25,900	28,300	32,800
Projected Average Daily Water Use (Million Gal/Day)	2.2	2.6	3.3
Total Per Capita Water Use (Gal/Person/Day)	163.91	164.33	162.39
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	141	119	93

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be

developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Francis Water Supply Profile

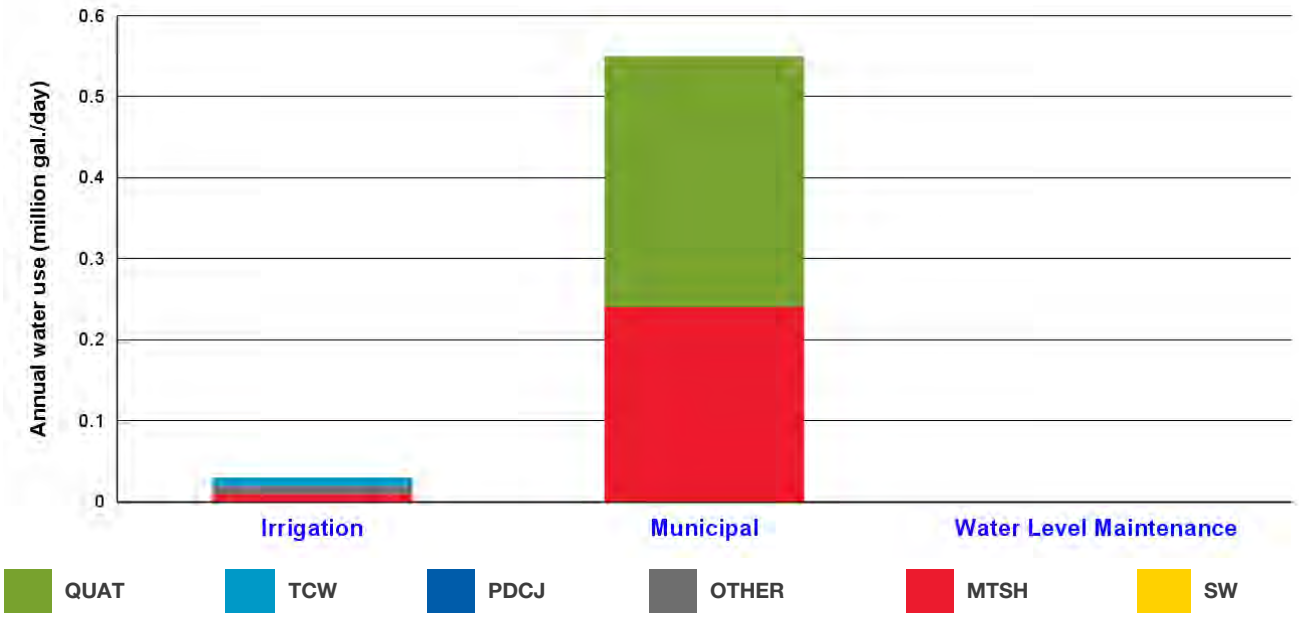
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	1	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	2	1	
Tunnel City-Wonewoc (TCW)	0	3	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

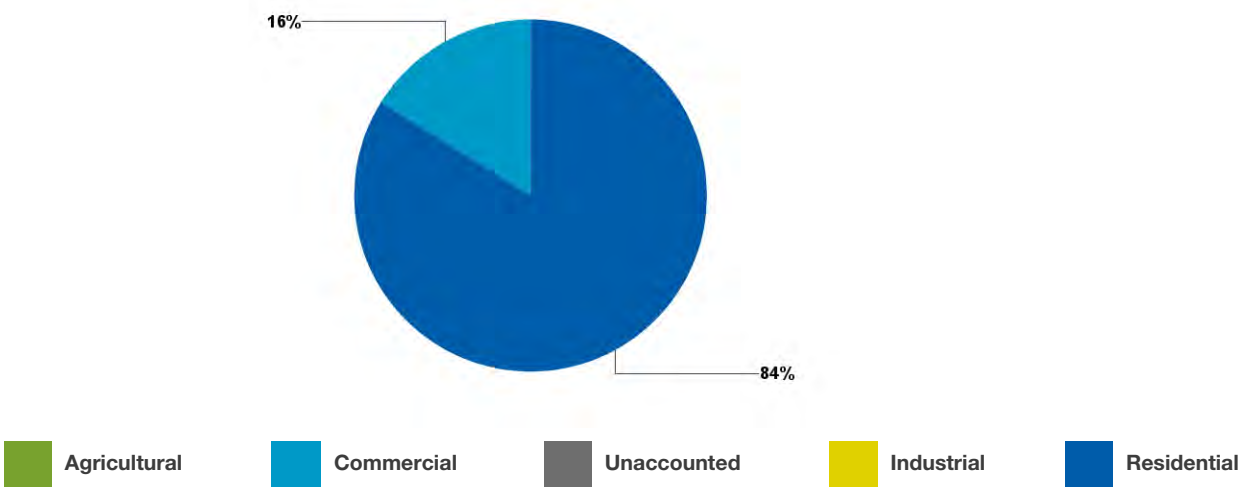
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

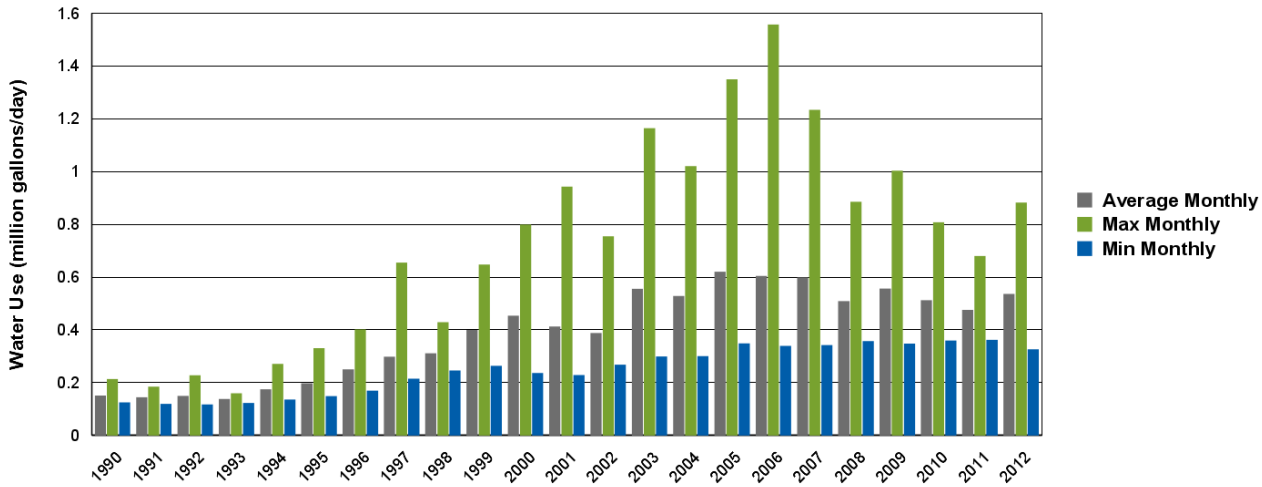
Municipal water treatment: Other, Iron/Manganese Sequestration, Disinfection, Iron removal, Radionuclides removal, Corrosion control - Lead/Copper, Fluoride (Z), Manganese removal

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 194



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	4,971	6,471	9,671
Total Population	7,800	9,300	12,500
Projected Average Daily Water Use (Million Gal/Day)	0.7	0.8	1.3
Total Per Capita Water Use (Gal/Person/Day)	140.82	123.63	134.42
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	108	83	55

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

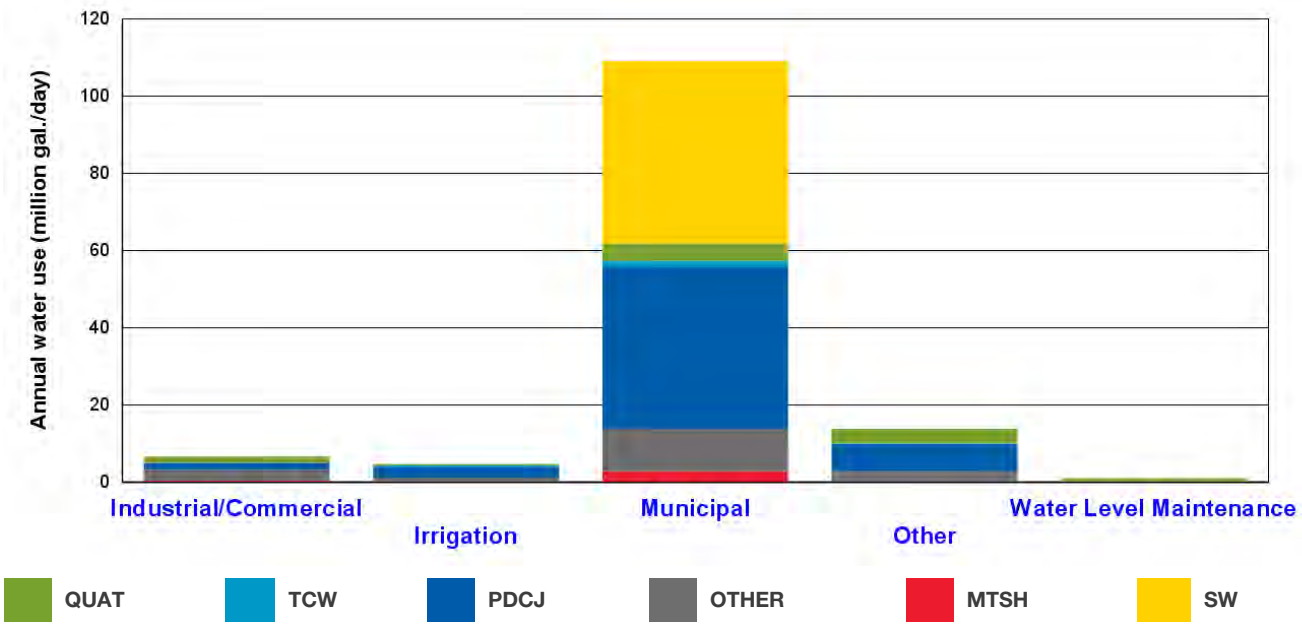
identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

North and East Metro Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	957,920	1,041,246	1,123,539
Total Population	855,834	927,254	995,594
Projected Average Daily Water Use (Million Gal/Day)	3.2	3.4	3.6
Total Per Capita Water Use (Gal/Person/Day)	113	113	113
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	102	93	86

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Afton Water Supply Profile

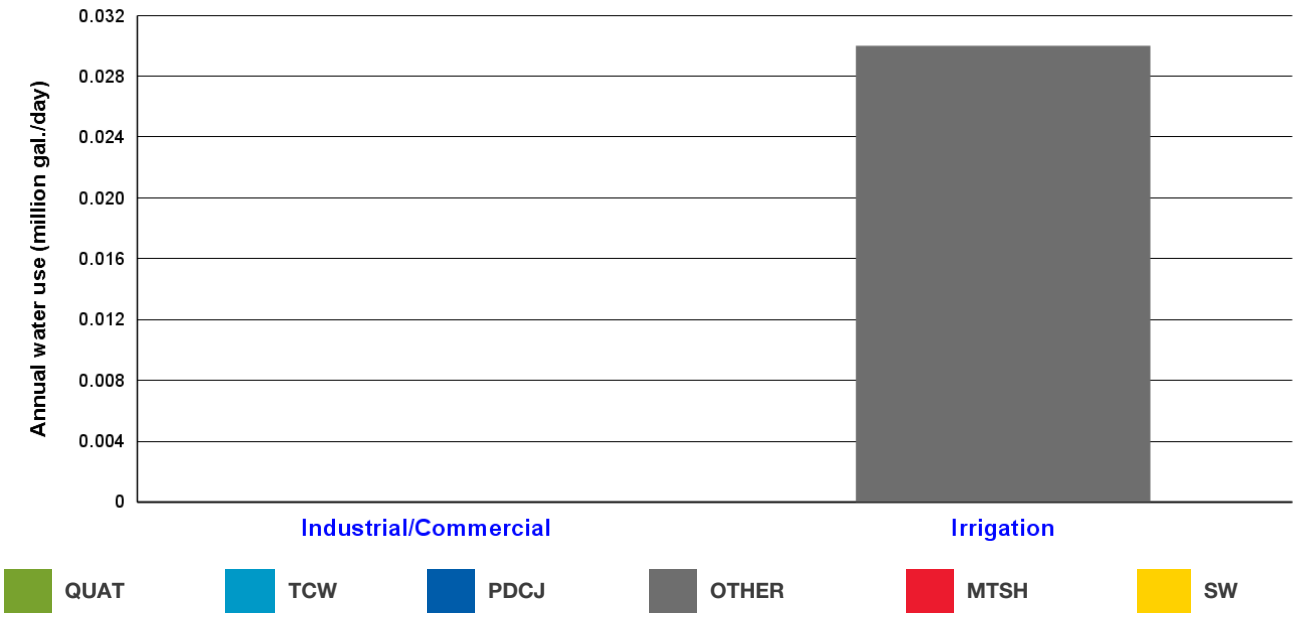
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

  – Compliance with Safe Drinking Water Act standards

  – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

  – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Arden Hills Water Supply Profile

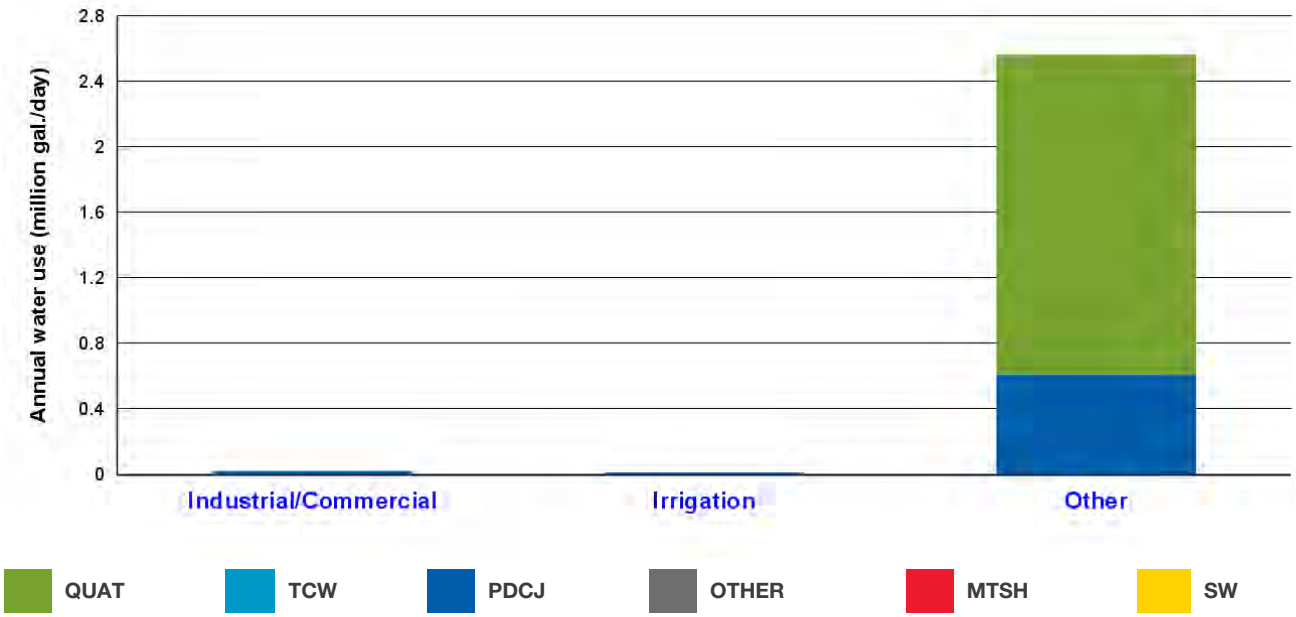
Overview of water system and use in the community:

The community owns and operates their own water supply system and contracts with St. Paul to supply water.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	2	
Prairie du Chien-Jordan (PDCJ)	0	12	0
Quaternary (QUAT)	0	28	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Bayport Water Supply Profile

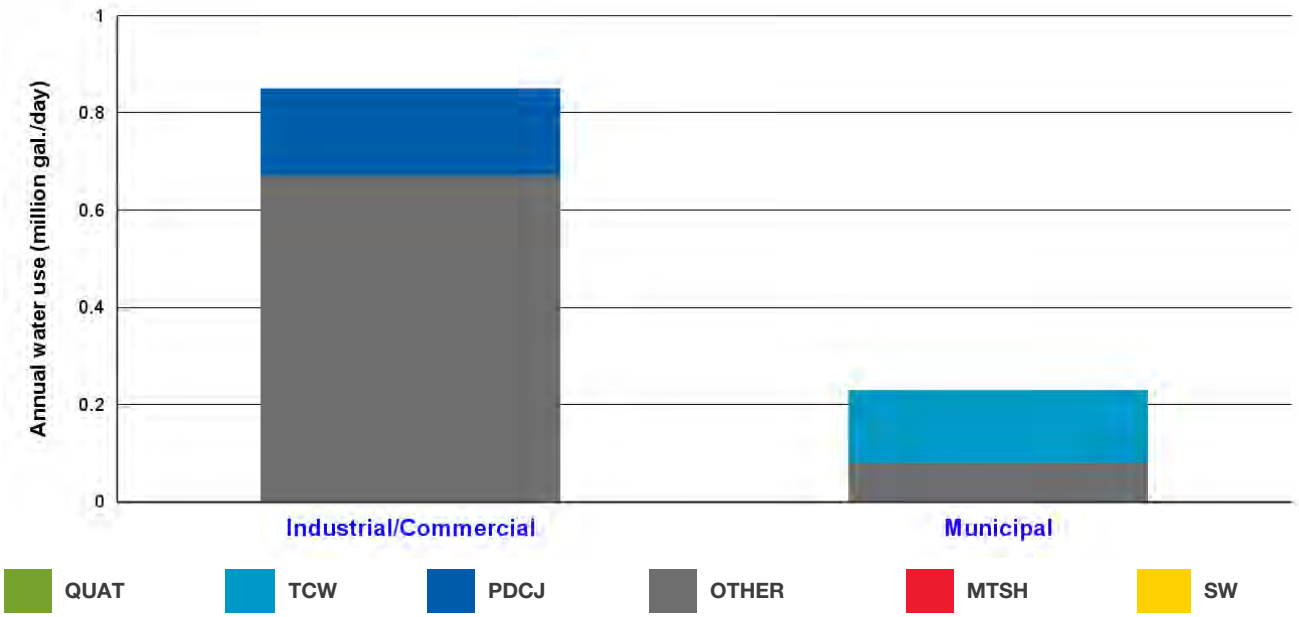
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	2	0	
Other	1	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

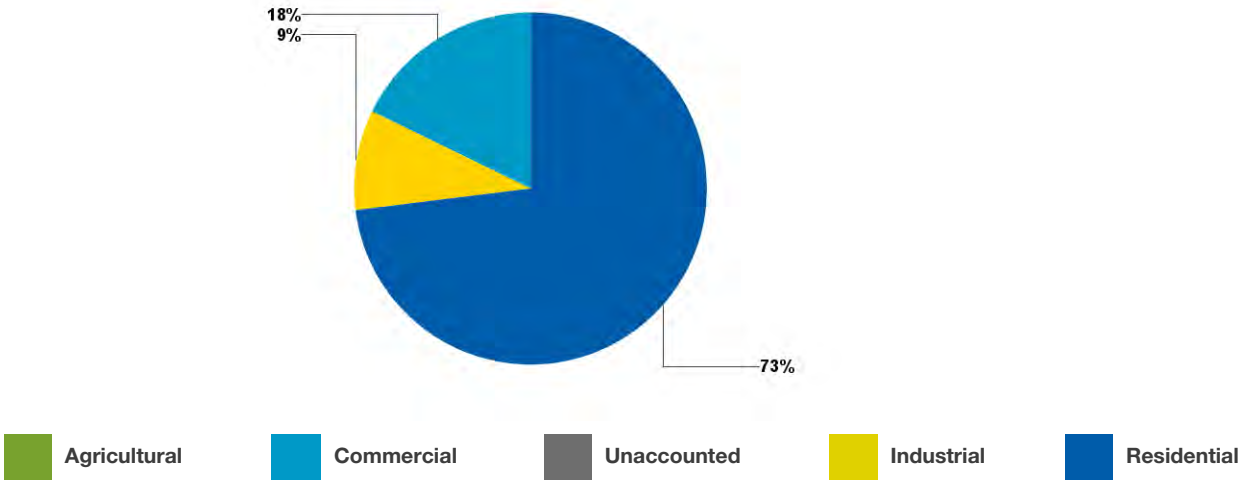
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

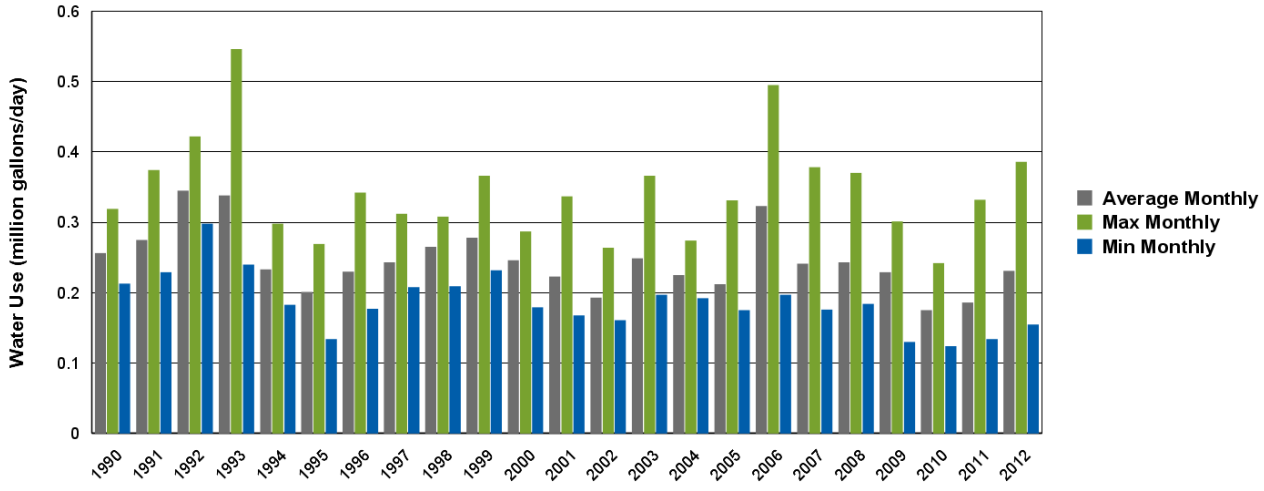
Municipal water treatment: Fluoride (Z), Disinfection, Other, Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 84



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,470	2,780	2,970
Total Population	3,900	4,210	4,400
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.3	0.4
Total Per Capita Water Use (Gal/Person/Day)	121.46	107.91	134.68
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	94	83	78

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Baytown Twp. Water Supply Profile

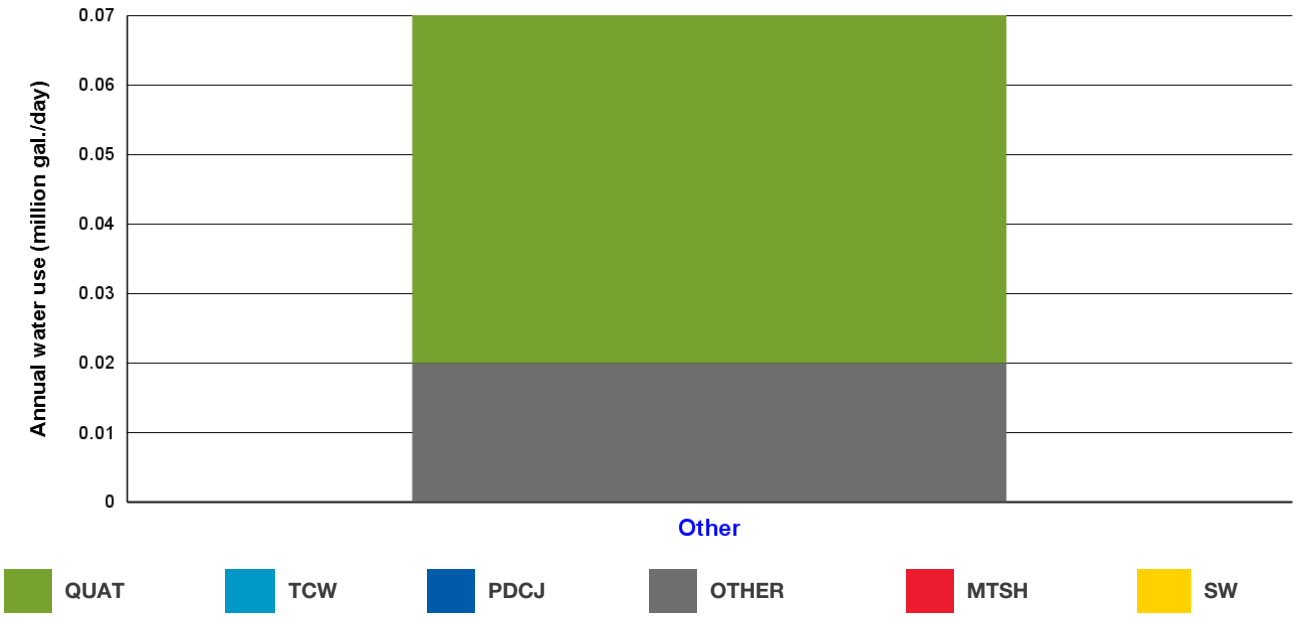
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	6	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Blaine Water Supply Profile

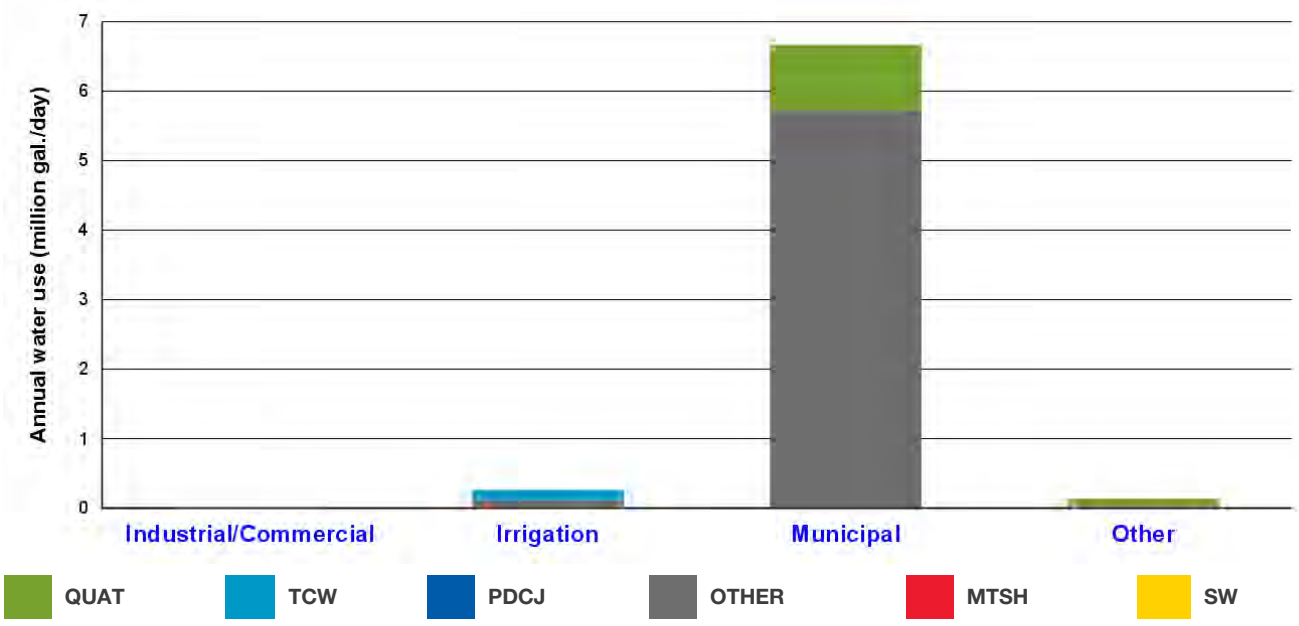
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	12	
Tunnel City-Wonewoc (TCW)	0	6	
Other	15	11	
Surface Water	0	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

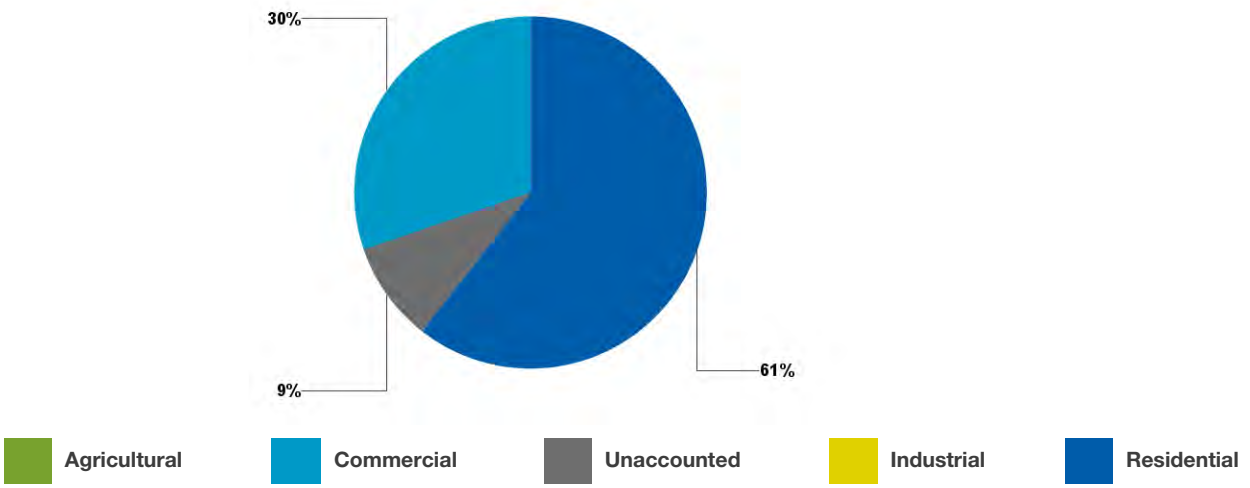
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

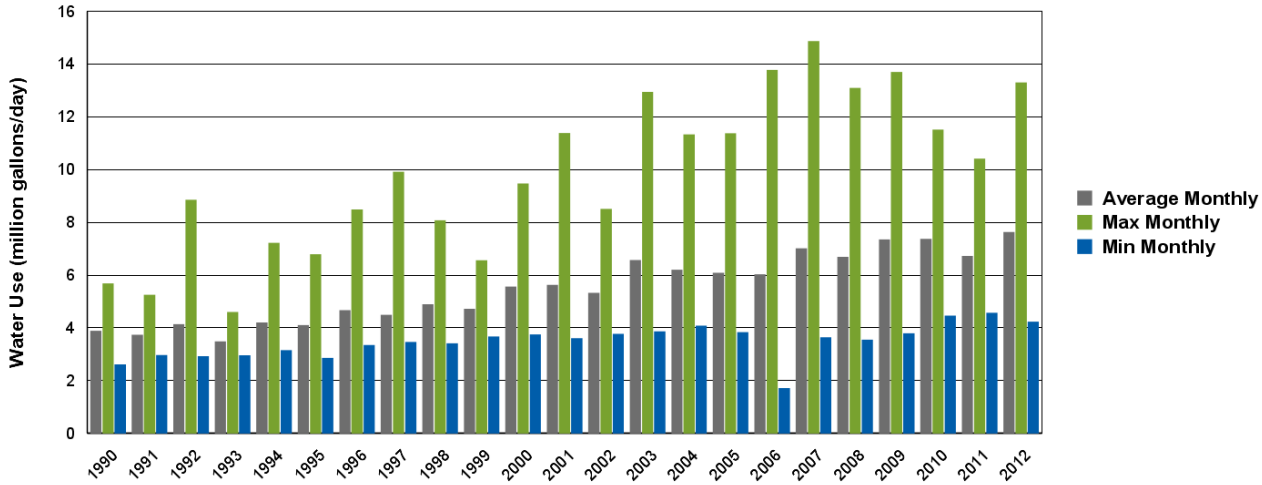
Municipal water treatment: Disinfection, Dechlorination, Iron removal, Manganese removal, Organics removal, Fluoride (Z), Corrosion control - Lead/Copper, Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 2,524



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	61,016	68,316	79,116
Total Population	67,900	75,200	86,000
Projected Average Daily Water Use (Million Gal/Day)	8.9	9.9	11.5
Total Per Capita Water Use (Gal/Person/Day)	145.86	144.91	145.36
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	125	112	96

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Centerville Water Supply Profile

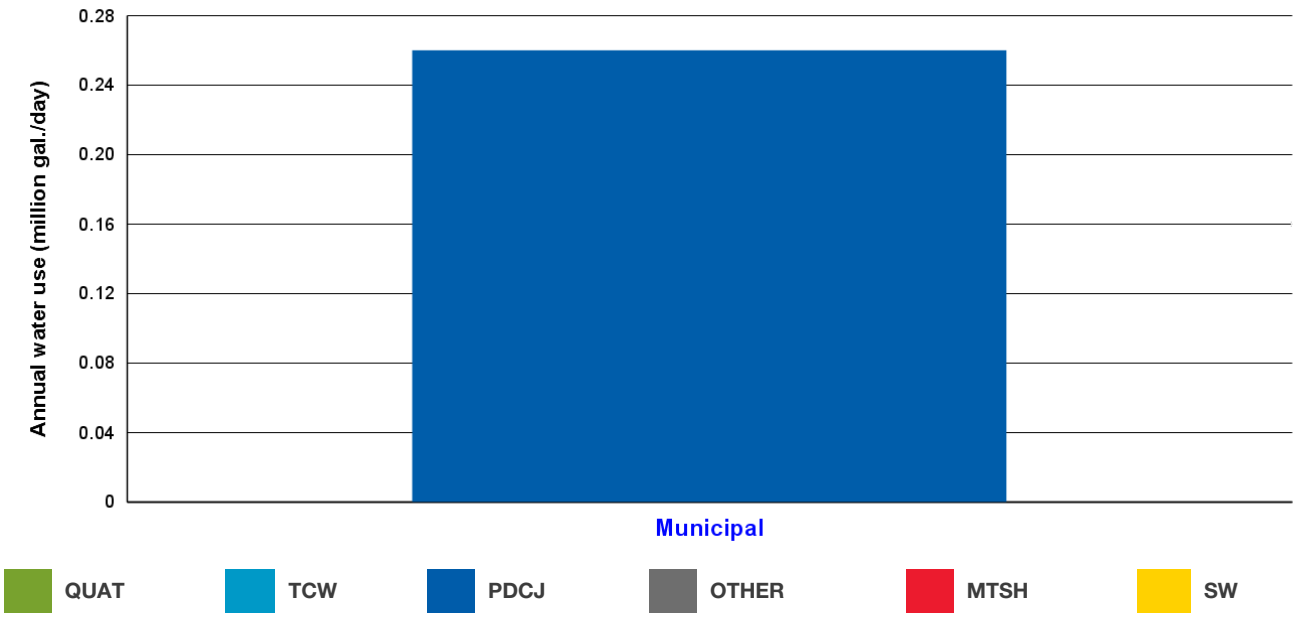
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	3	0	
Surface Water	1	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

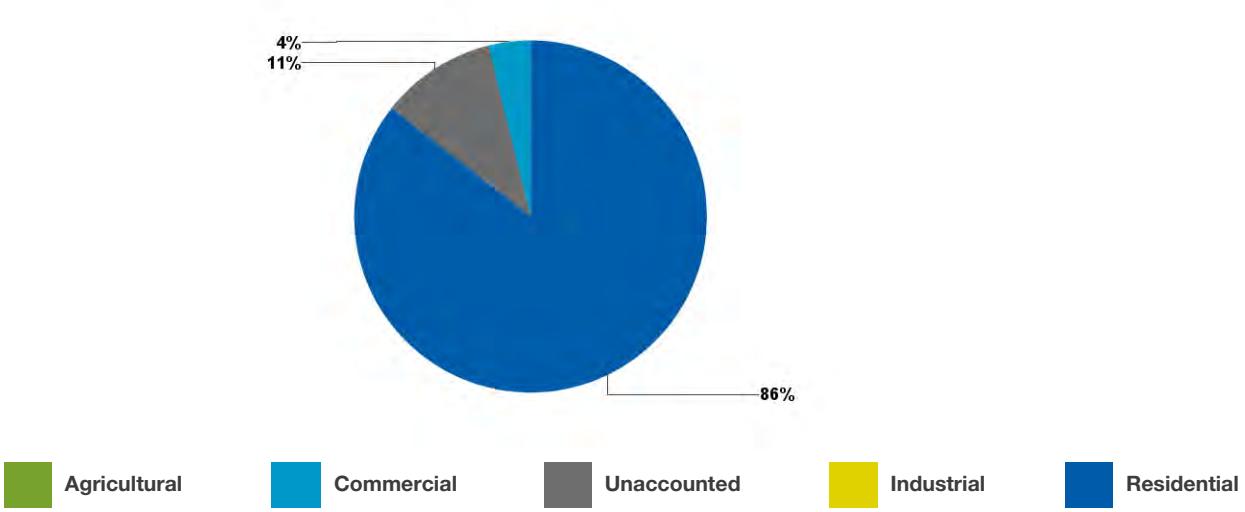
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

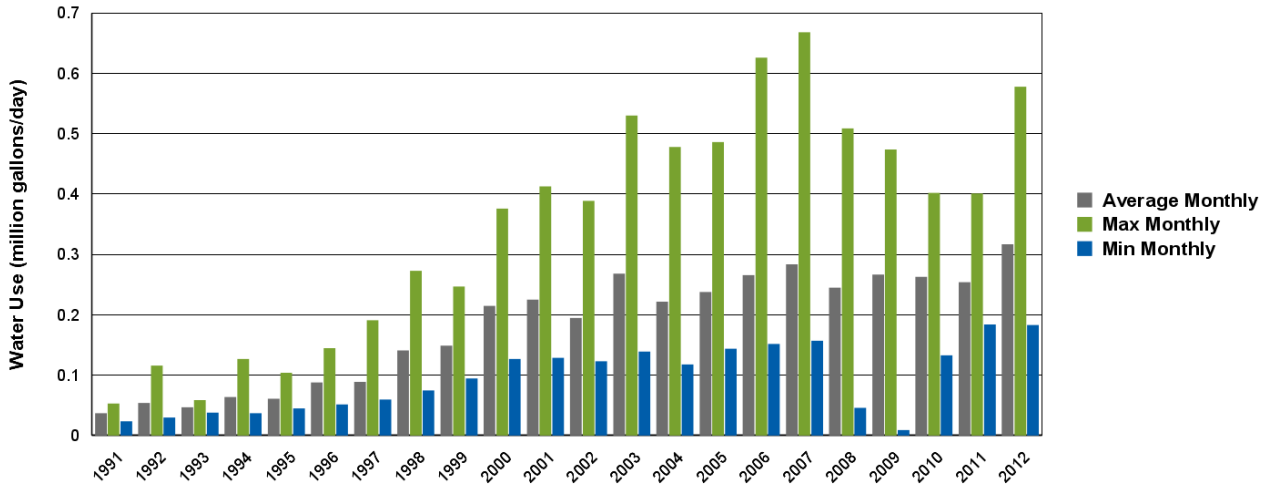
Municipal water treatment: Iron/Manganese Sequestration, Fluoride (Z), Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 103



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	3,990	4,100	4,200
Total Population	3,990	4,100	4,200
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.4	0.4
Total Per Capita Water Use (Gal/Person/Day)	75.19	97.56	95.24
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	80	77	76

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Circle Pines Water Supply Profile

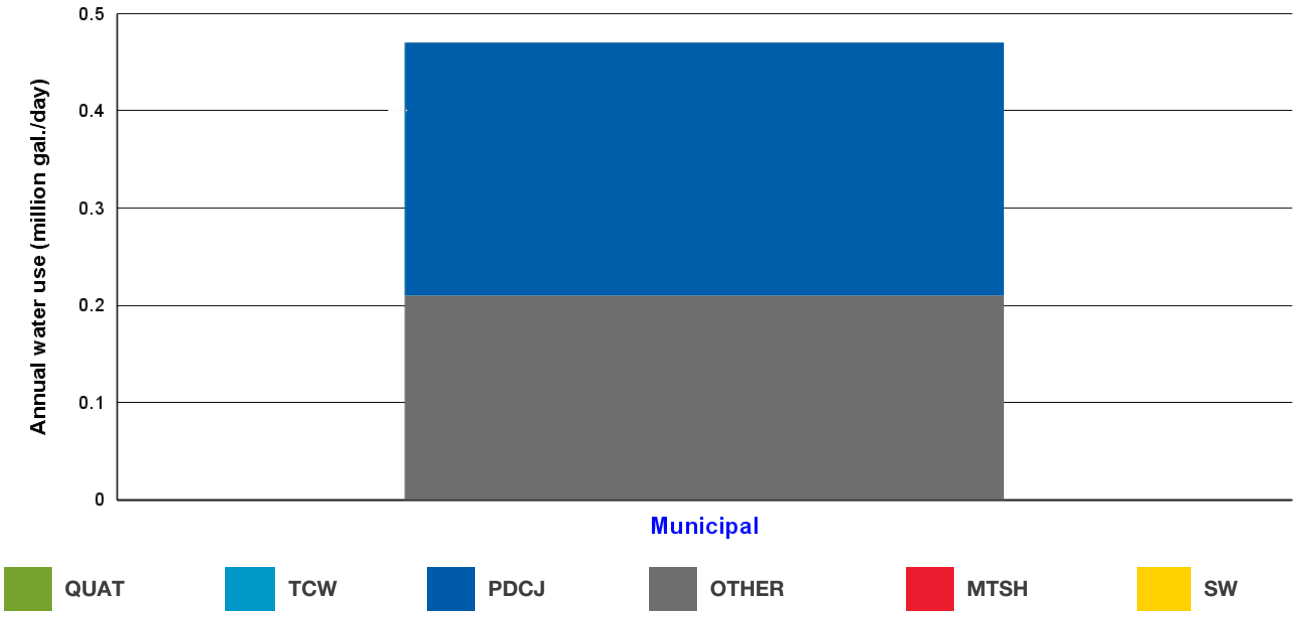
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	1	0	0
Quaternary (QUAT)	1	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

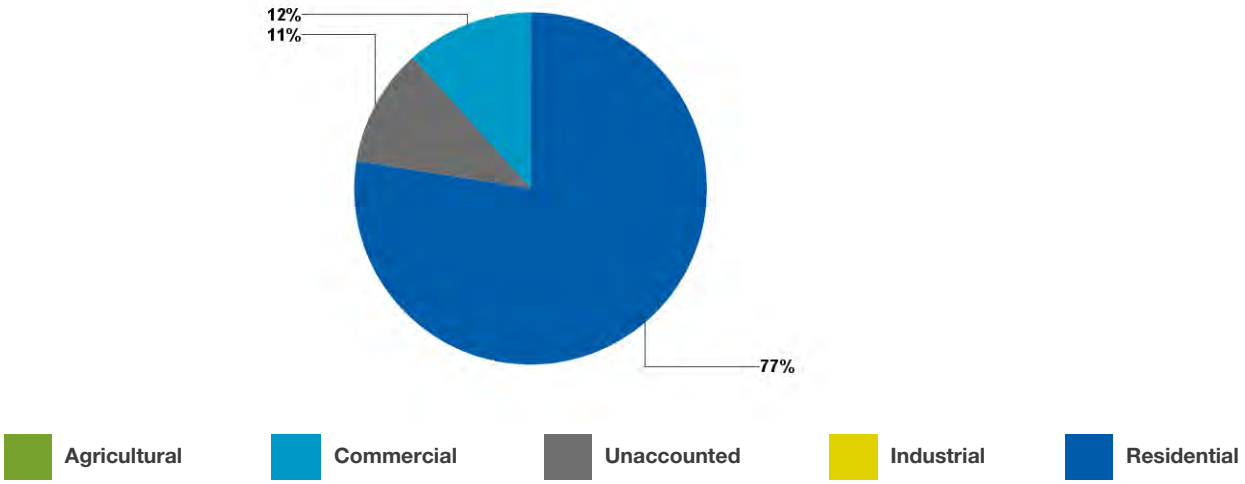
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

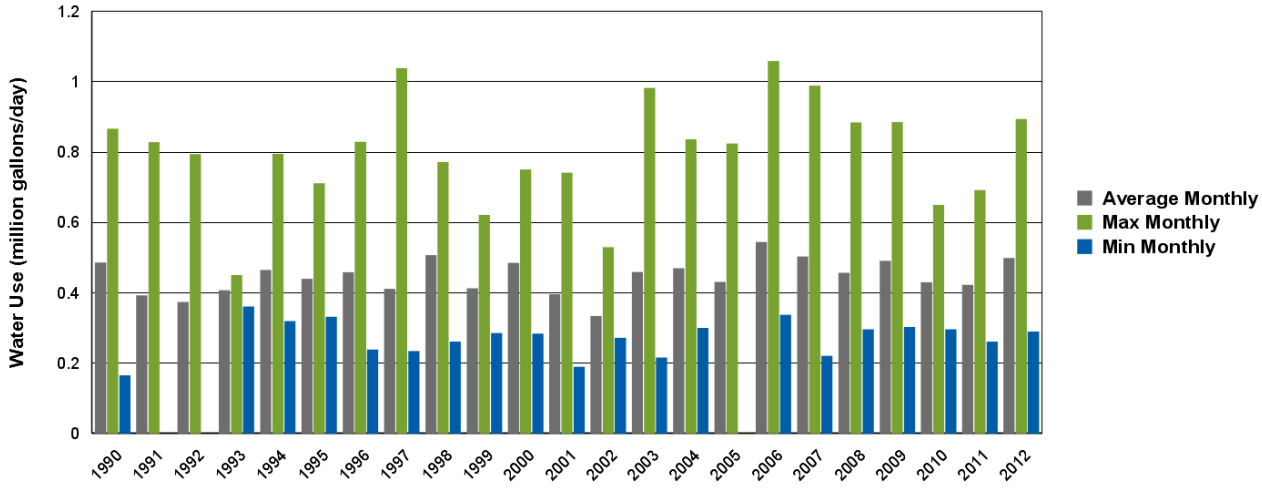
Municipal water treatment: Disinfection, Manganese removal, Fluoride (Z), Iron removal

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 161



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	5,100	5,200	5,300
Total Population	5,100	5,200	5,300
Projected Average Daily Water Use (Million Gal/Day)	0.5	0.5	0.5
Total Per Capita Water Use (Gal/Person/Day)	98.04	96.15	94.34
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	98	96	94

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be

developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Columbia Heights Water Supply Profile

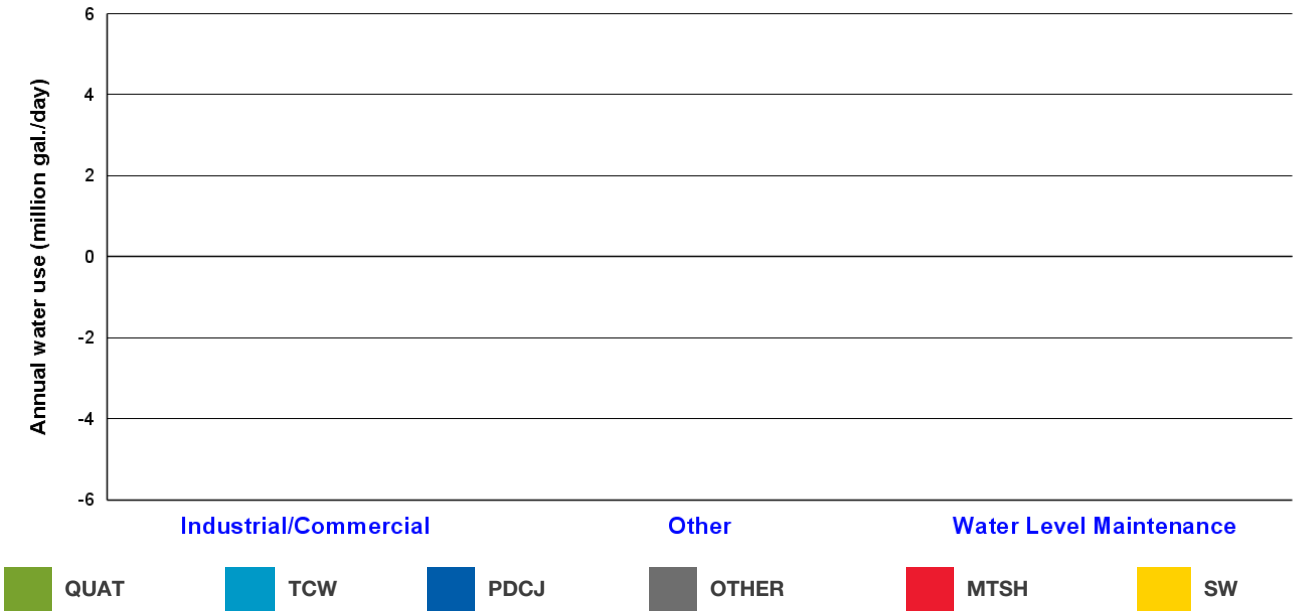
Overview of water system and use in the community:

The community owns and operates their own water supply system and contracts with Minneapolis to supply water.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	4	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Columbus Water Supply Profile

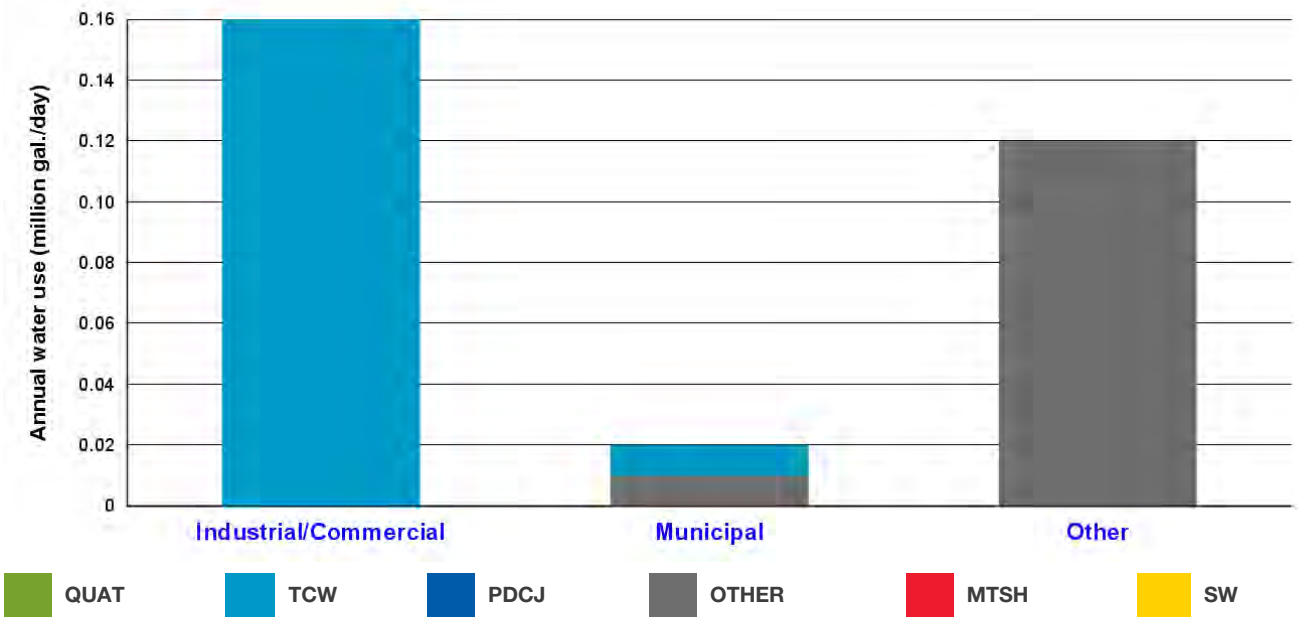
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	0	
Tunnel City-Wonewoc (TCW)	1	1	
Other	1	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

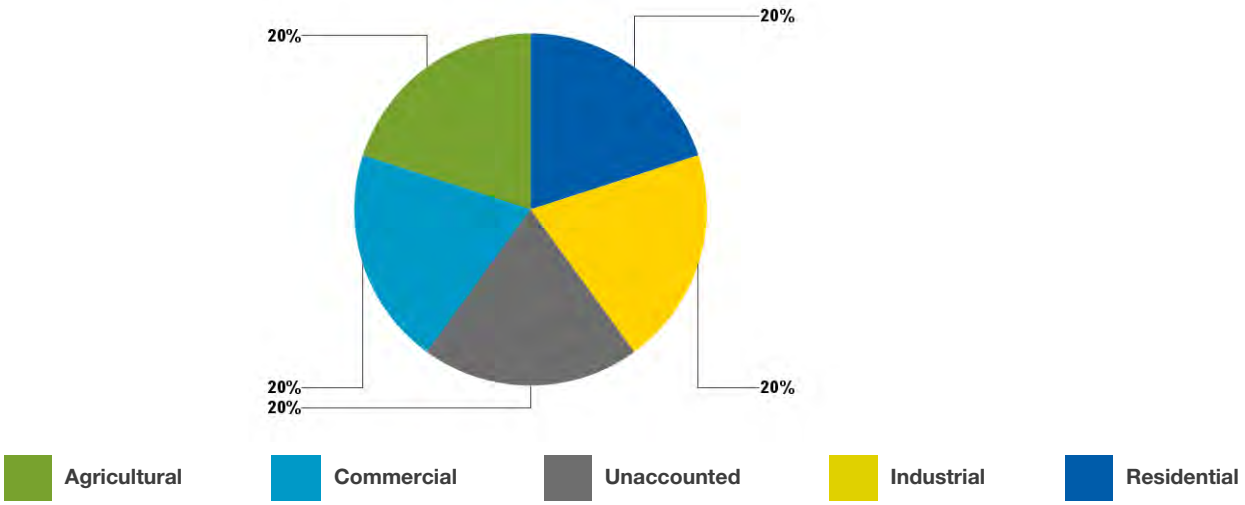
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

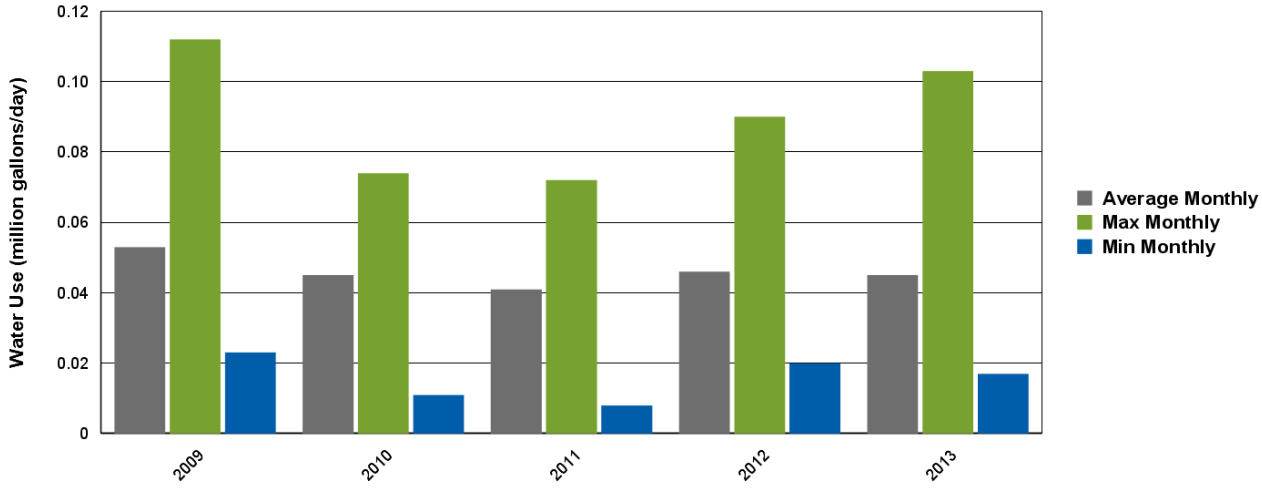
Municipal water treatment:

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 0



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	N/A	N/A	N/A
Total Population	3,970	4,510	5,300
Projected Average Daily Water Use (Million Gal/Day)	0.4	0.7	1.0
Total Per Capita Water Use (Gal/Person/Day)	0.00	0.00	0.00
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	N/A	N/A	N/A

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Coon Rapids Water Supply Profile

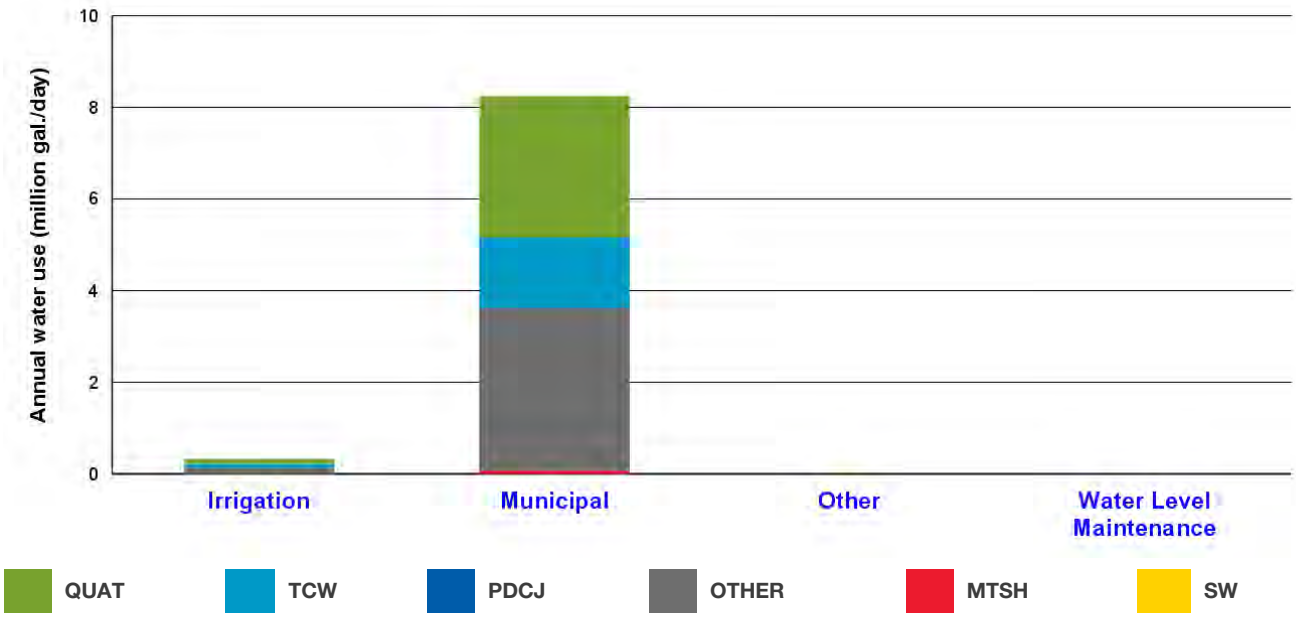
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	7	4	
Tunnel City-Wonewoc (TCW)	4	8	
Other	13	3	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

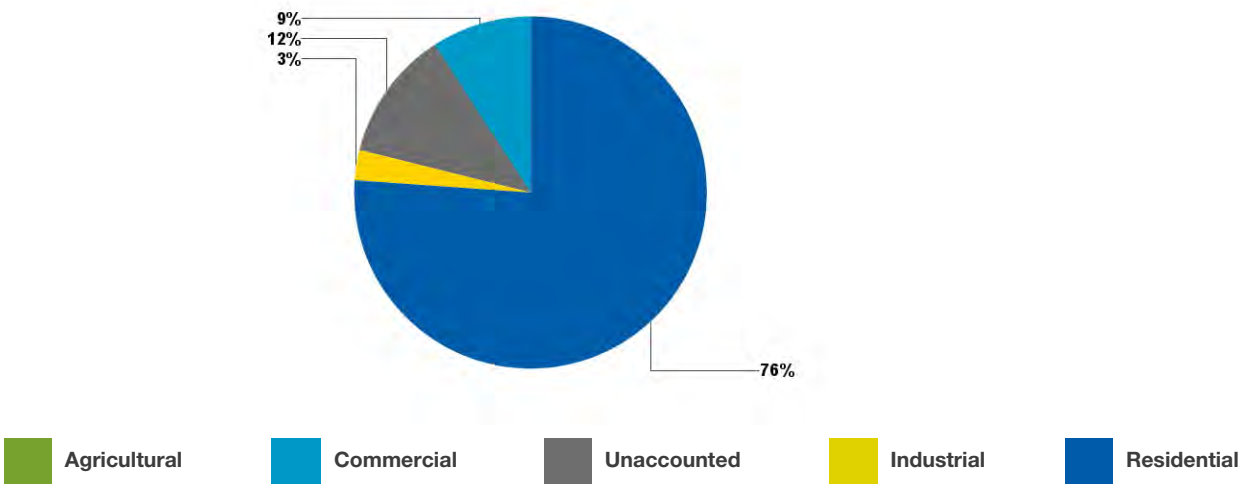
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

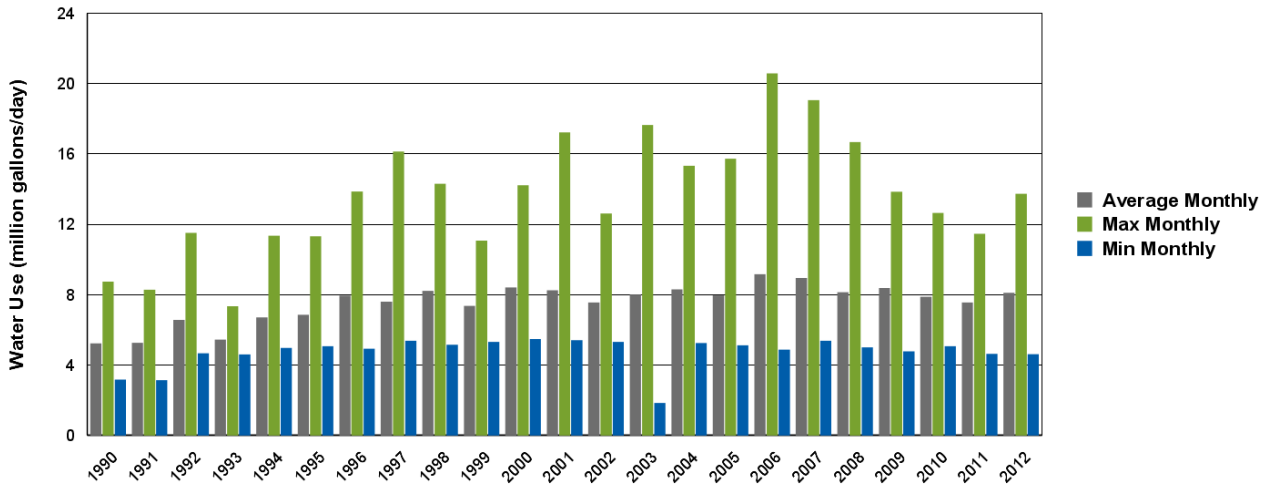
Municipal water treatment: Iron removal, Corrosion control - Lead/Copper, Disinfection, Other, Fluoride (Z)

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 2,603



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	66,000	70,200	72,500
Total Population	66,000	70,200	72,500
Projected Average Daily Water Use (Million Gal/Day)	8.8	9.4	9.7
Total Per Capita Water Use (Gal/Person/Day)	133.33	133.90	133.79
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	123	115	112

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Cottage Grove Water Supply Profile

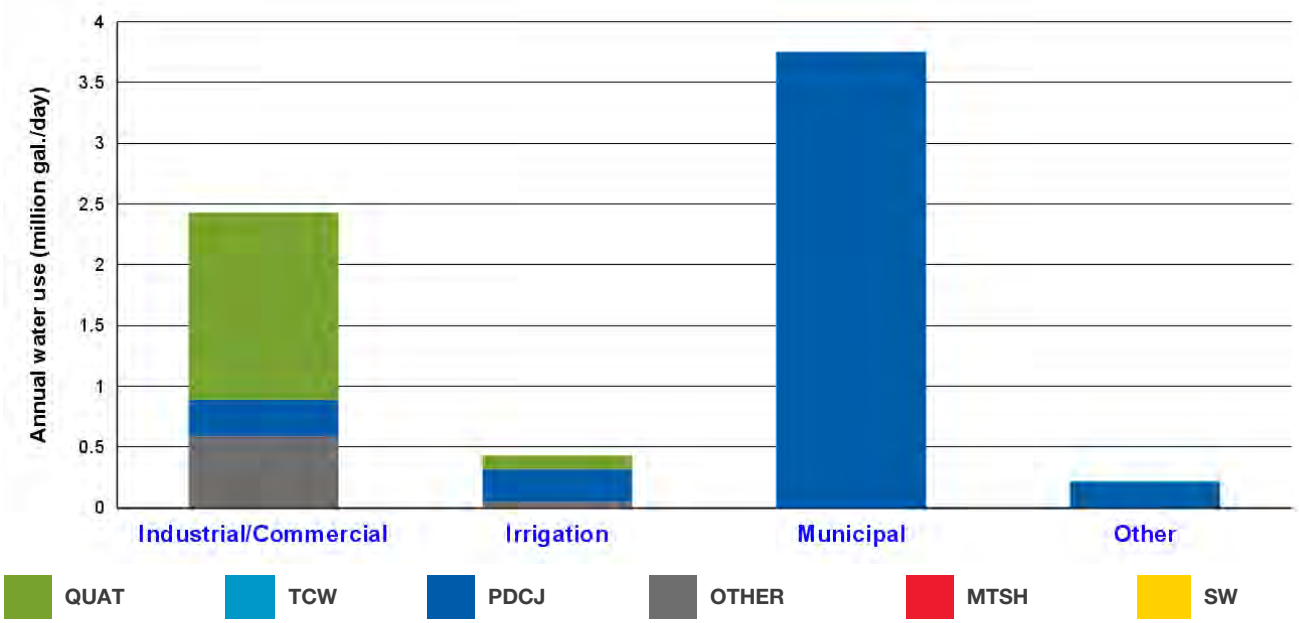
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	11	21	0
Quaternary (QUAT)	0	11	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	10	
Surface Water	0	5	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

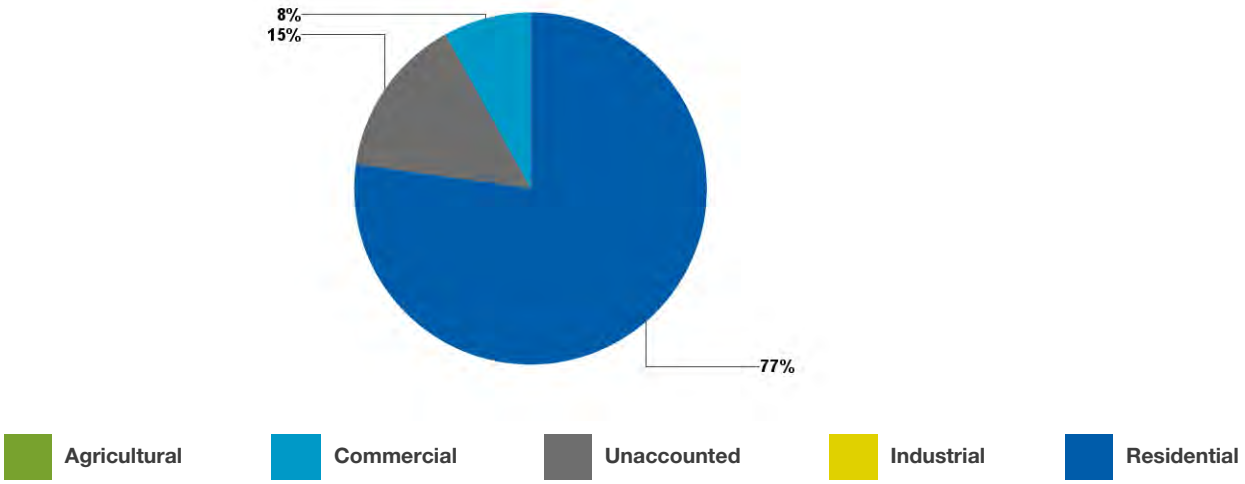
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

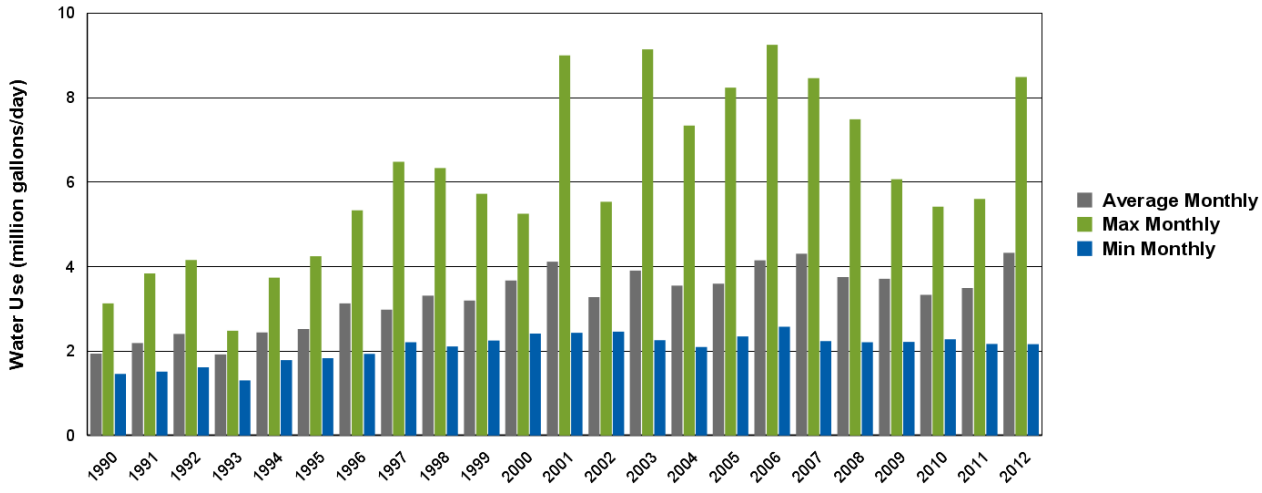
Municipal water treatment: Fluoride (Z), Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 1,351



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	37,500	43,200	49,300
Total Population	37,500	43,200	49,300
Projected Average Daily Water Use (Million Gal/Day)	4.1	4.8	5.4
Total Per Capita Water Use (Gal/Person/Day)	109.33	111.11	109.53
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	115	100	88

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Dellwood Water Supply Profile

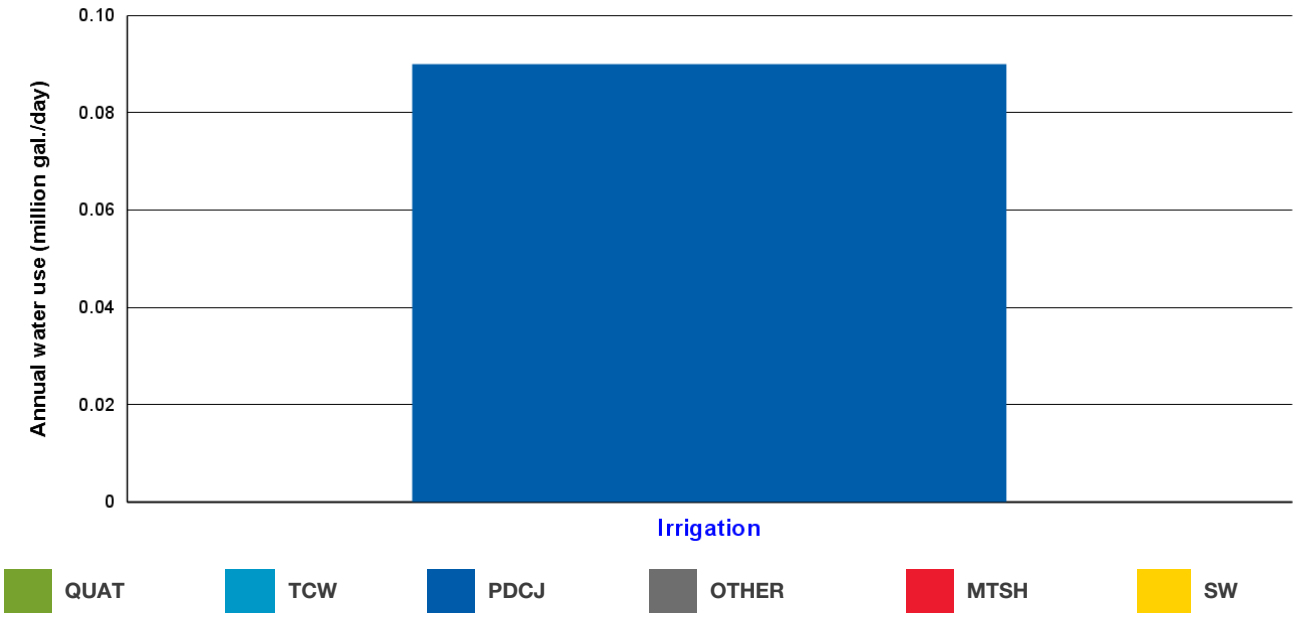
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	4	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Denmark Twp. Water Supply Profile

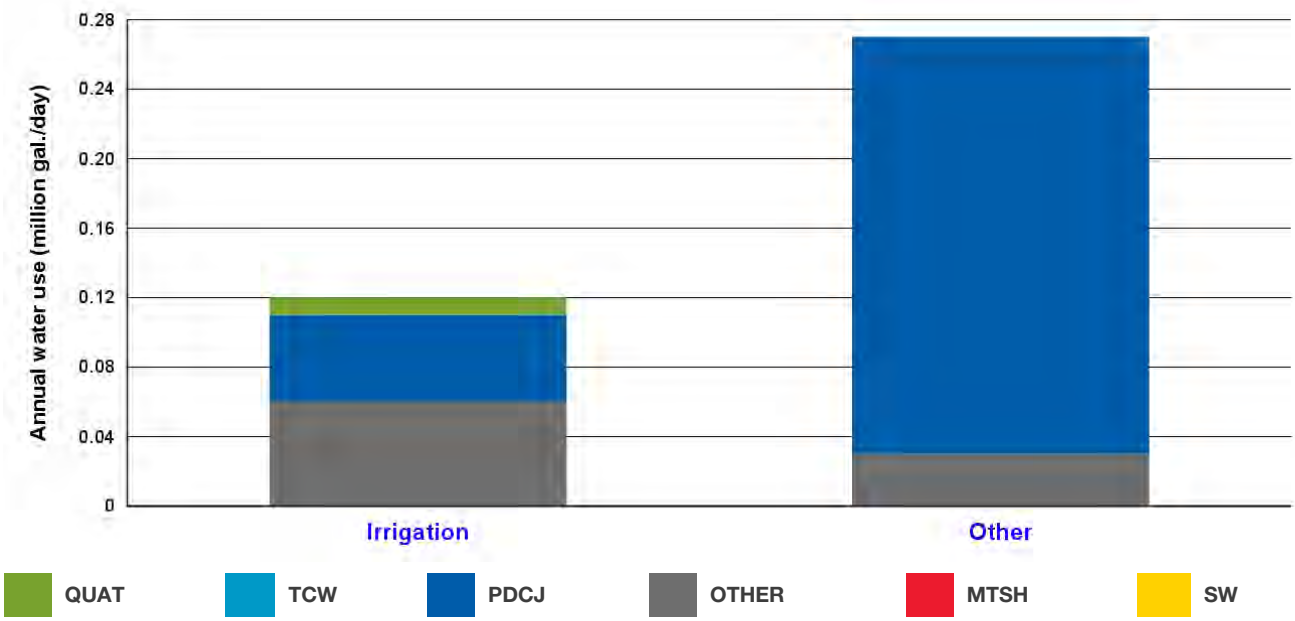
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	8	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	4	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers).

The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Falcon Heights Water Supply Profile

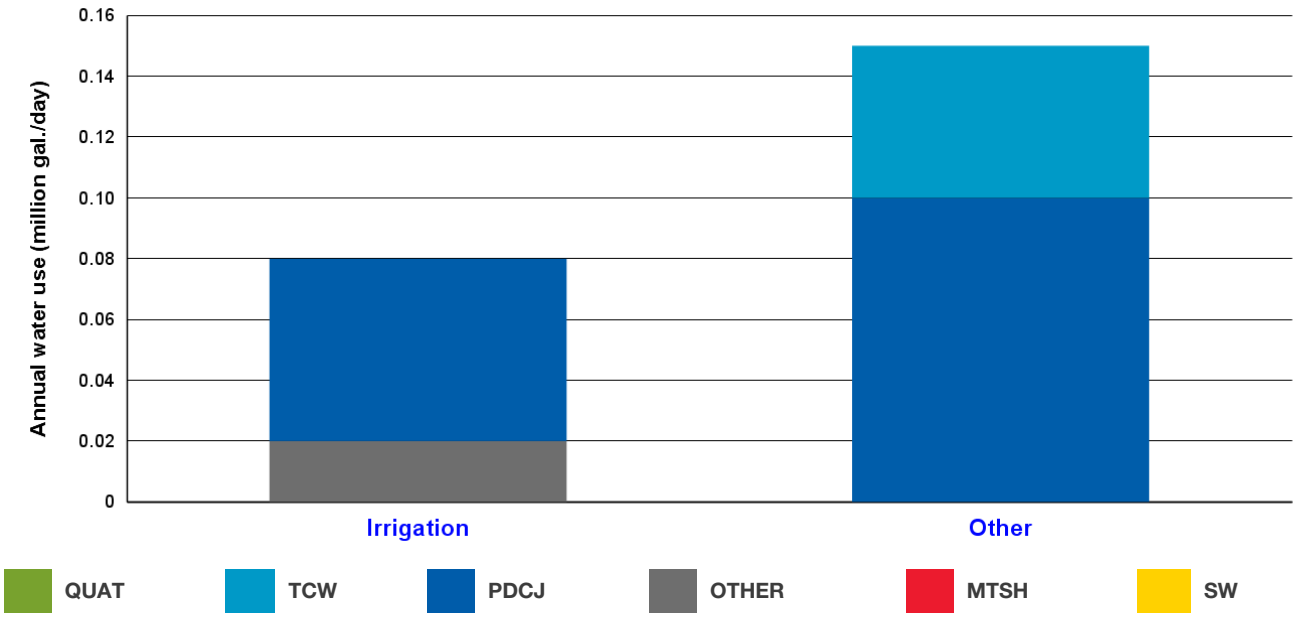
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	3	6
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	2	
Other	0	3	
Surface Water	0	0	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A Special Well and Boring Construction Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Forest Lake Water Supply Profile

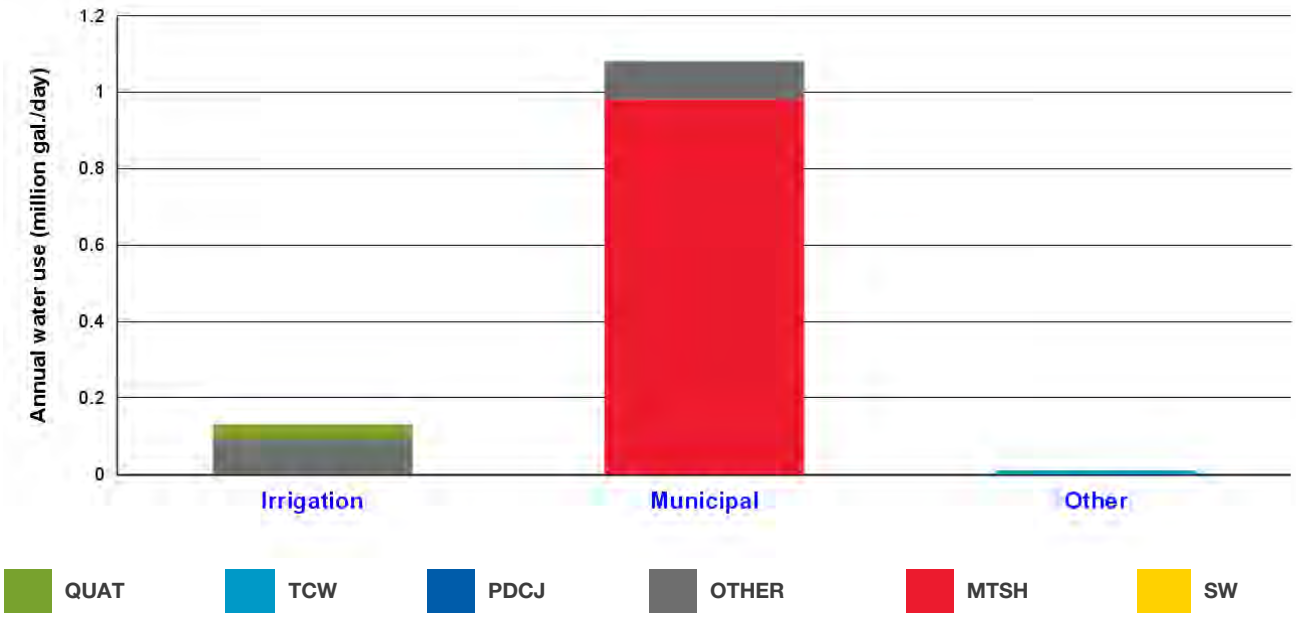
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	2	
Other	3	6	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

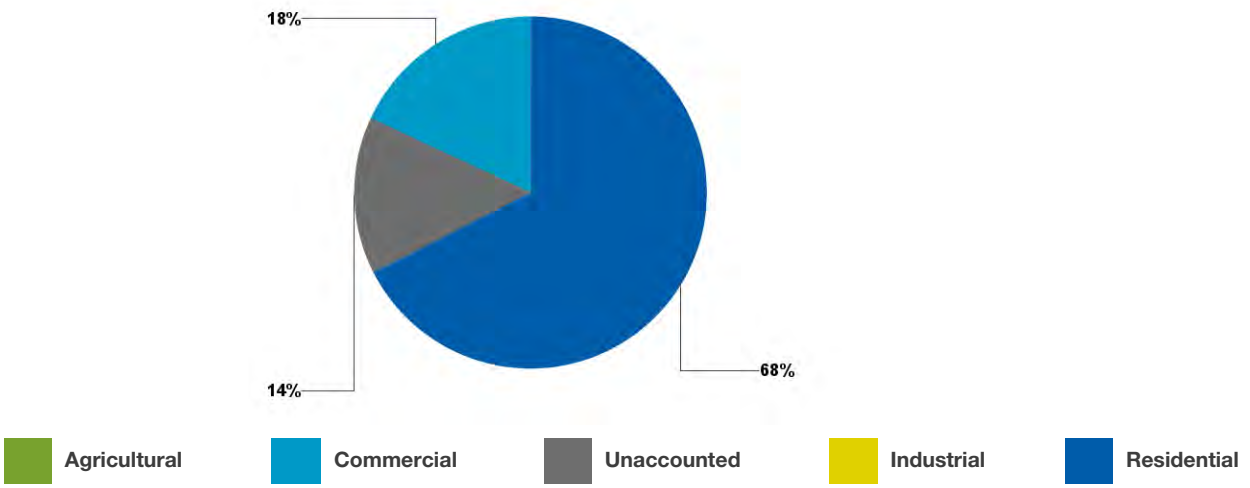
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

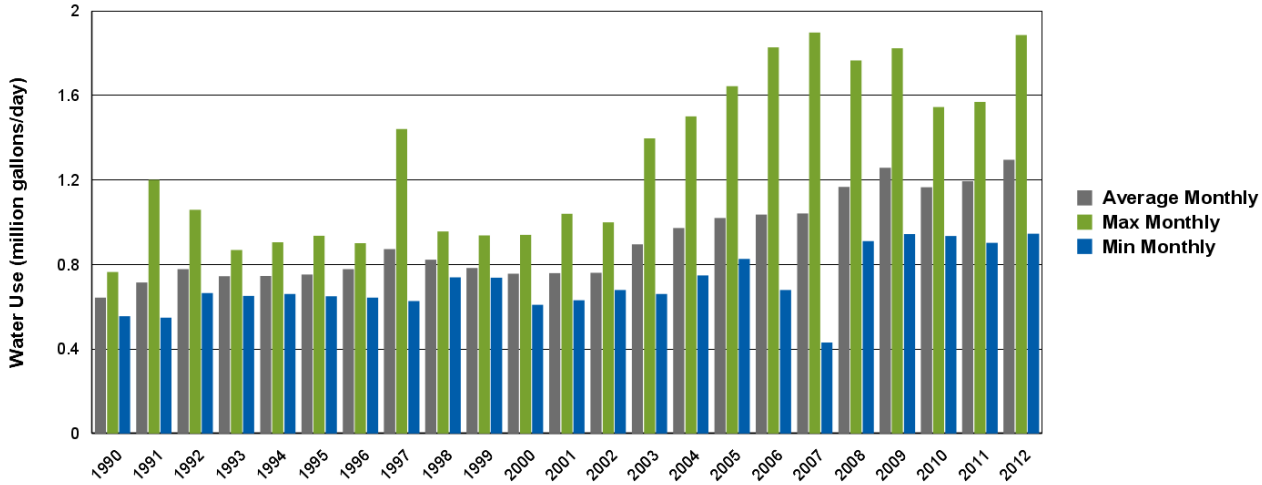
Municipal water treatment: Corrosion control - Lead/Copper, Iron removal, Disinfection, Iron/Manganese Sequestration, Other, Fluoride (Z), Softening

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 406



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	12,261	15,861	20,861
Total Population	19,700	23,300	28,300
Projected Average Daily Water Use (Million Gal/Day)	1.4	1.8	2.3
Total Per Capita Water Use (Gal/Person/Day)	114.18	113.49	110.25
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	106	82	62

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and

projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Fridley Water Supply Profile

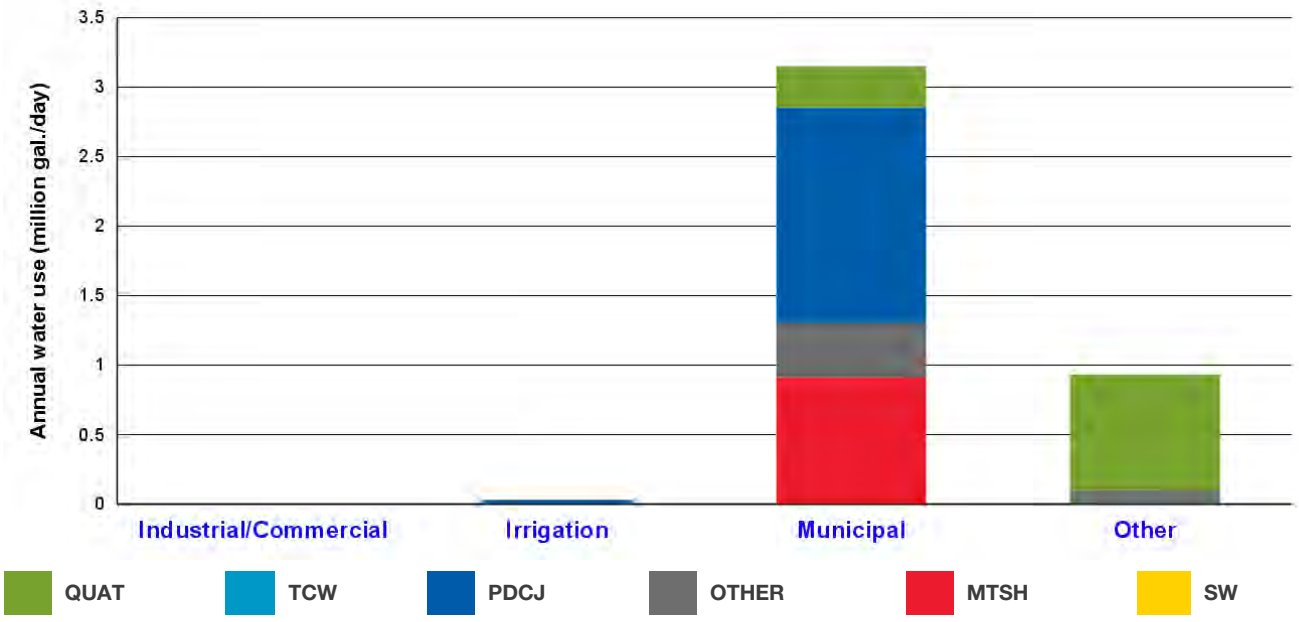
Overview of water system and use in the community:

The community owns and operates their own water supply system and contracts with New Brighton to supply water.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	4	0	
Prairie du Chien-Jordan (PDCJ)	6	8	9
Quaternary (QUAT)	1	26	
Tunnel City-Wonewoc (TCW)	0	0	
Other	2	1	
Surface Water	1	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

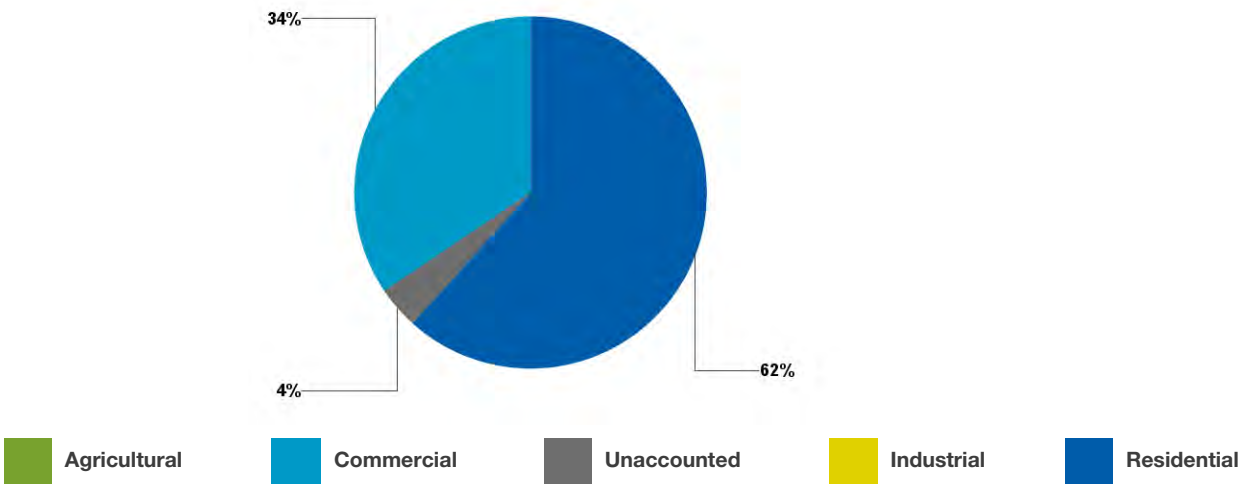
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

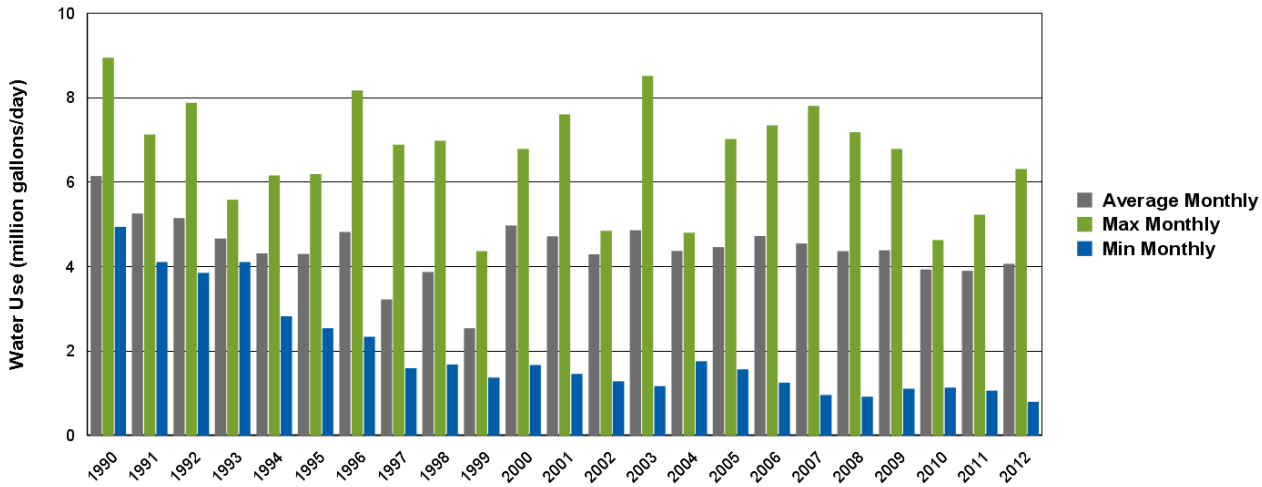
Municipal water treatment: Manganese removal, Iron removal, Radionuclides removal, Fluoride (Z), Other, Iron/Manganese Sequestration, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 1,424



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	27,774	28,274	29,074
Total Population	28,100	28,600	29,400
Projected Average Daily Water Use (Million Gal/Day)	4.5	4.6	4.7
Total Per Capita Water Use (Gal/Person/Day)	162.02	162.69	161.66
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	146	144	140

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Gem Lake Water Supply Profile

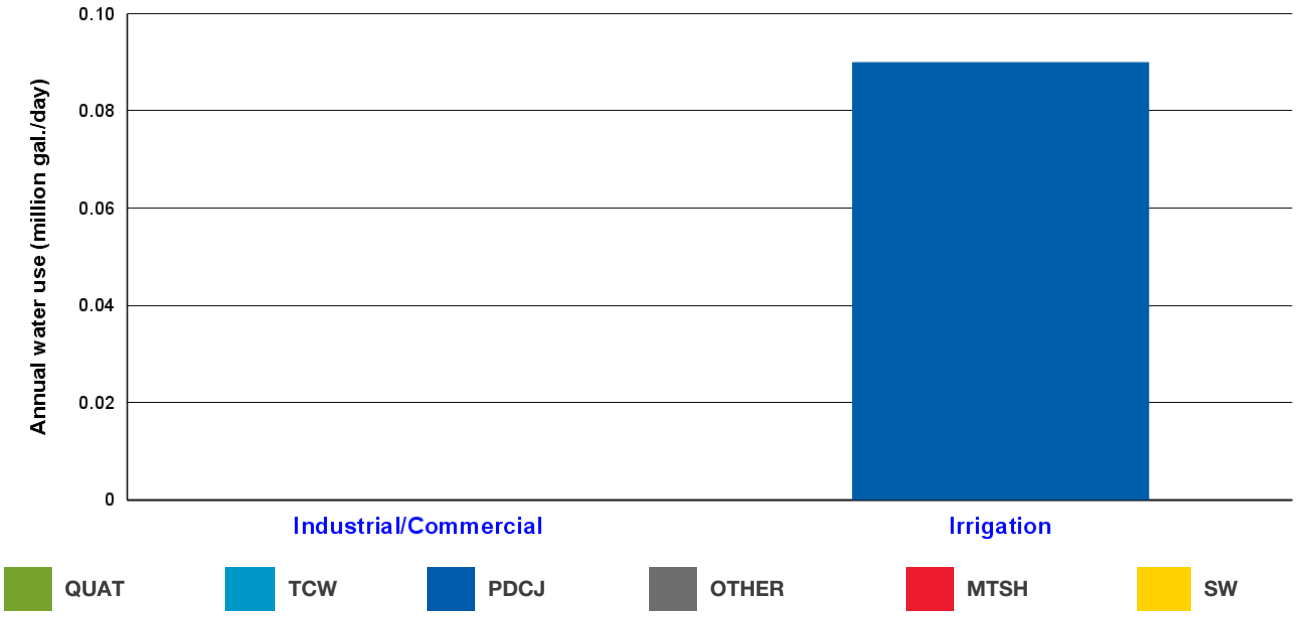
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule

for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Grant Water Supply Profile

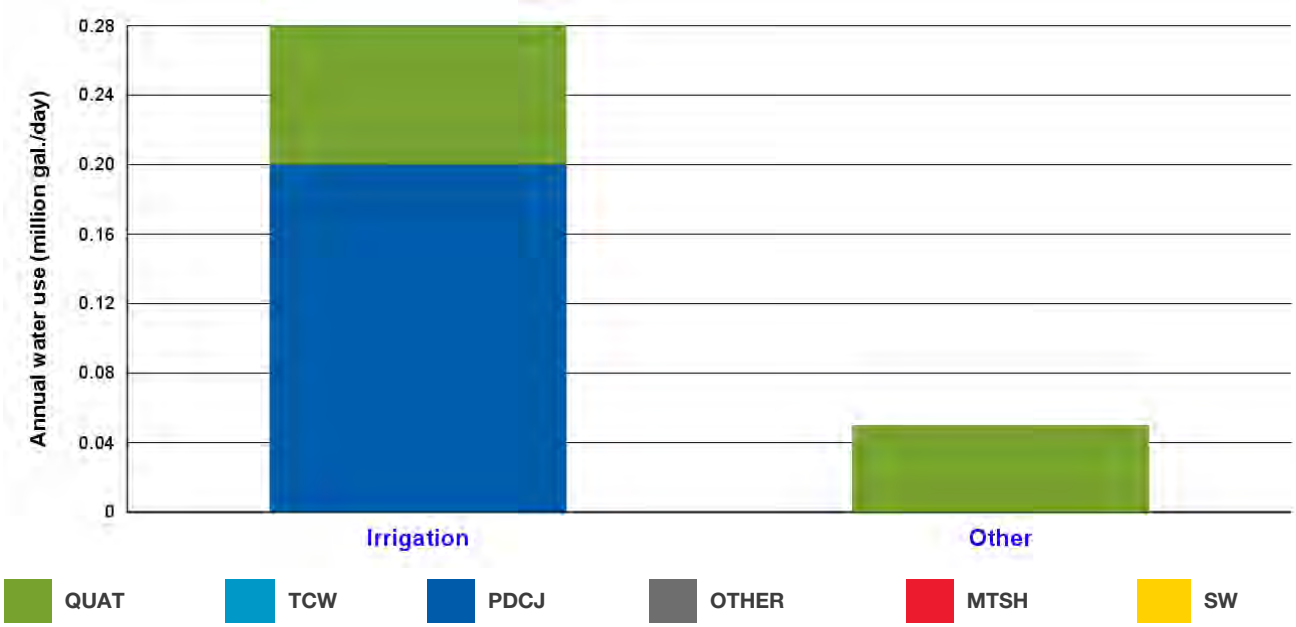
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	6	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hilltop Water Supply Profile

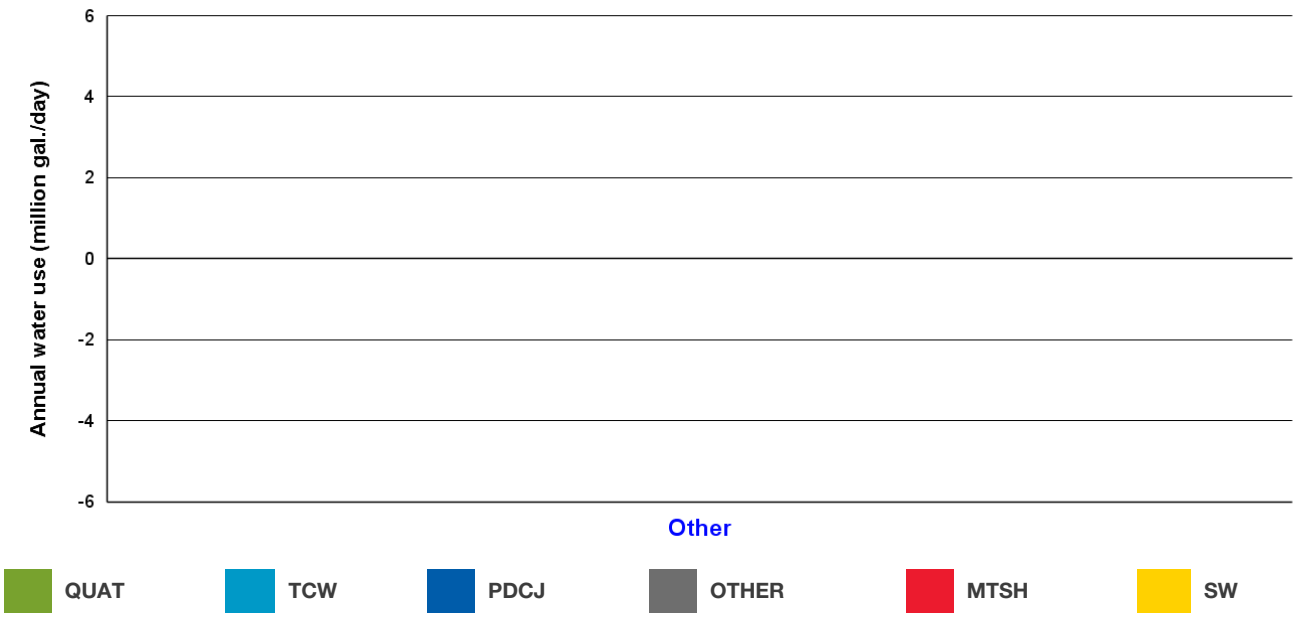
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hugo Water Supply Profile

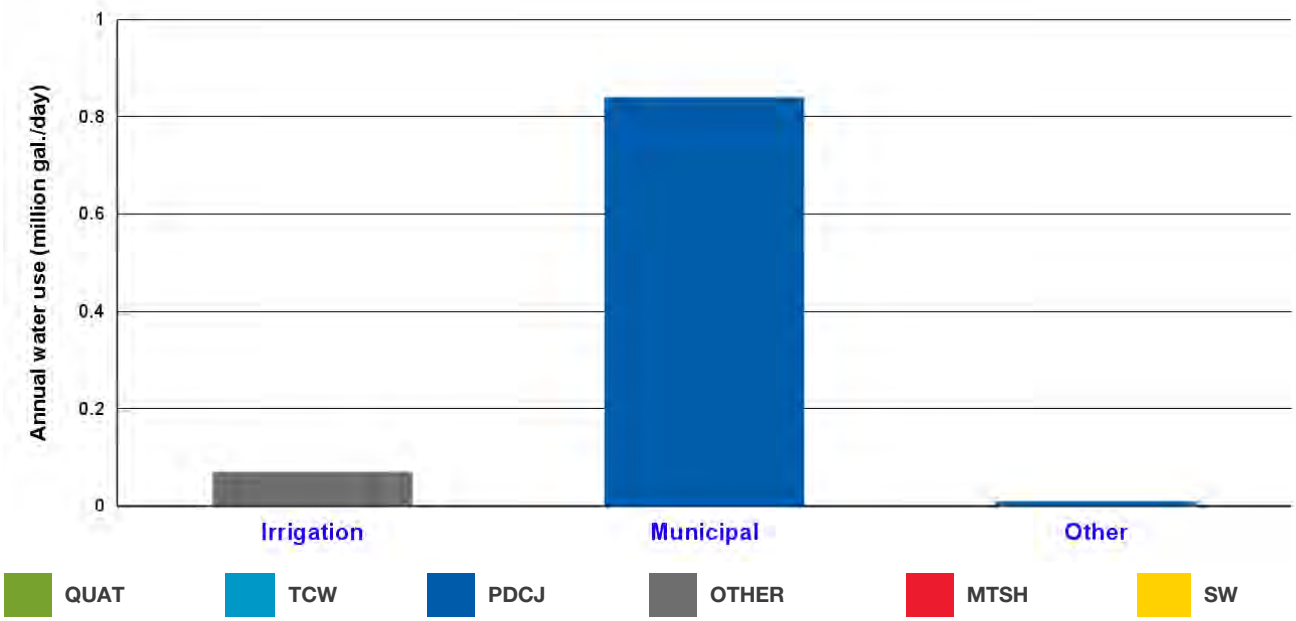
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	5	3	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

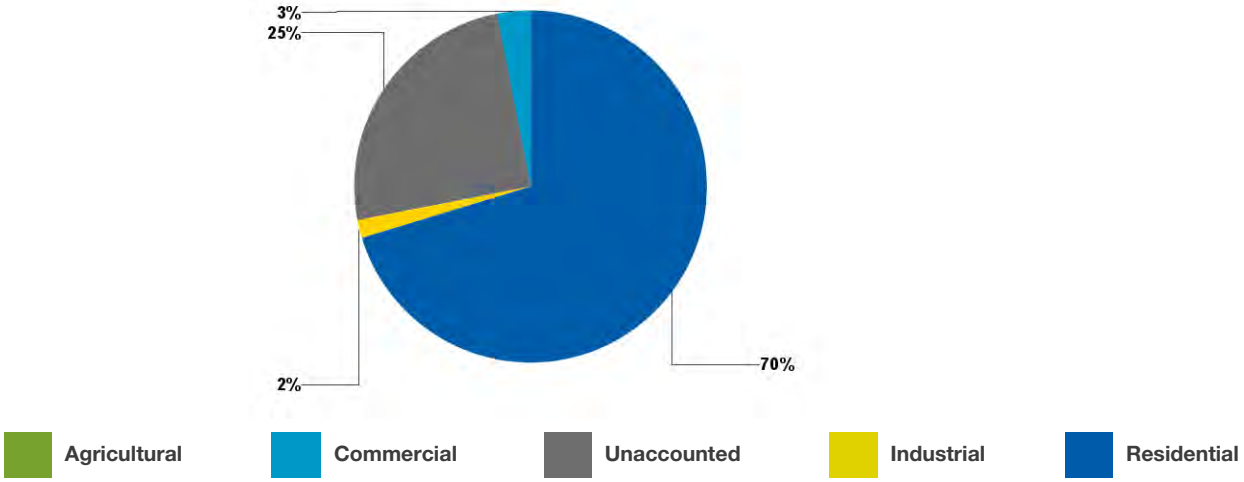
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

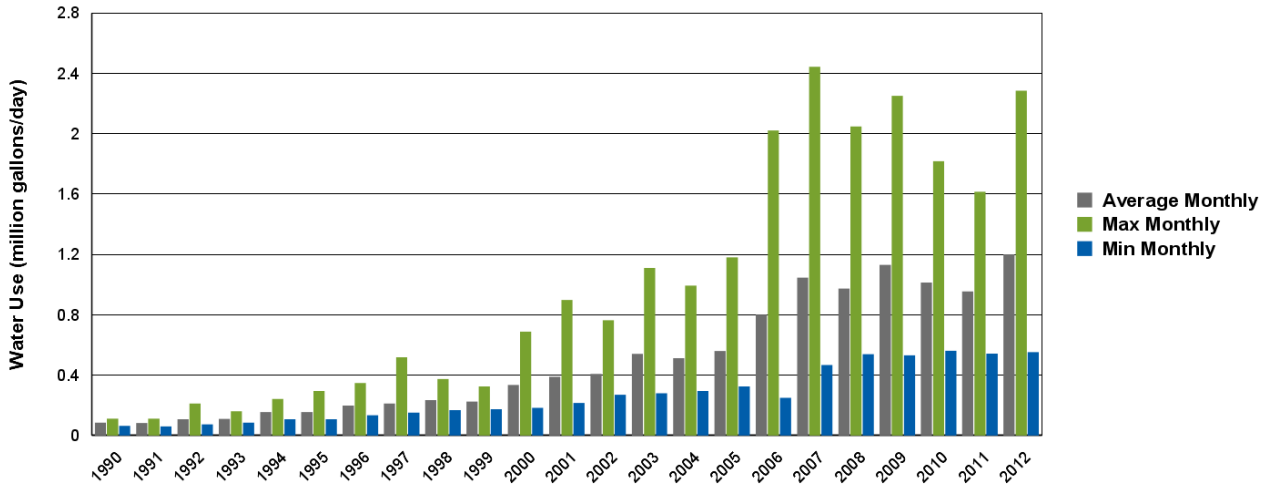
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 331



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	19,340	28,104	36,867
Total Population	16,700	23,300	32,500
Projected Average Daily Water Use (Million Gal/Day)	2.2	3.1	4.1
Total Per Capita Water Use (Gal/Person/Day)	113.75	110.30	111.21
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	62	43	33

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lake Elmo Water Supply Profile

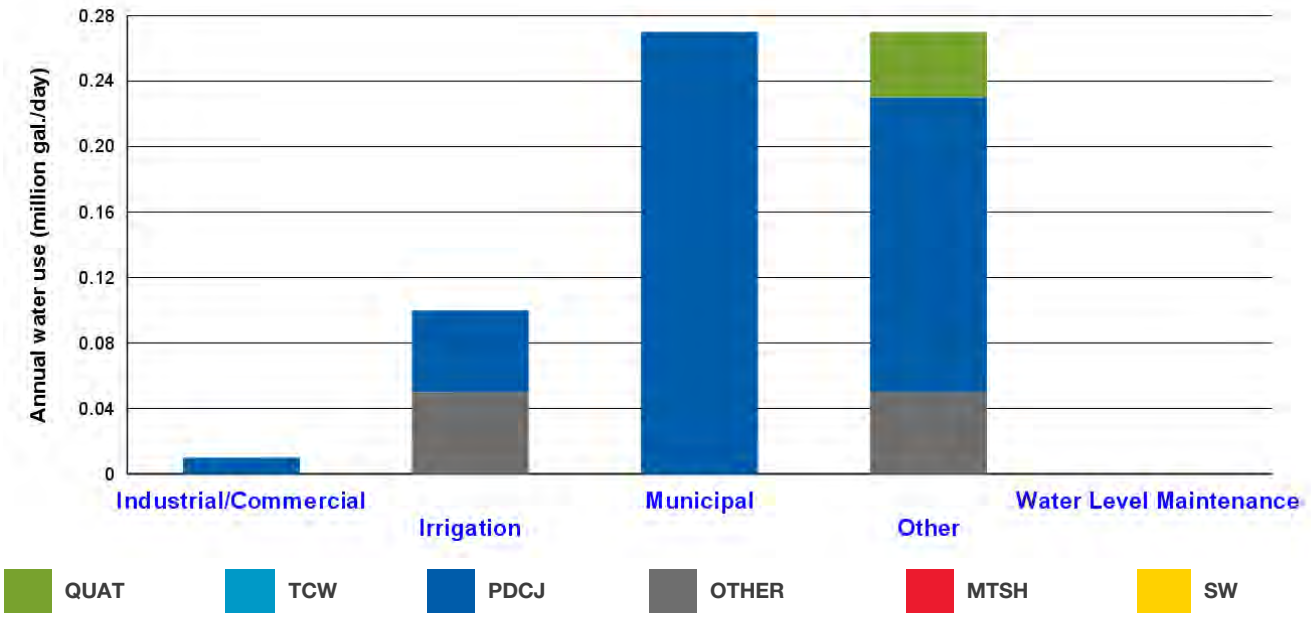
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	19	0
Quaternary (QUAT)	0	10	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	5	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

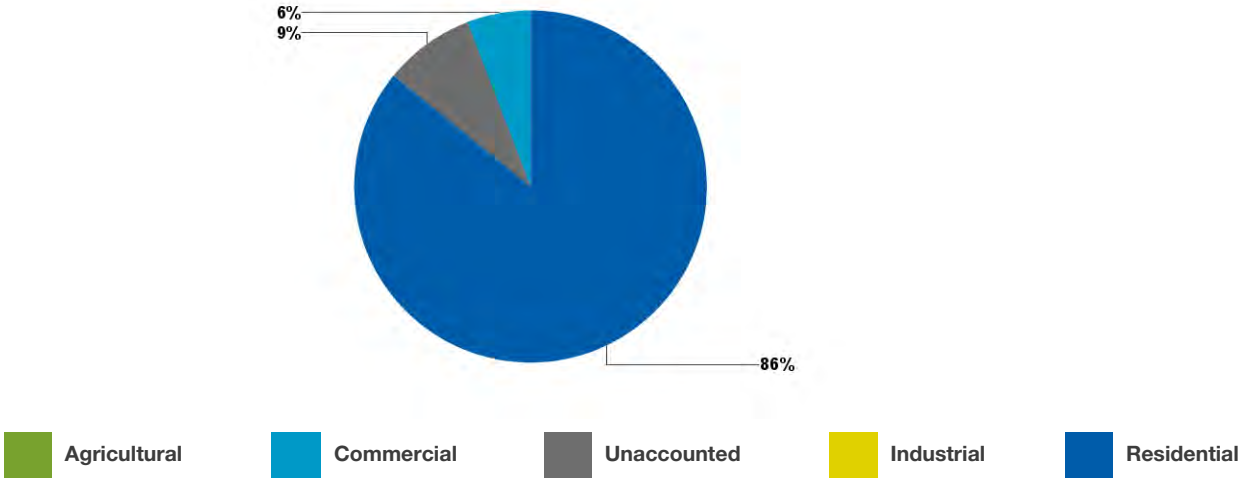
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

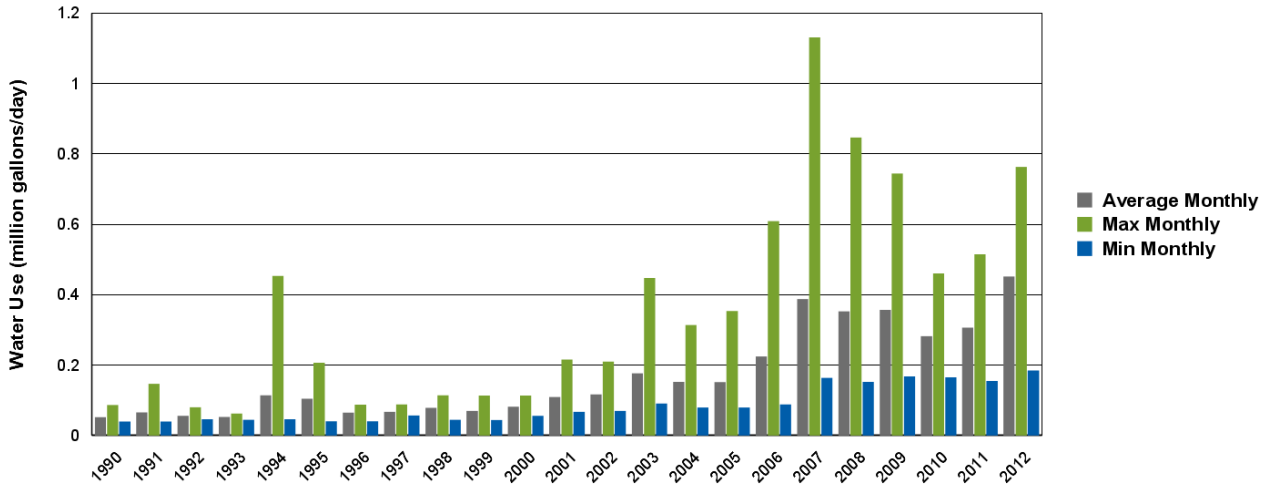
Municipal water treatment: Disinfection, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 151



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	4,544	8,744	14,744
Total Population	10,300	14,500	20,500
Projected Average Daily Water Use (Million Gal/Day)	0.5	1.0	1.7
Total Per Capita Water Use (Gal/Person/Day)	110.04	114.36	115.30
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	100	52	31

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lakeland Water Supply Profile

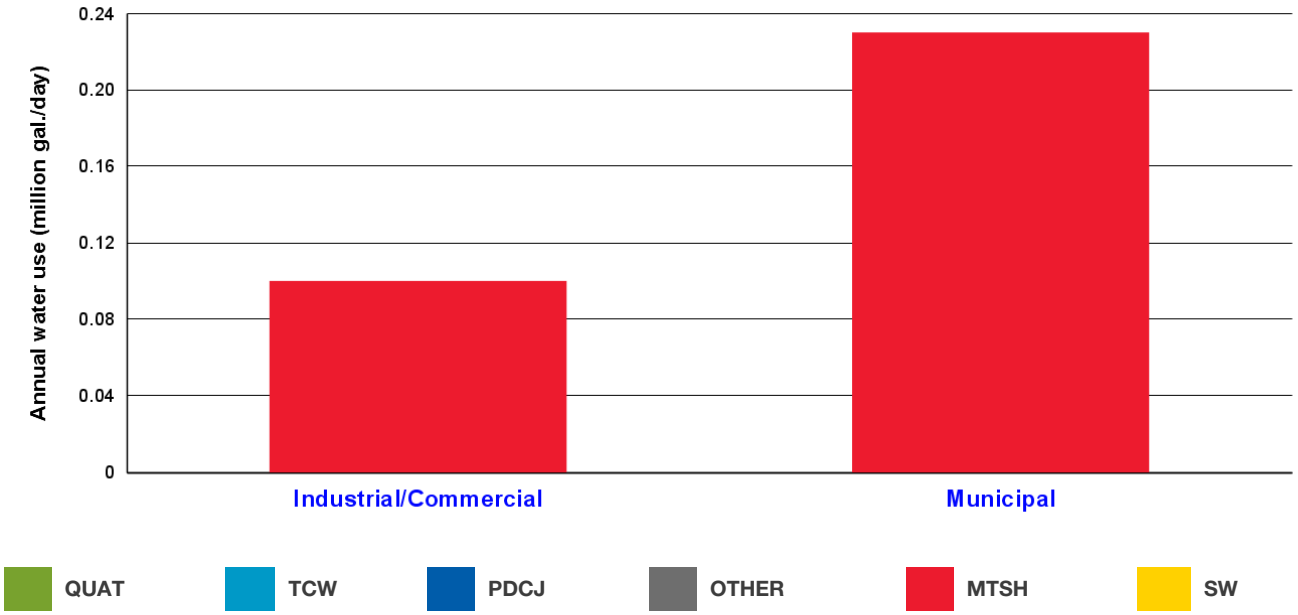
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	1	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

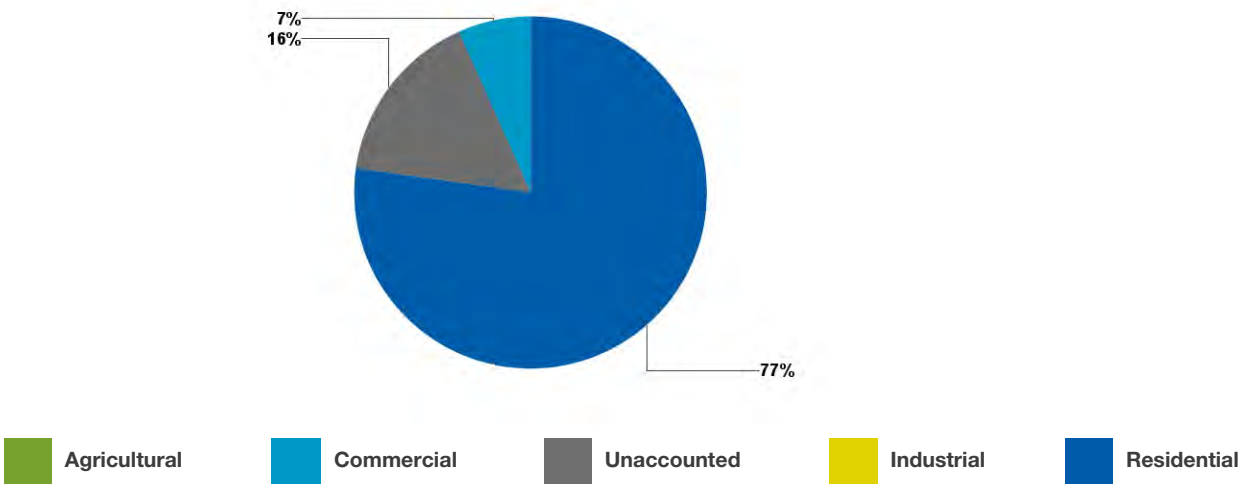
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

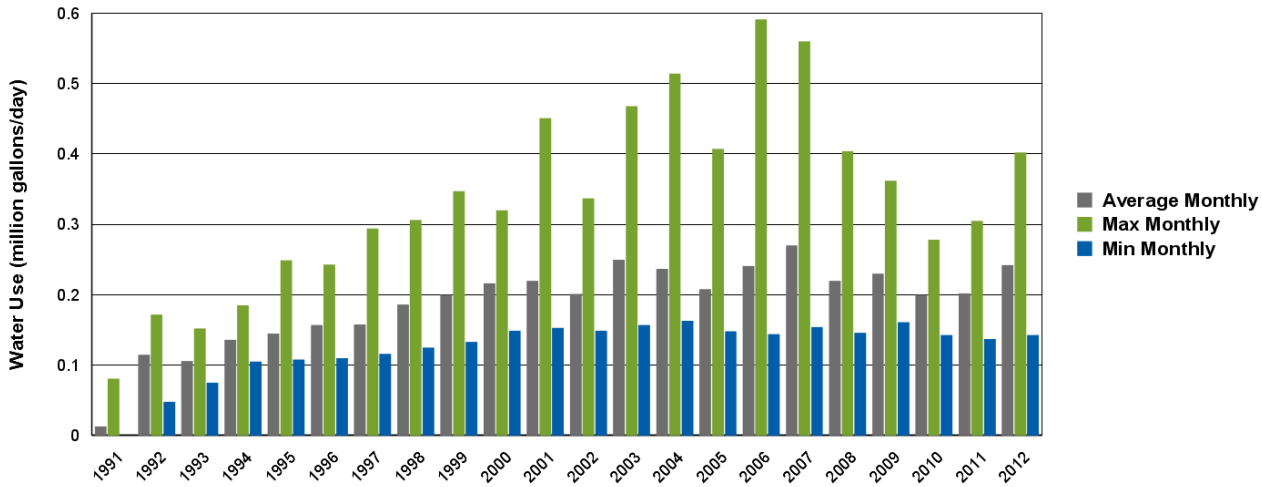
Municipal water treatment: Manganese removal, Other, Fluoride (Z), Iron removal, Disinfection, Corrosion control - Lead/Copper

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 74



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,937	3,046	3,154
Total Population	1,794	1,794	1,794
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.3	0.3
Total Per Capita Water Use (Gal/Person/Day)	102.15	98.49	95.12
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	82	79	77

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lakeland Shores Water Supply Profile

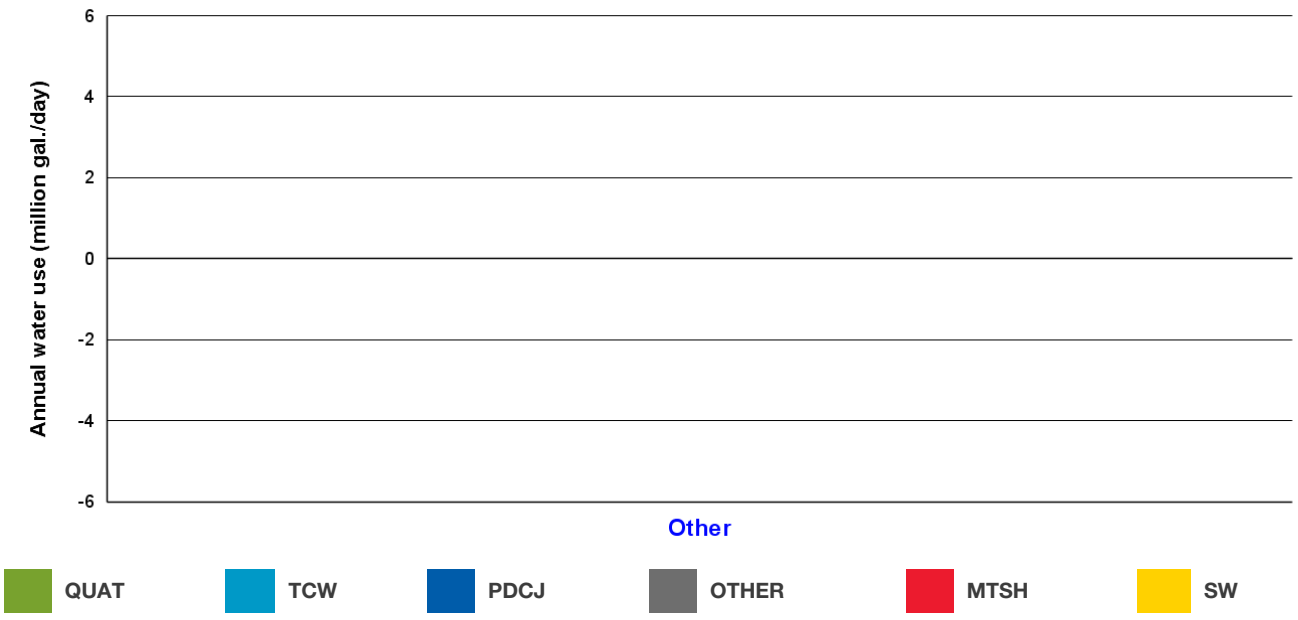
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Lakeland.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lake St. Croix Beach Water Supply Profile

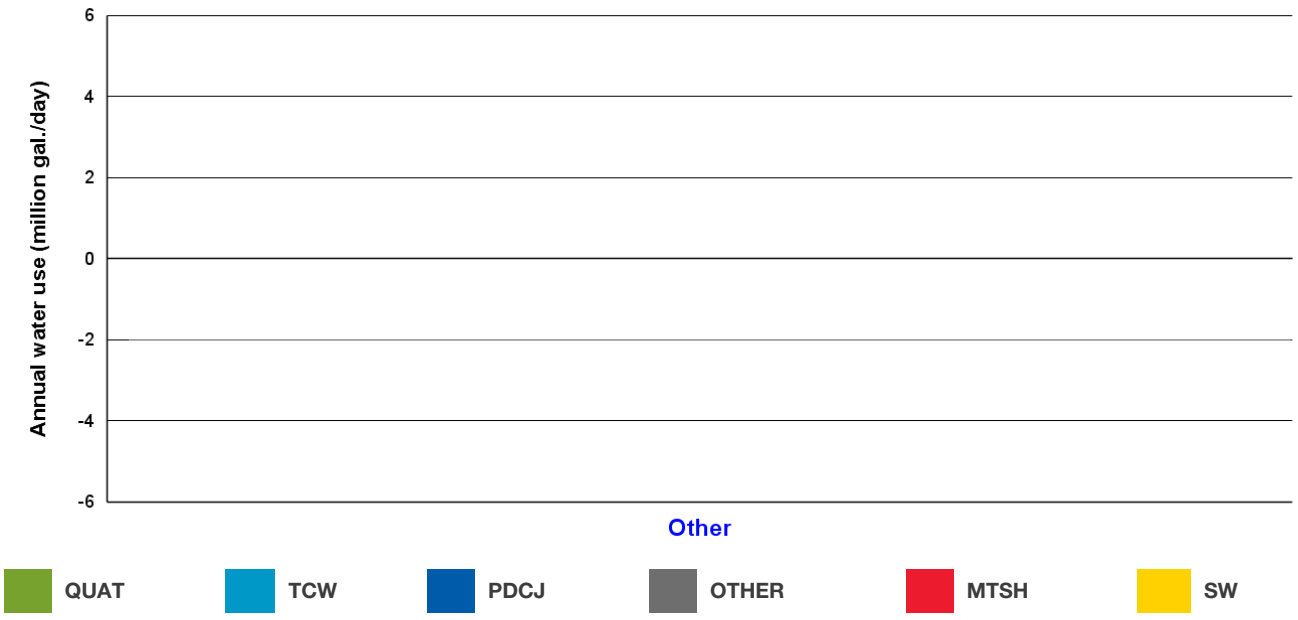
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Lakeland.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Landfall Water Supply Profile

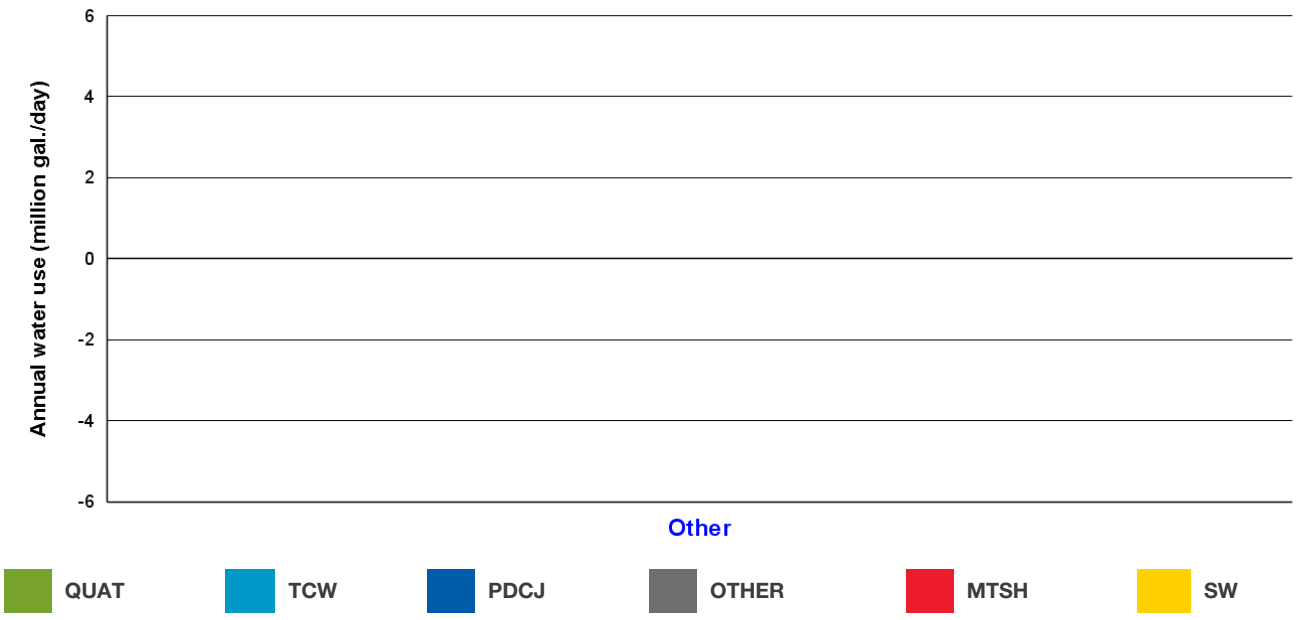
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Oakdale.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	10
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lauderdale Water Supply Profile

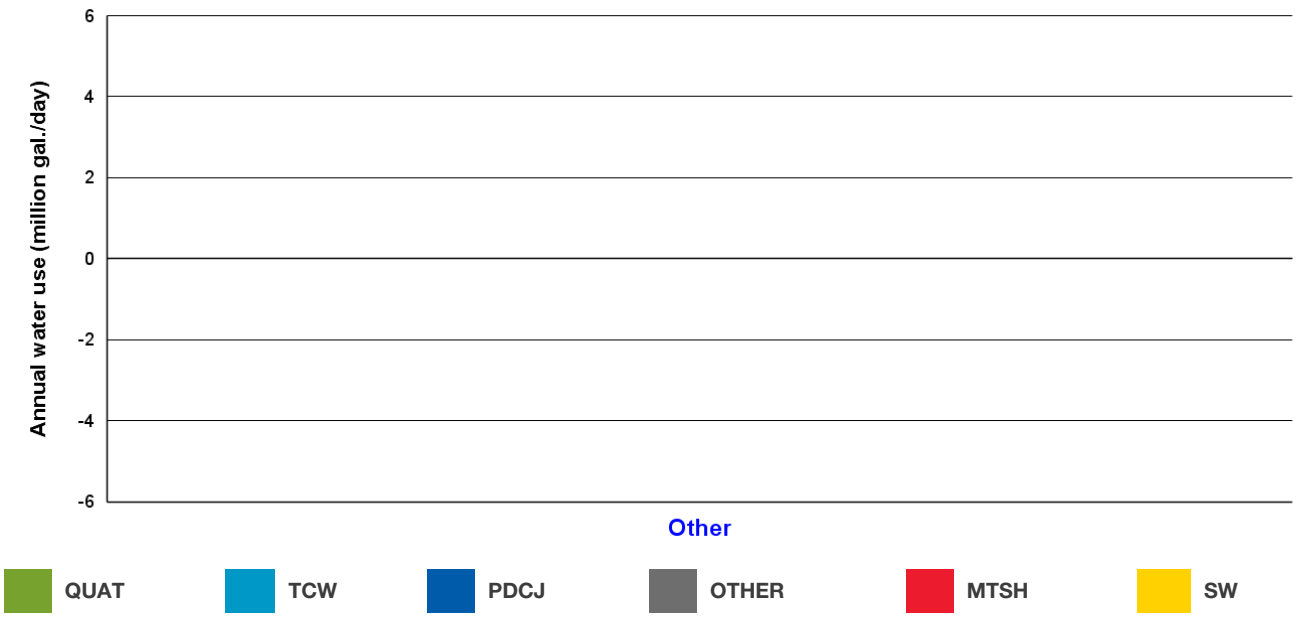
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	6
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant vulnerability to contamination
  - A Special Well and Boring Construction Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.

- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lexington Water Supply Profile

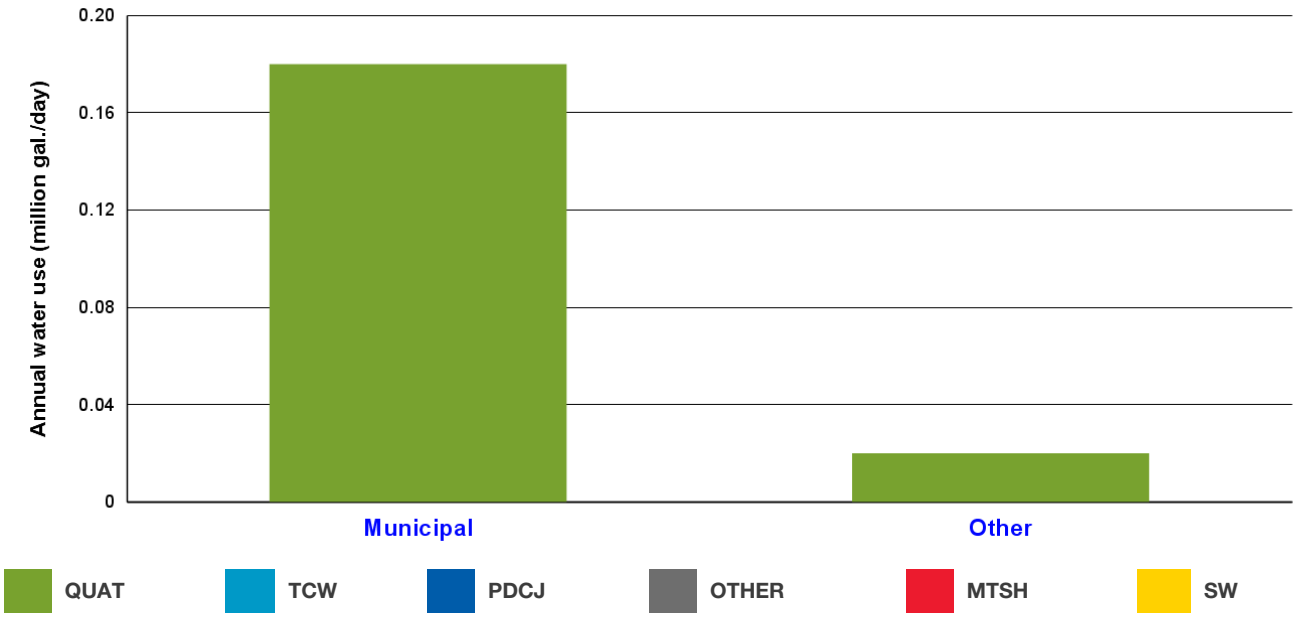
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

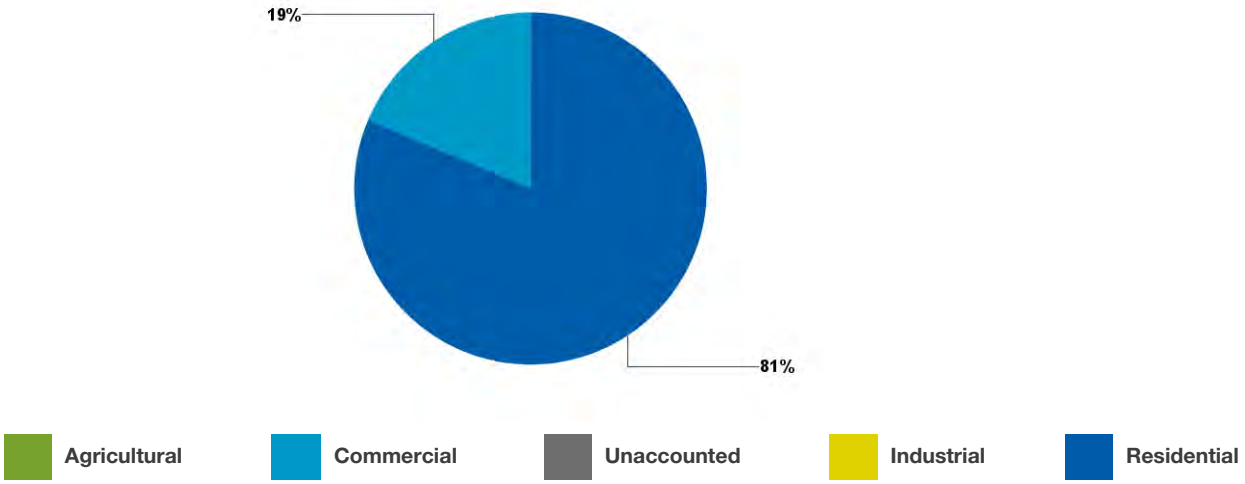
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

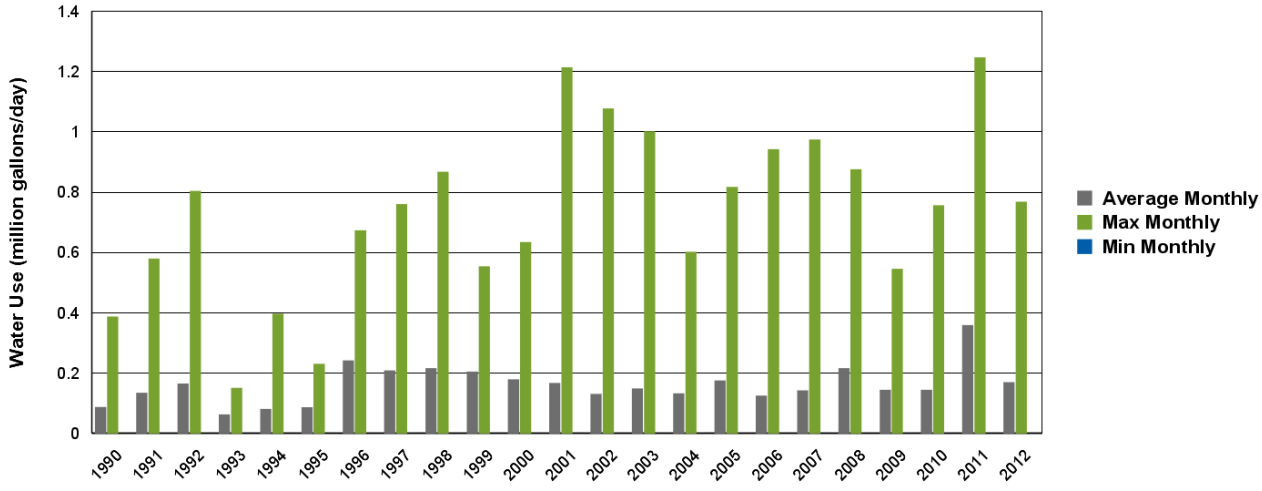
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 62



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,130	2,260	2,300
Total Population	2,130	2,260	2,300
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.2	0.2
Total Per Capita Water Use (Gal/Person/Day)	93.90	88.50	86.96
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	80	76	74

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lino Lakes Water Supply Profile

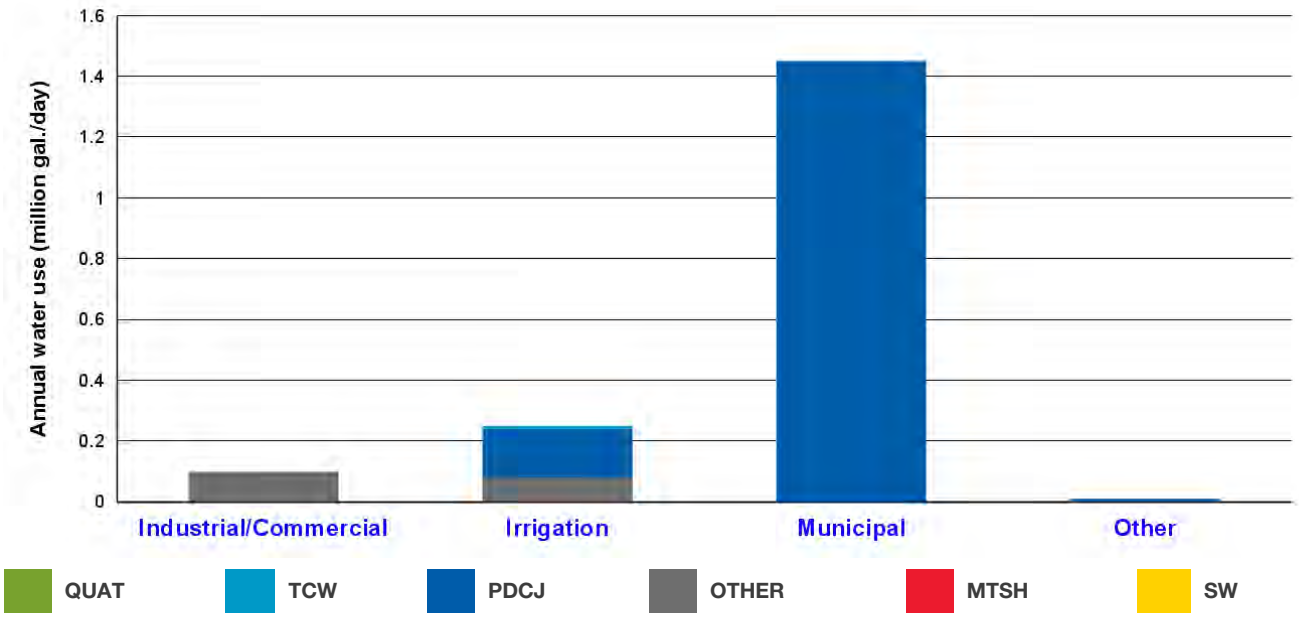
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	5	6	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	1	
Other	1	3	
Surface Water	1	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

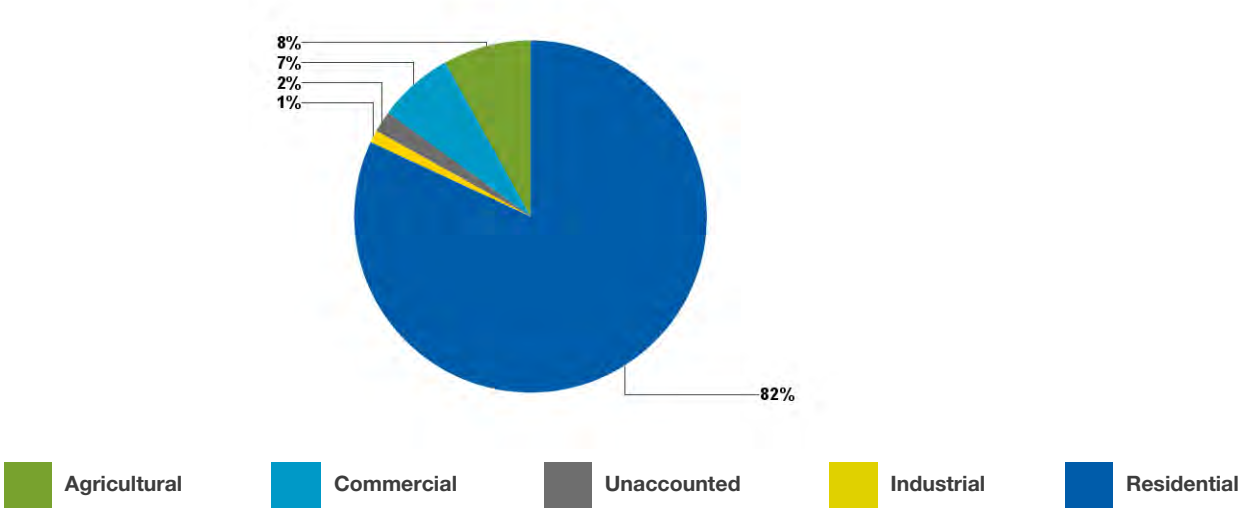
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

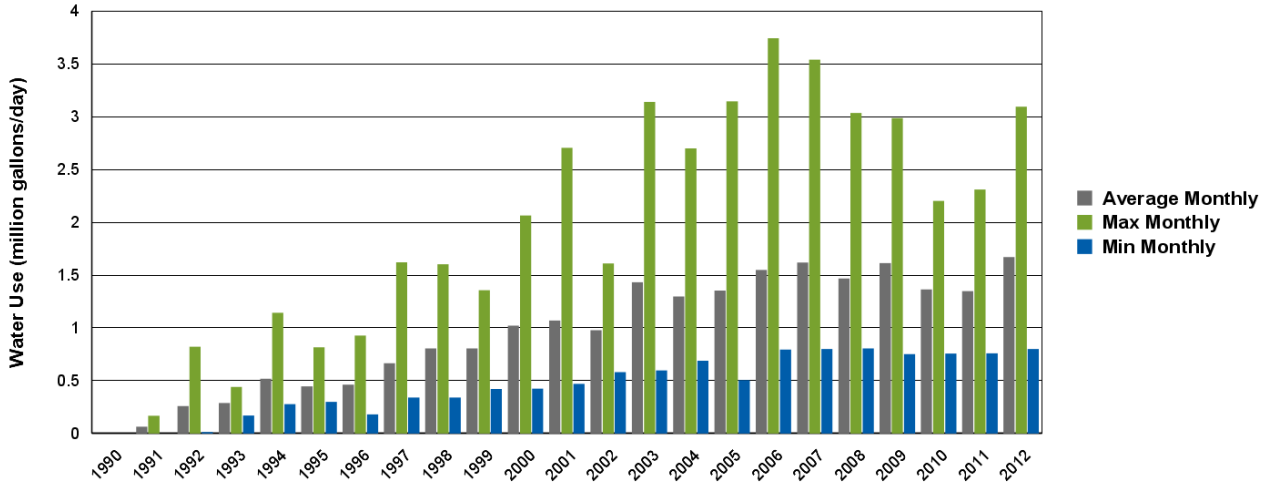
Municipal water treatment: Disinfection, Fluoride (Z), Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 594



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	16,429	19,229	23,429
Total Population	22,000	24,800	29,000
Projected Average Daily Water Use (Million Gal/Day)	1.8	2.1	2.5
Total Per Capita Water Use (Gal/Person/Day)	109.56	109.21	106.71
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	102	87	71

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

  – Compliance with Safe Drinking Water Act standards

  – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

  – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Little Canada Water Supply Profile

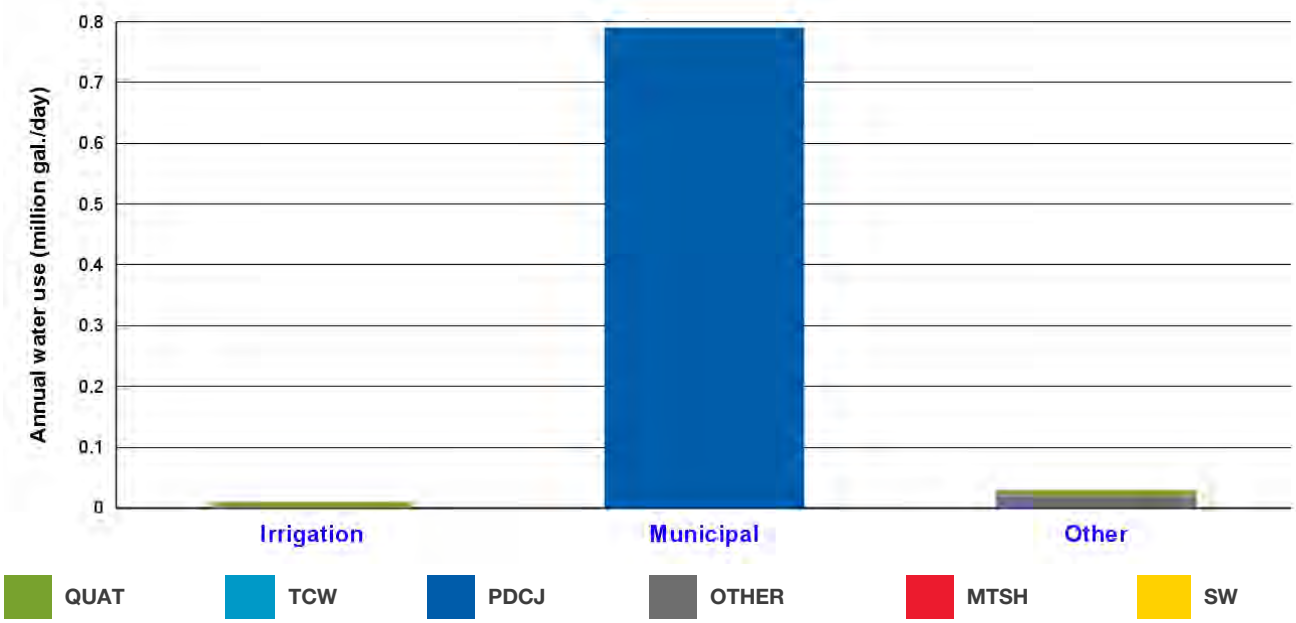
Overview of water system and use in the community:

The community owns and operates their own water supply system and contracts with St. Paul to supply water.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	3	0	3
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Mahtomedi Water Supply Profile

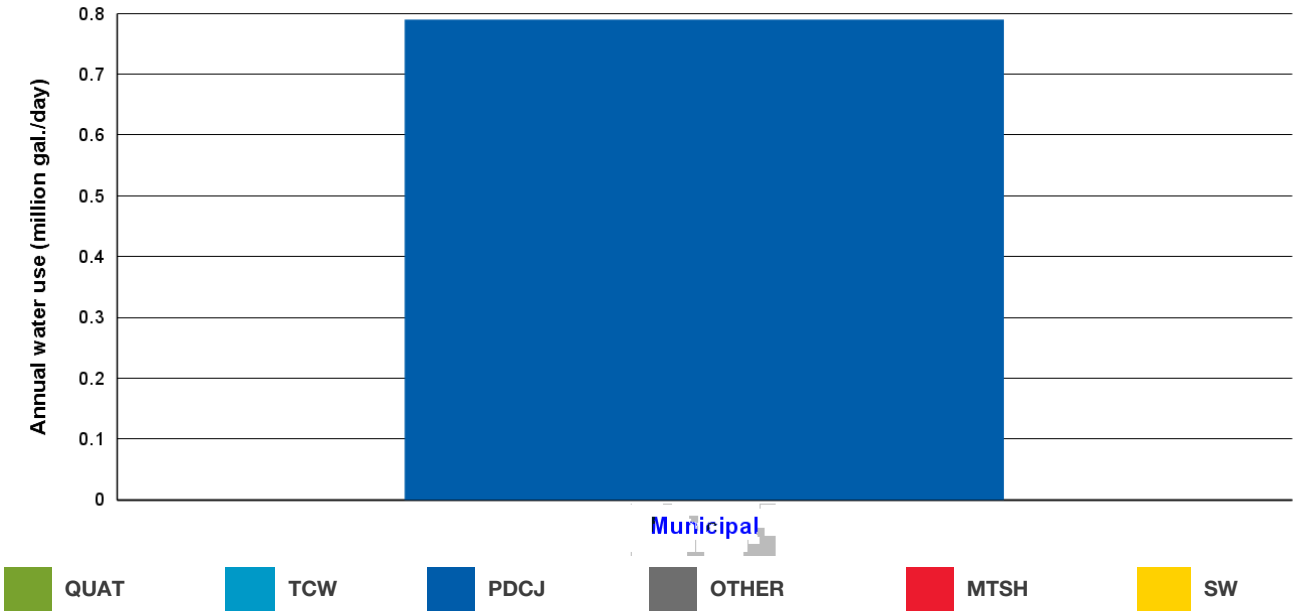
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	4	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

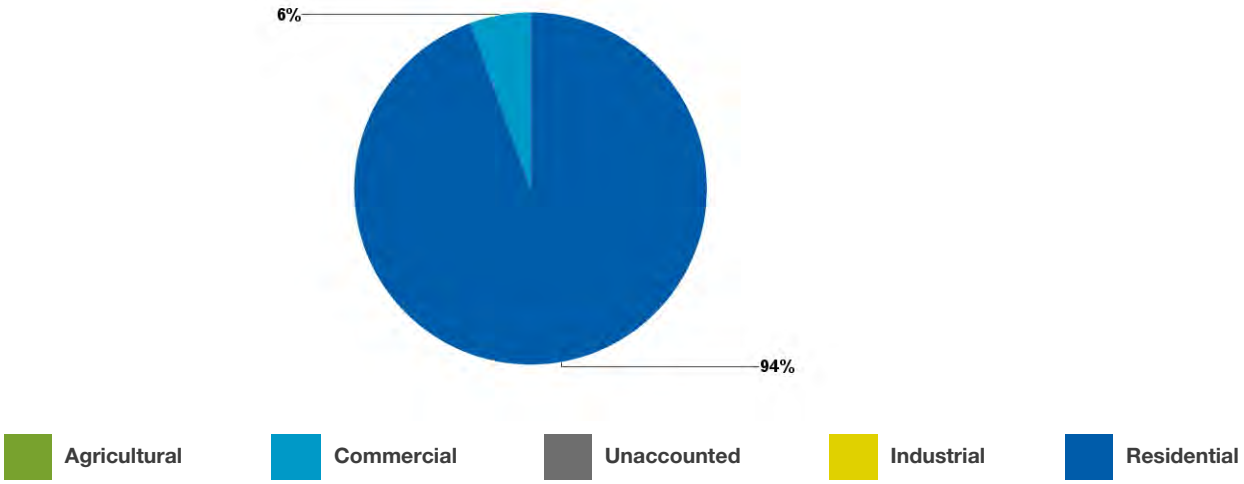
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

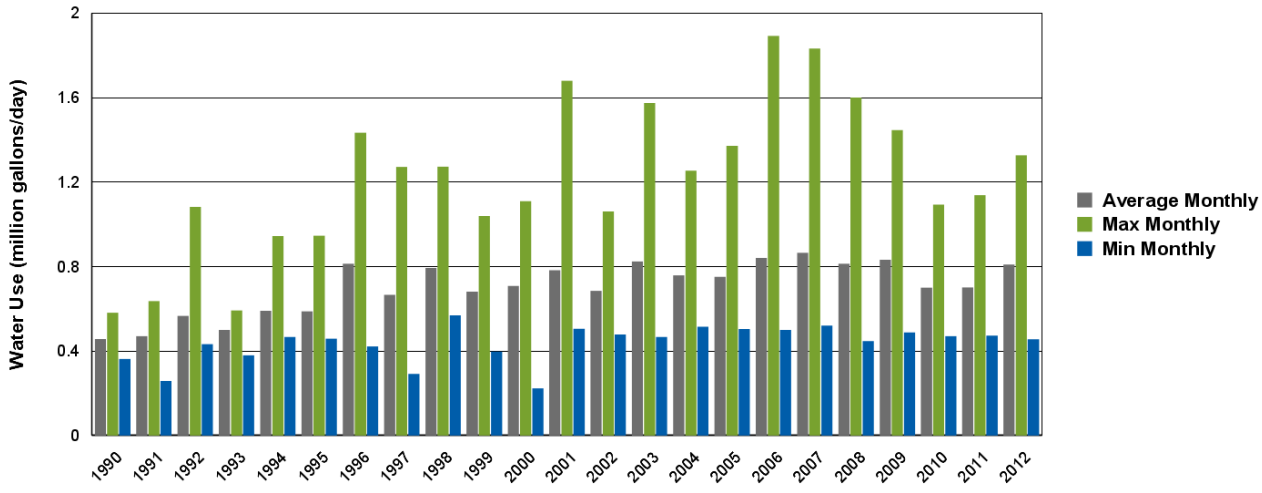
Municipal water treatment: Fluoride (Z), Iron/Manganese Sequestration, Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 295



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	7,131	7,031	7,031
Total Population	7,800	7,700	7,700
Projected Average Daily Water Use (Million Gal/Day)	0.8	0.8	0.8
Total Per Capita Water Use (Gal/Person/Day)	112.19	113.78	113.78
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	114	115	115

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Maplewood Water Supply Profile

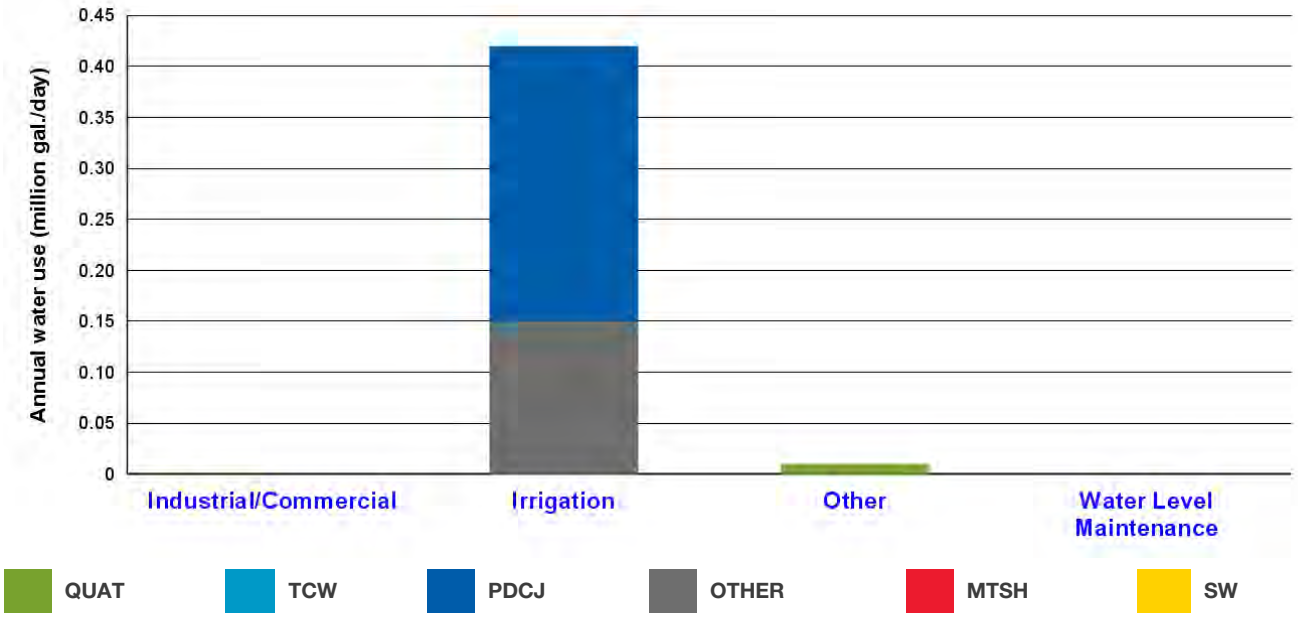
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul and North St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	11	11
Quaternary (QUAT)	0	10	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	1	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Marine on St. Croix Water Supply Profile

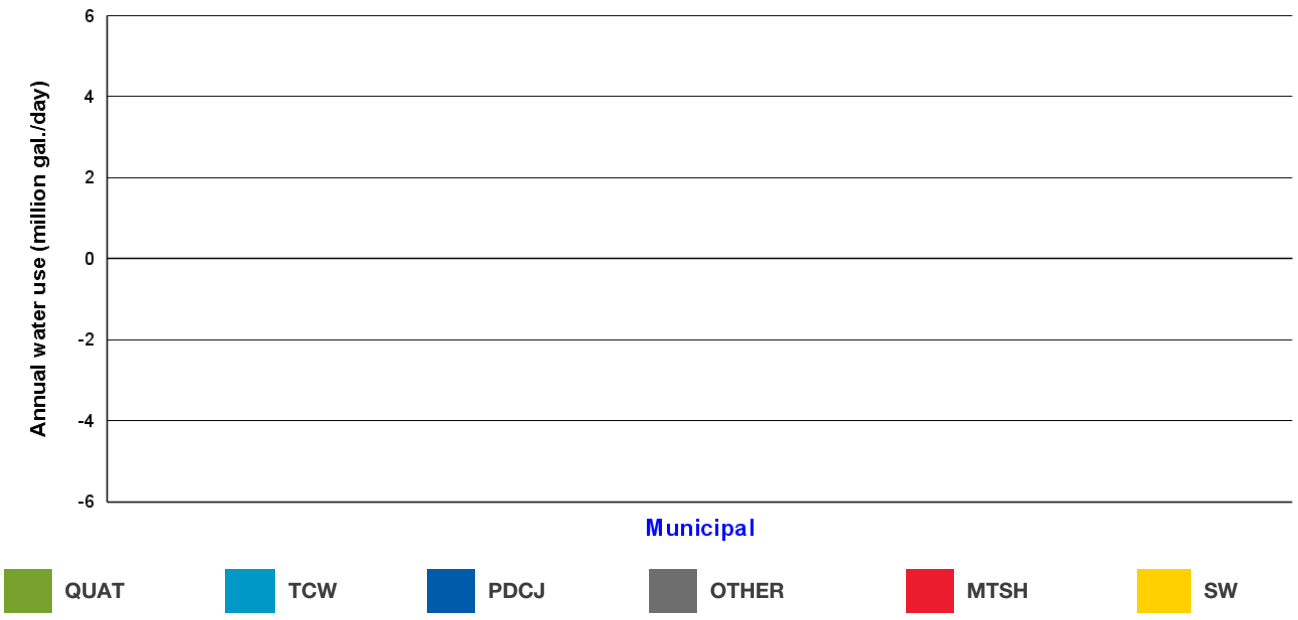
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	2	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

May Twp. Water Supply Profile

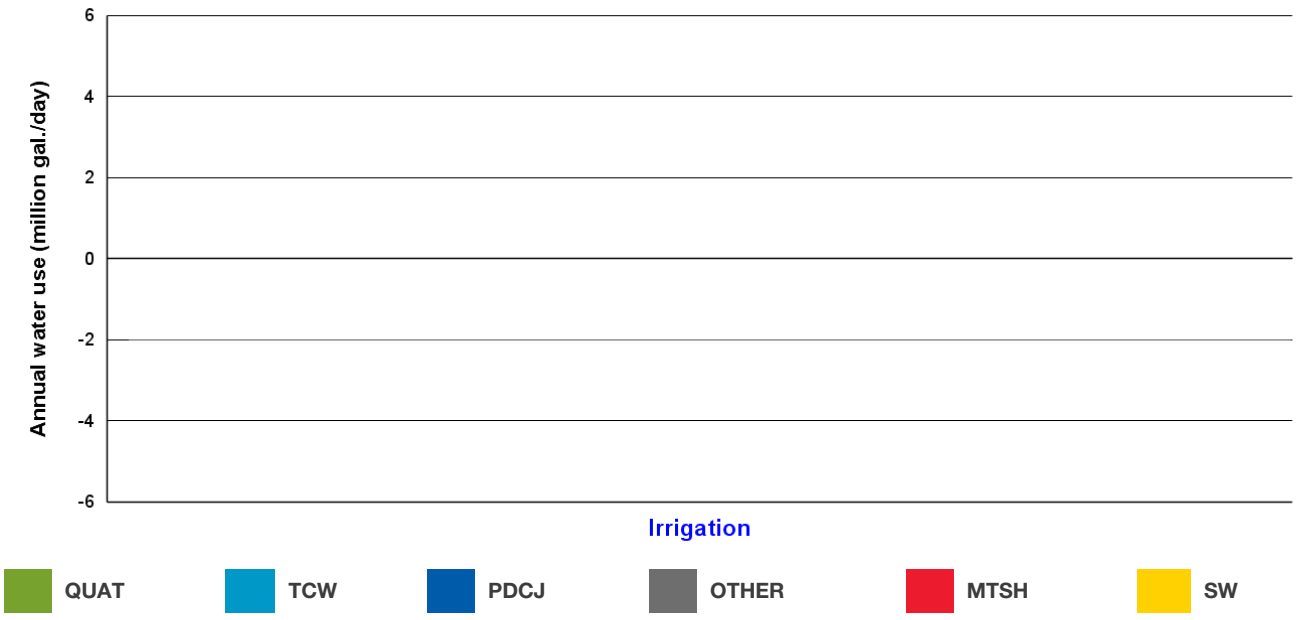
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical

comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Mounds View Water Supply Profile

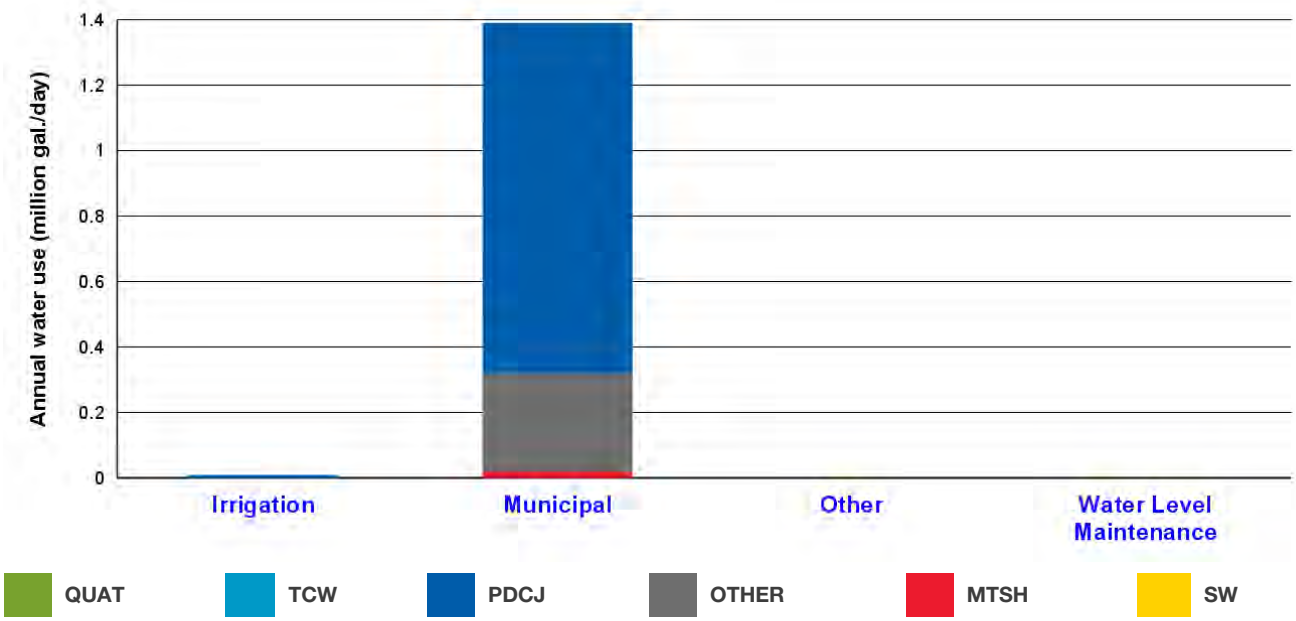
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	3	3	0
Quaternary (QUAT)	0	4	
Tunnel City-Wonewoc (TCW)	0	0	
Other	2	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

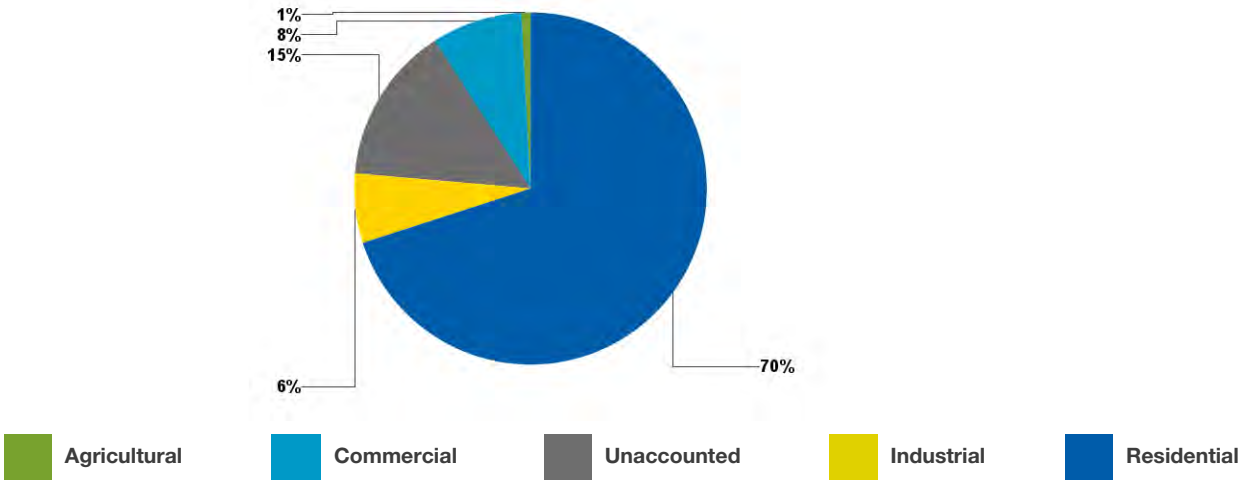
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

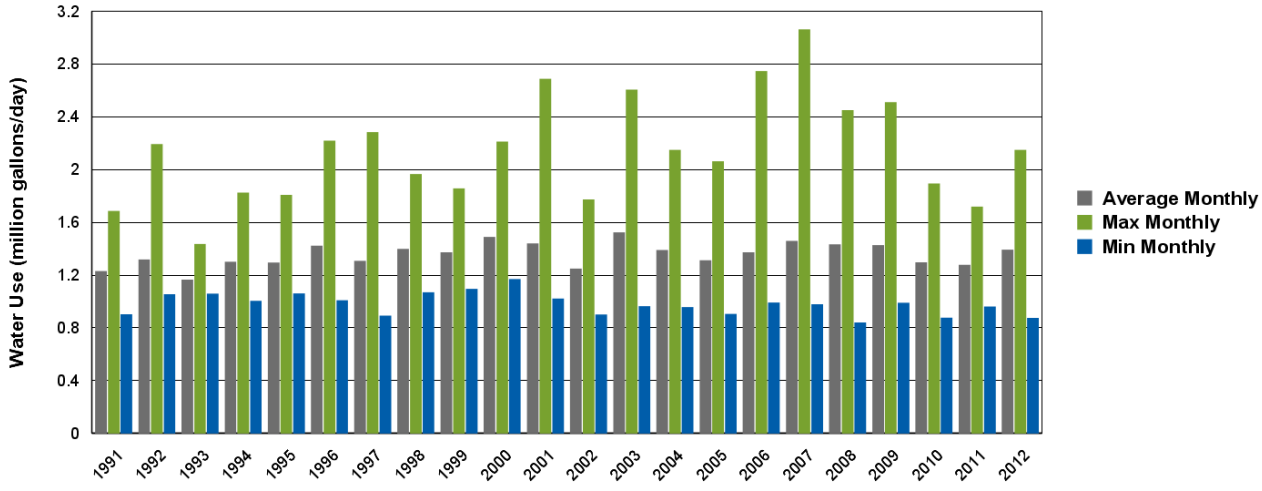
Municipal water treatment: Iron removal, Disinfection, Manganese removal, Other, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 437



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	12,400	12,500	13,100
Total Population	12,400	12,500	13,100
Projected Average Daily Water Use (Million Gal/Day)	1.4	1.4	1.5
Total Per Capita Water Use (Gal/Person/Day)	112.90	112.00	114.50
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	112	111	106

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

New Brighton Water Supply Profile

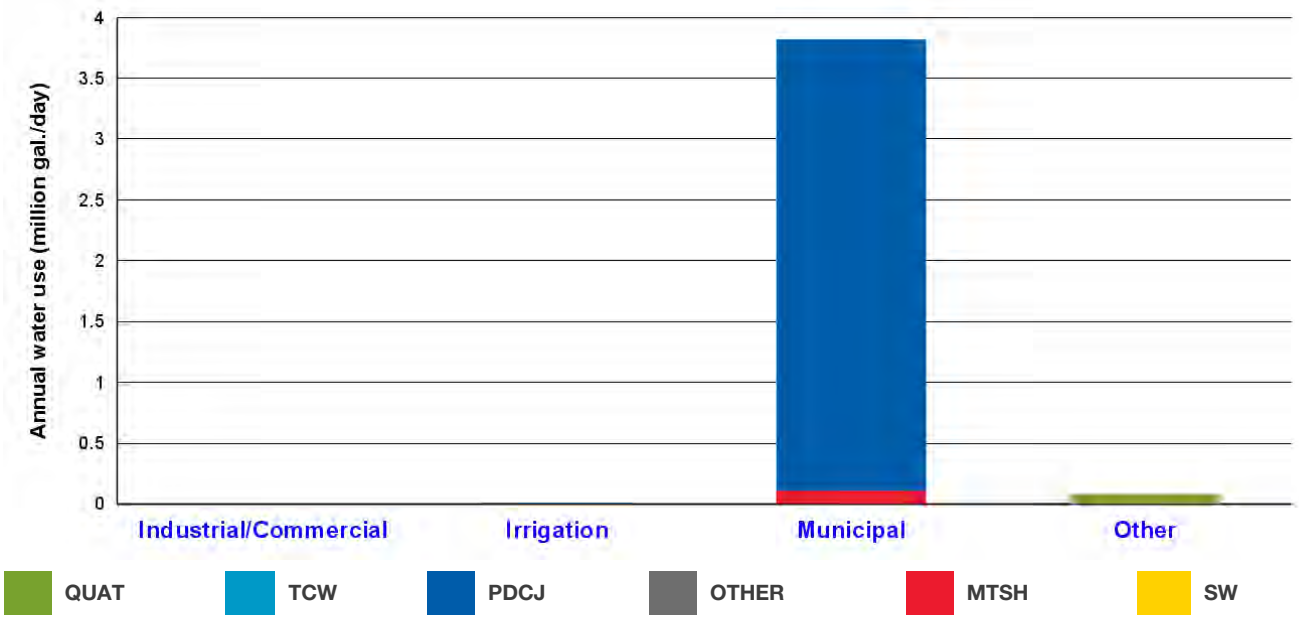
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	5	0	
Prairie du Chien-Jordan (PDCJ)	9	4	0
Quaternary (QUAT)	0	26	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

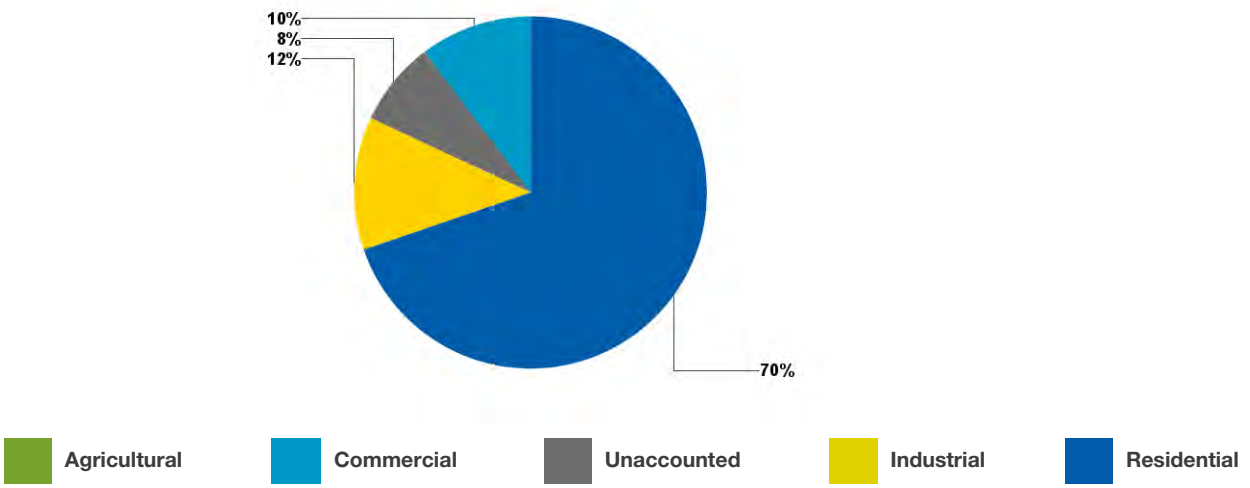
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

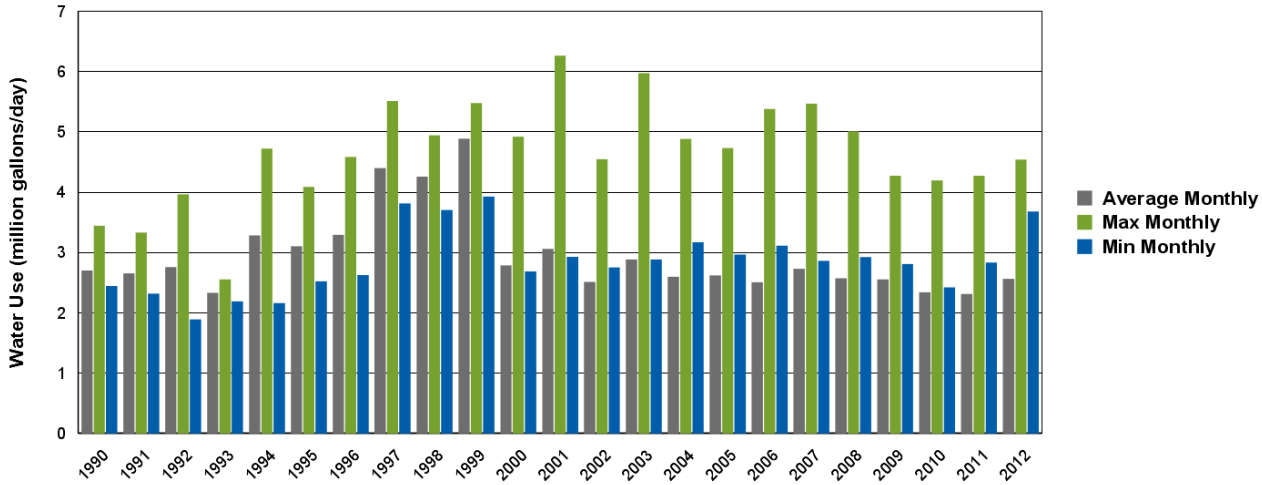
Municipal water treatment: Other, Radionuclides removal, Organics removal, Fluoride (Z), Disinfection, Iron removal, Manganese removal

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 861



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	23,000	24,600	26,000
Total Population	23,000	24,600	26,000
Projected Average Daily Water Use (Million Gal/Day)	2.7	2.9	3.1
Total Per Capita Water Use (Gal/Person/Day)	117.39	117.89	119.23
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	112	104	99

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Newport Water Supply Profile

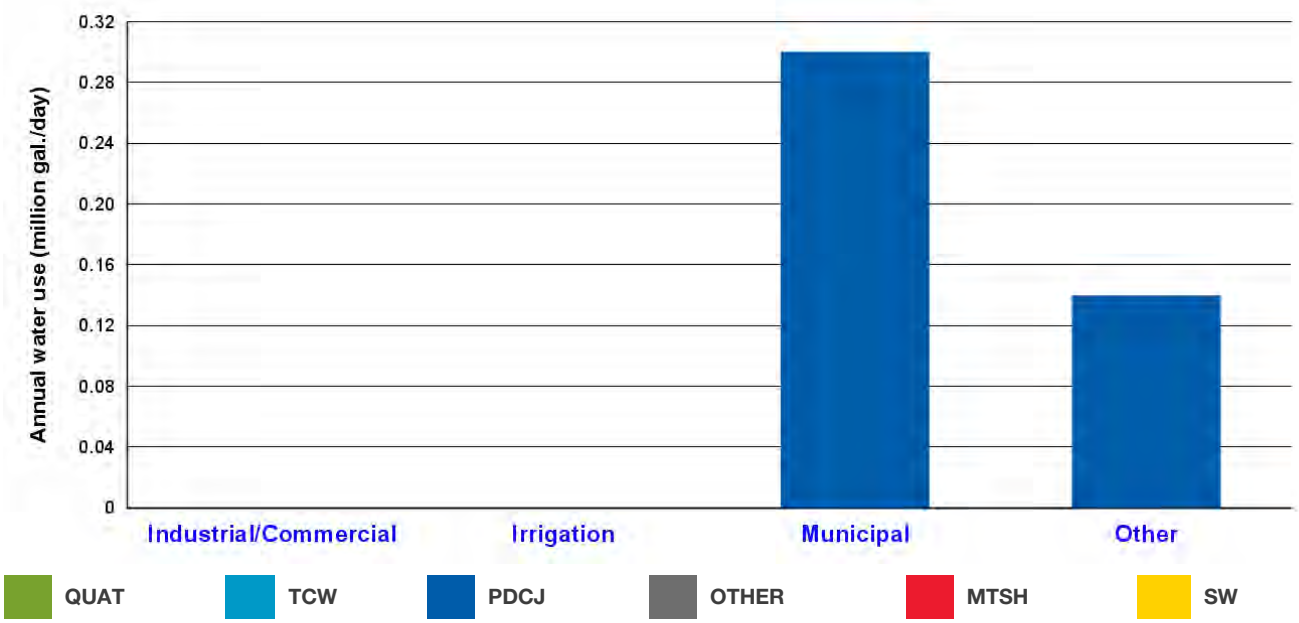
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	7	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

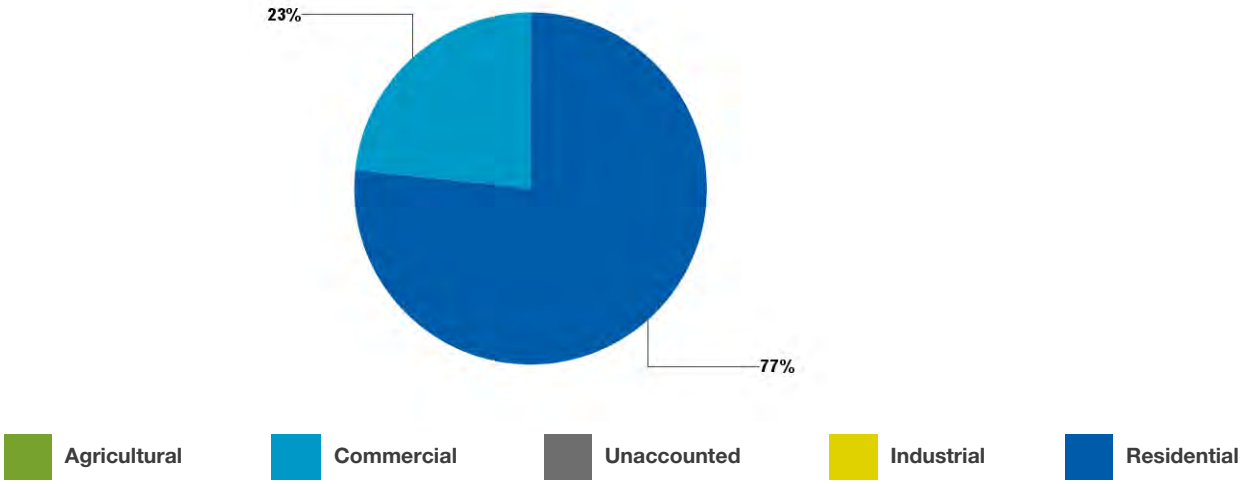
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

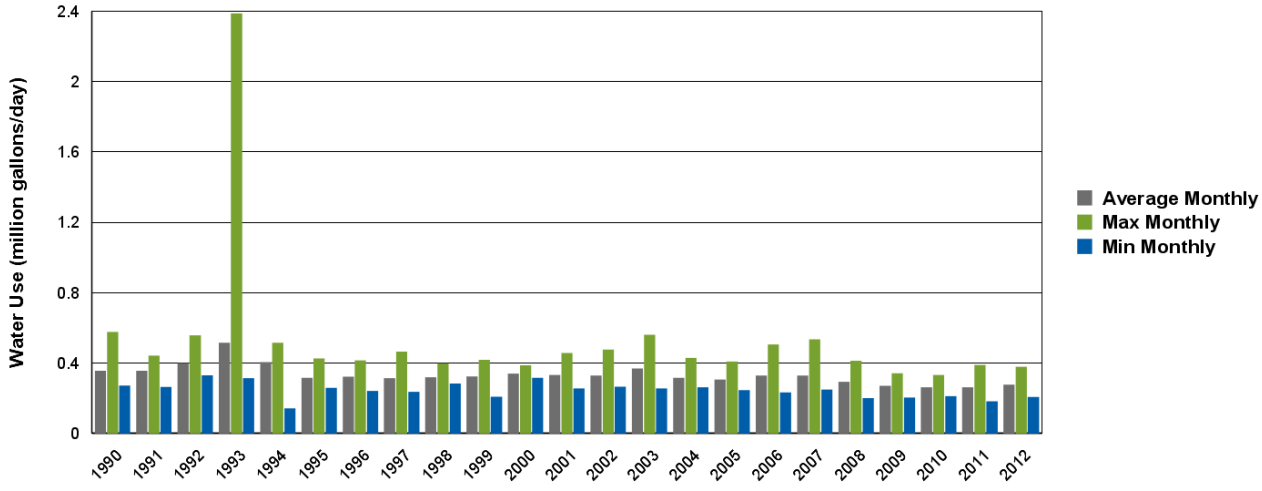
Municipal water treatment: Disinfection, Fluoride (Z)

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 99



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	3,434	3,934	4,304
Total Population	3,730	4,230	4,600
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.4	0.4
Total Per Capita Water Use (Gal/Person/Day)	87.36	101.68	92.94
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	81	70	64

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

North Oaks Water Supply Profile

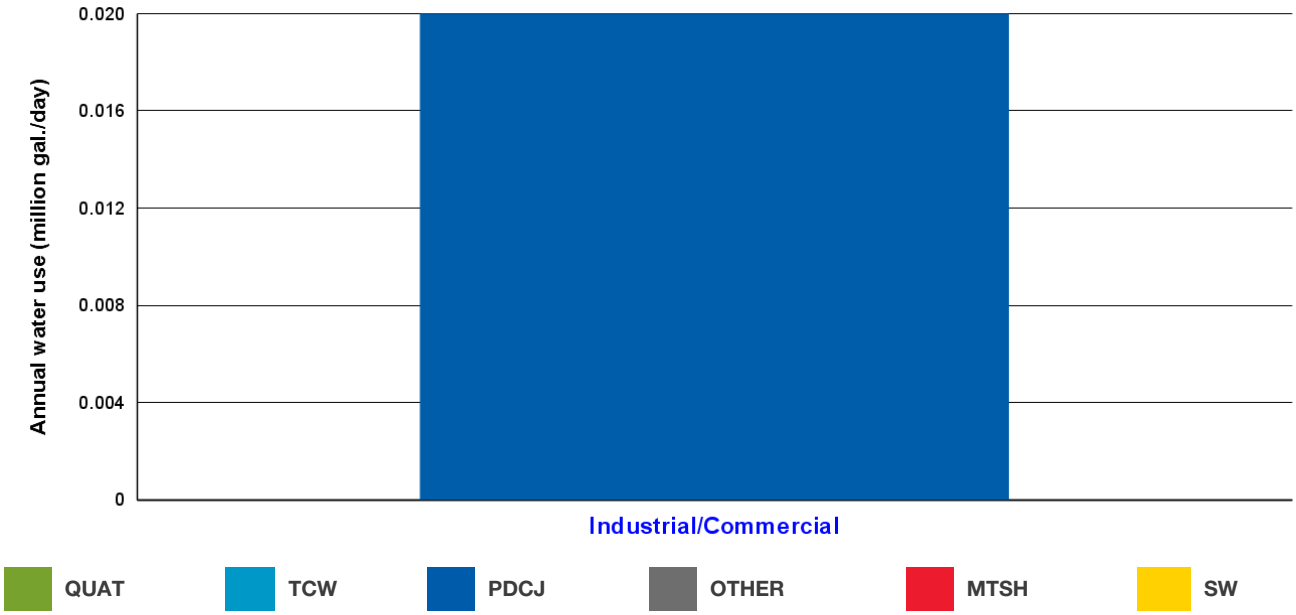
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by White Bear Twp. (for a portion of the community only).

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	7
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

North St. Paul Water Supply Profile

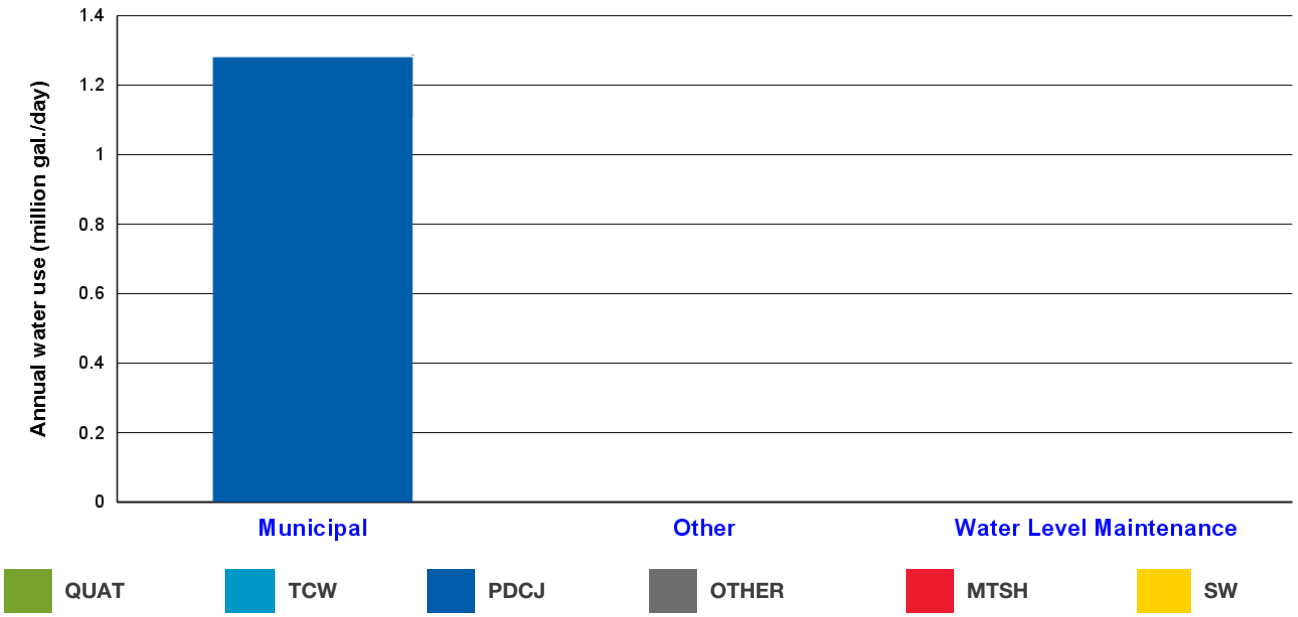
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	5	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

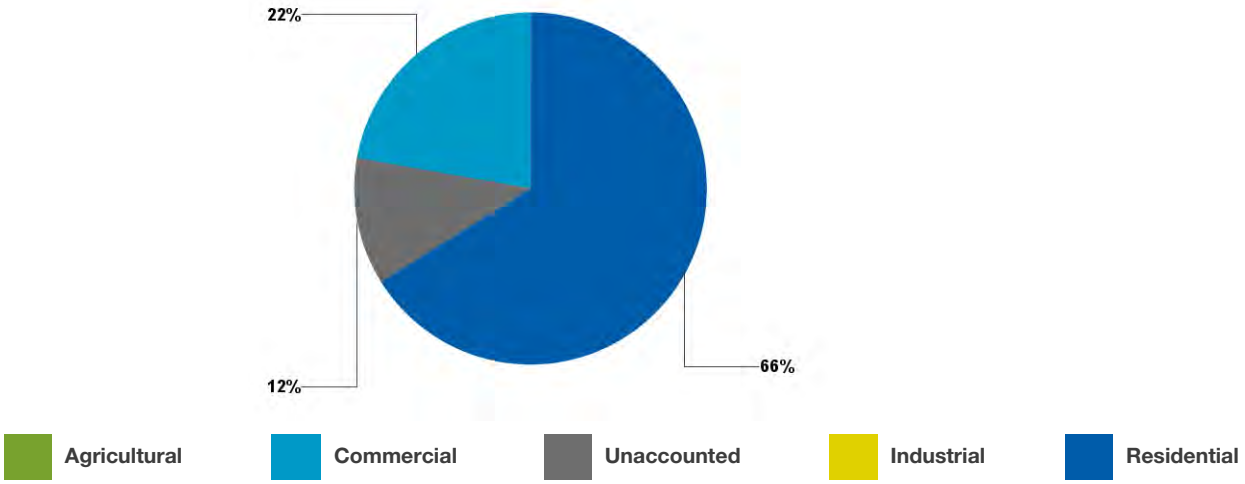
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

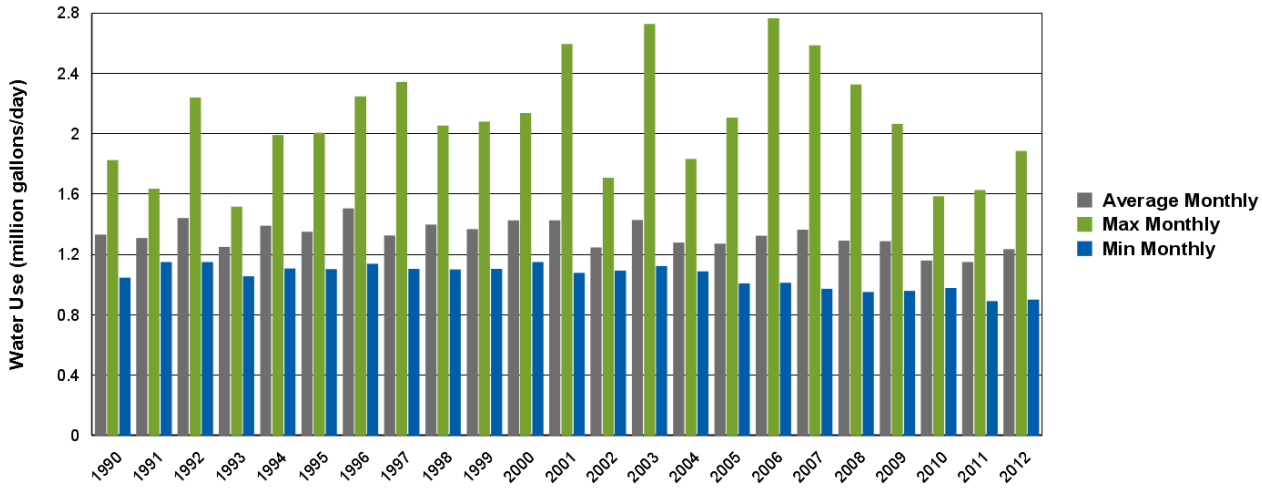
Municipal water treatment: Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 395



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	14,500	14,800	15,400
Total Population	12,200	12,500	13,100
Projected Average Daily Water Use (Million Gal/Day)	1.3	1.4	1.4
Total Per Capita Water Use (Gal/Person/Day)	89.66	94.59	90.91
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	85	83	80

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Oakdale Water Supply Profile

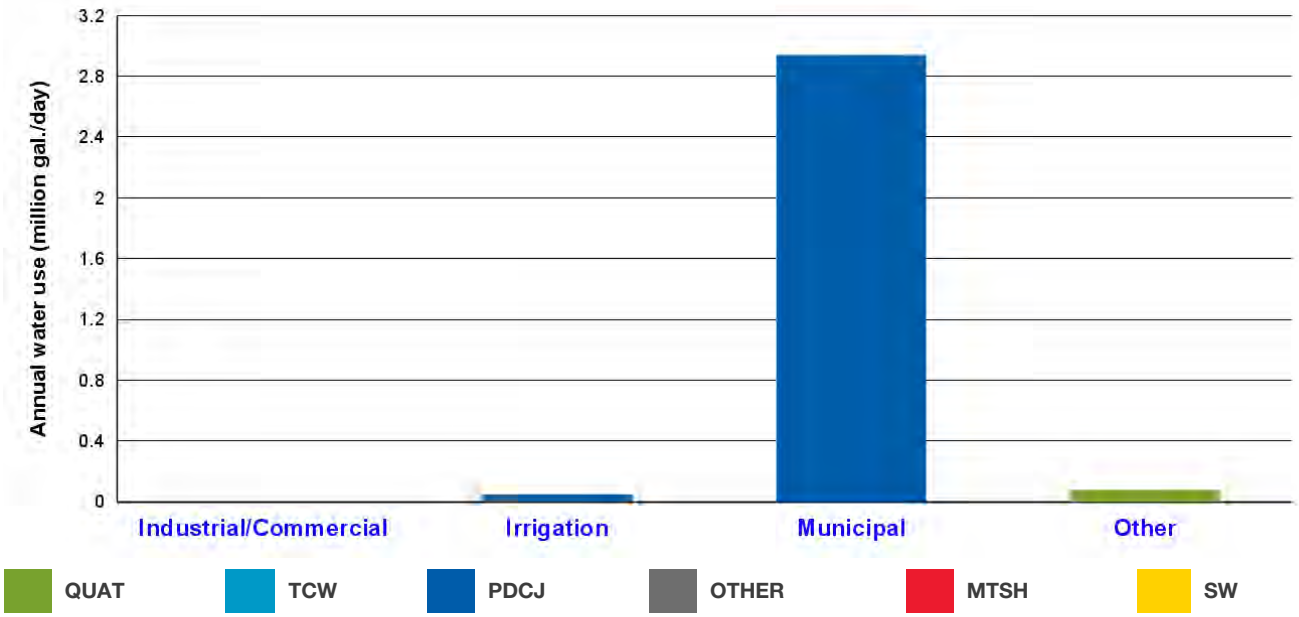
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	10	2	0
Quaternary (QUAT)	0	13	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

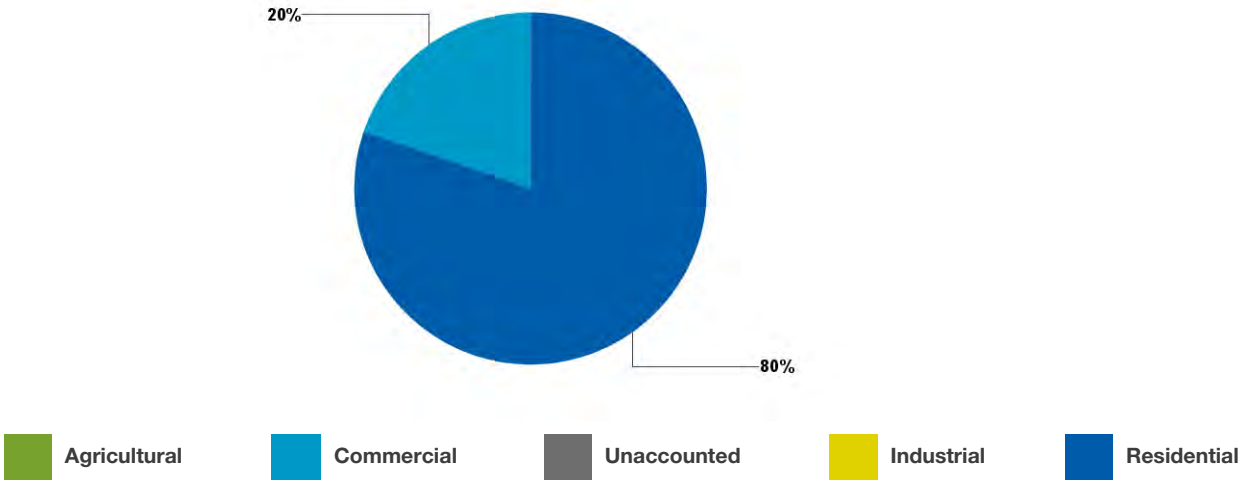
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

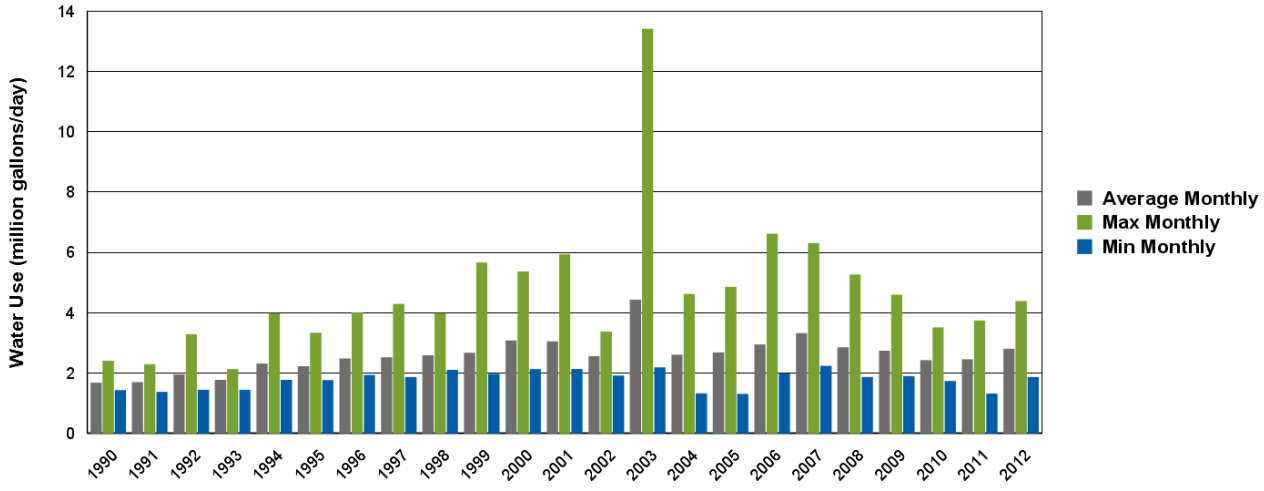
Municipal water treatment: Fluoride (Z), Other, Disinfection, Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 1,053



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	28,800	30,400	31,000
Total Population	28,800	30,400	31,000
Projected Average Daily Water Use (Million Gal/Day)	3.1	3.3	3.3
Total Per Capita Water Use (Gal/Person/Day)	107.64	108.55	106.45
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	98	93	91

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Oak Park Heights Water Supply Profile

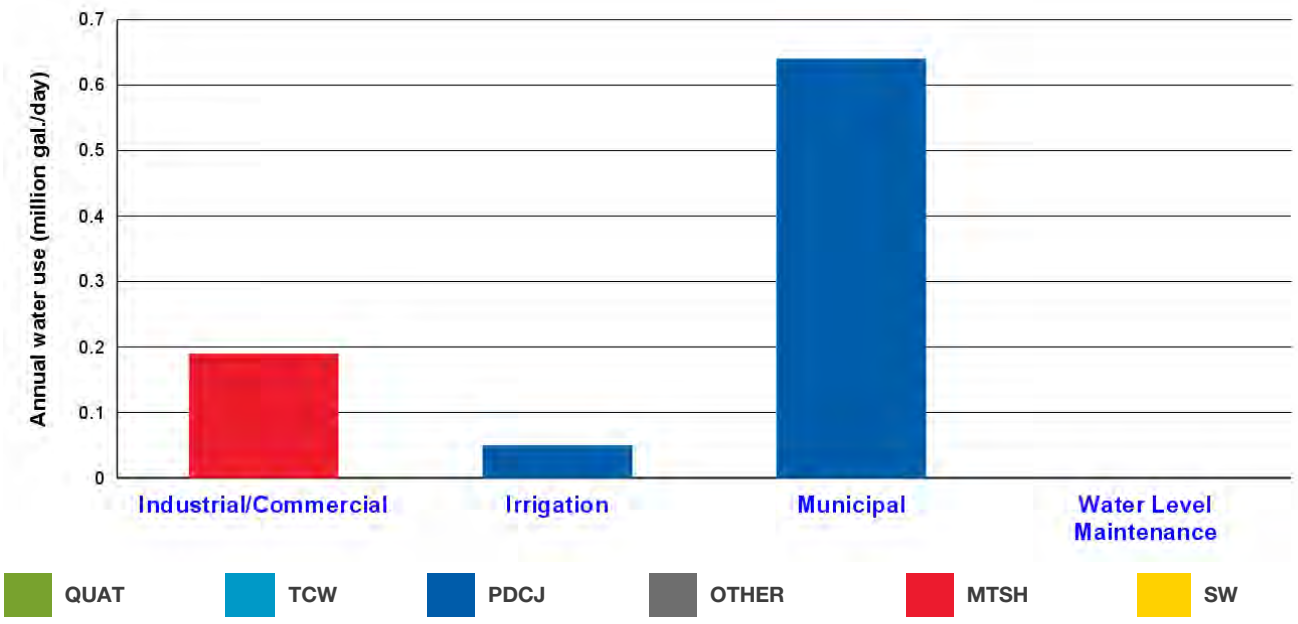
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	2	
Prairie du Chien-Jordan (PDCJ)	2	4	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

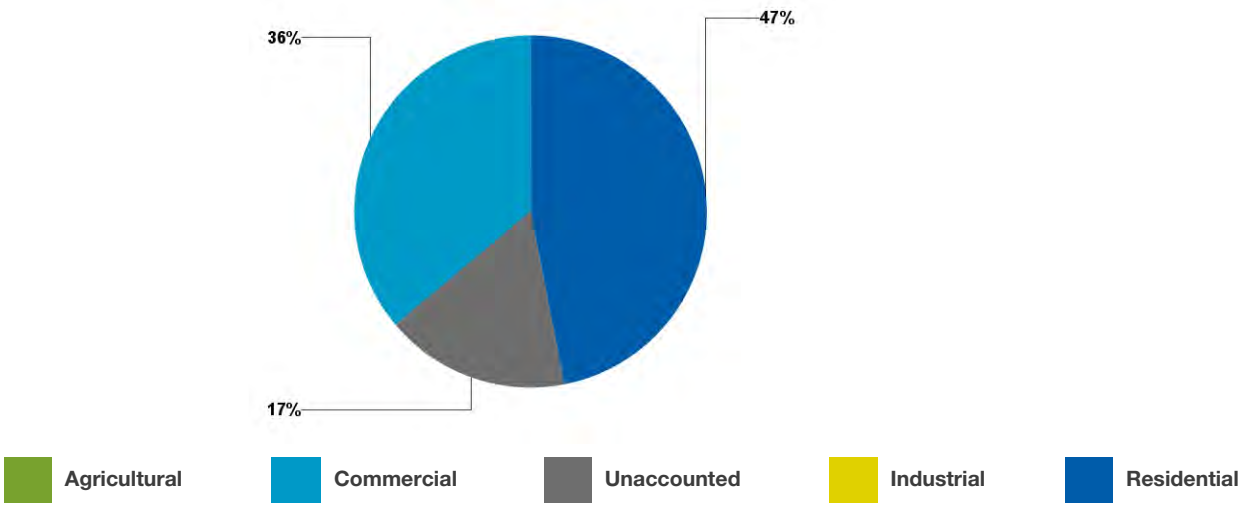
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

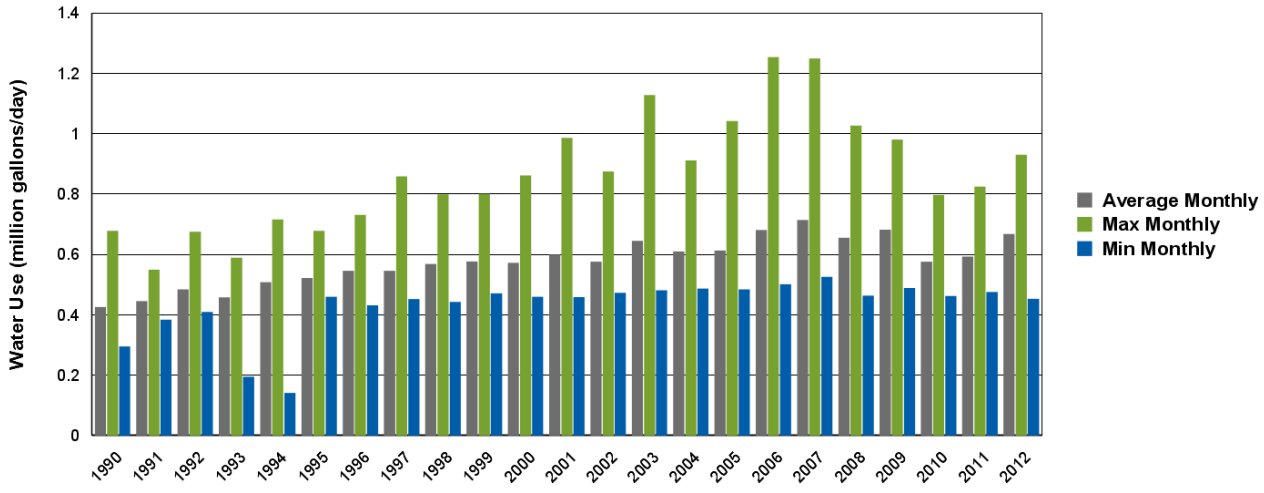
Municipal water treatment: Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 203



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	5,100	5,600	5,800
Total Population	5,100	5,600	5,800
Projected Average Daily Water Use (Million Gal/Day)	0.8	0.8	0.9
Total Per Capita Water Use (Gal/Person/Day)	156.86	142.86	155.17
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	131	119	115

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Pine Springs Water Supply Profile

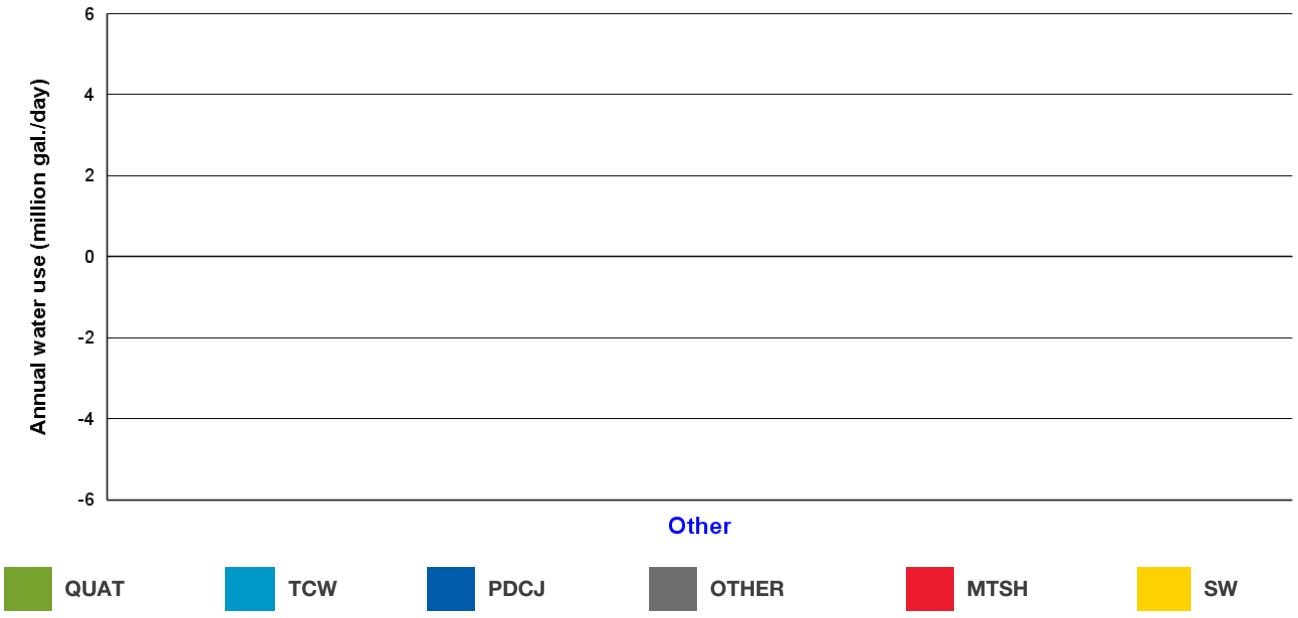
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Roseville Water Supply Profile

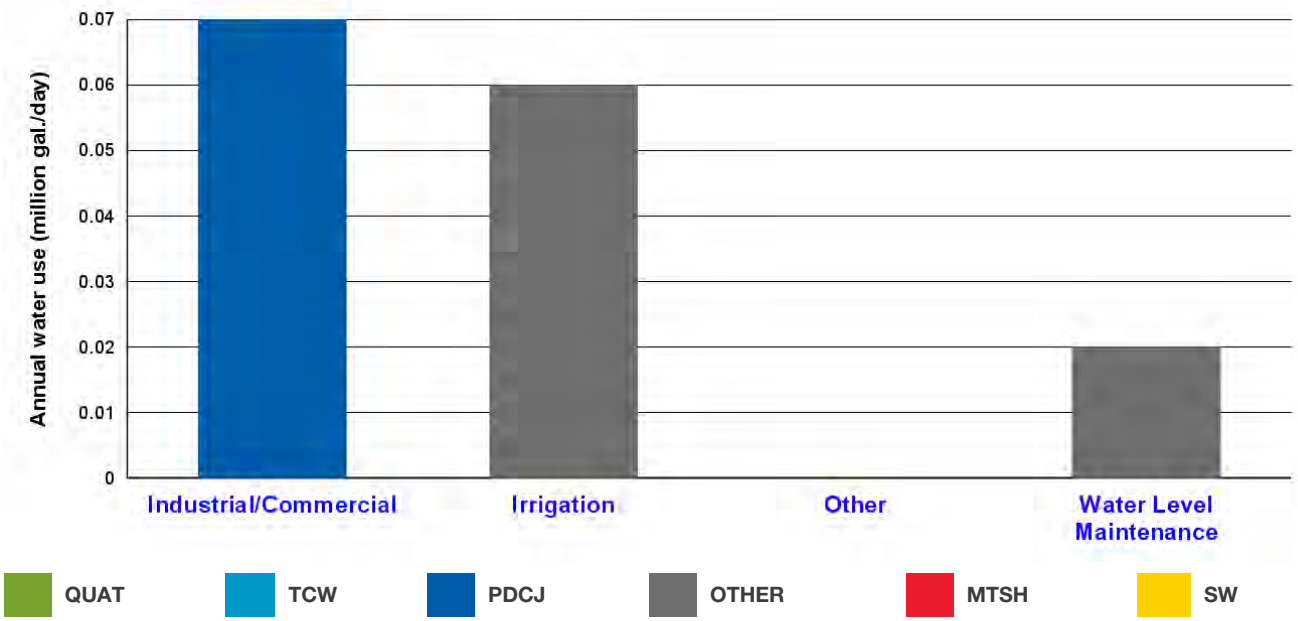
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	5	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

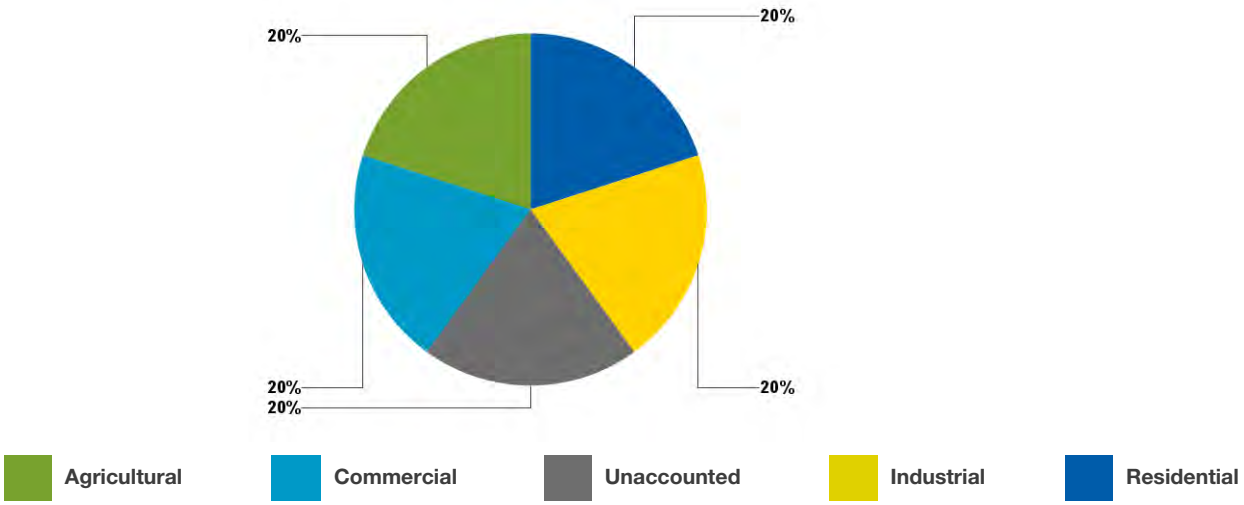
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

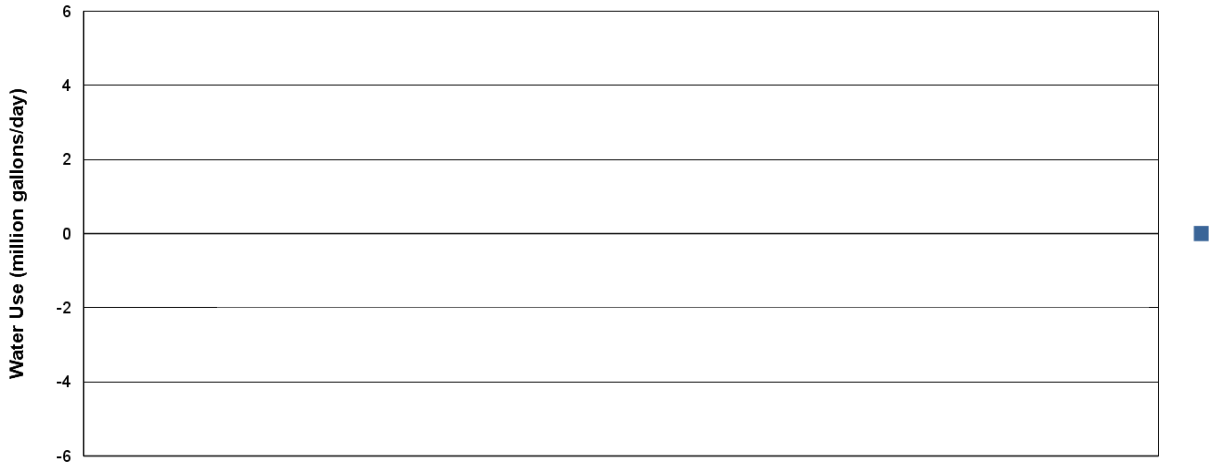
Municipal water treatment:

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 0



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served			
Total Population			
Projected Average Daily Water Use (Million Gal/Day)			
Total Per Capita Water Use (Gal/Person/Day)	0.00	0.00	0.00
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels			

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Scandia Water Supply Profile

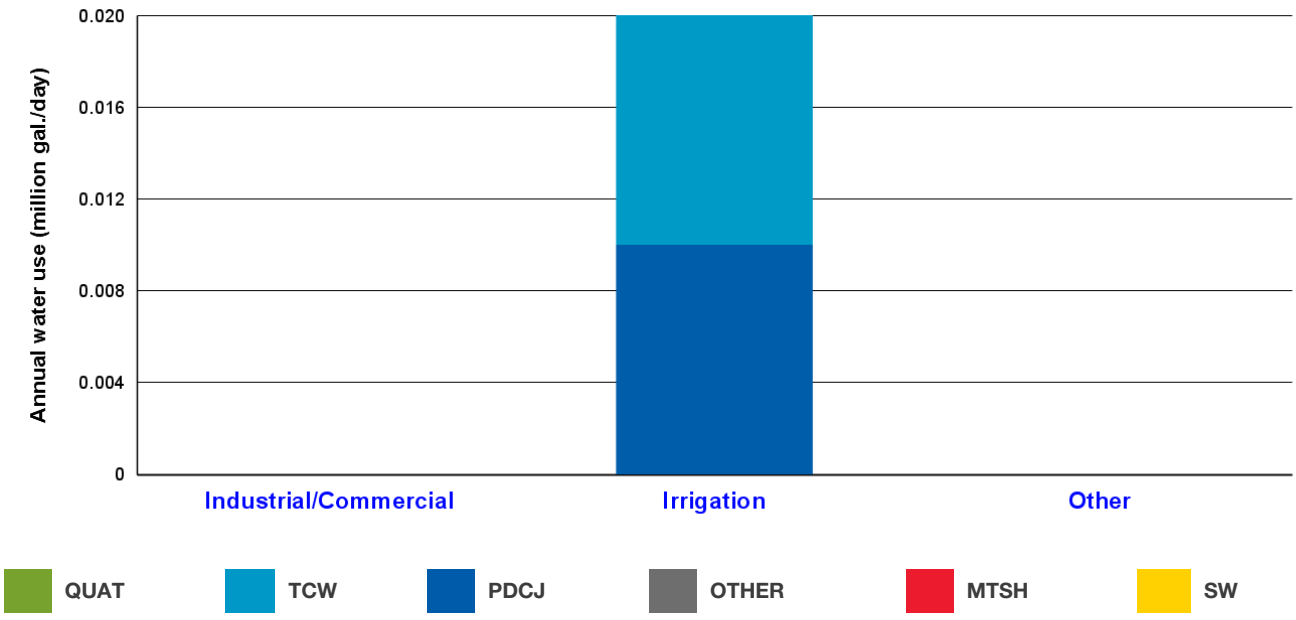
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	3	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Shoreview Water Supply Profile

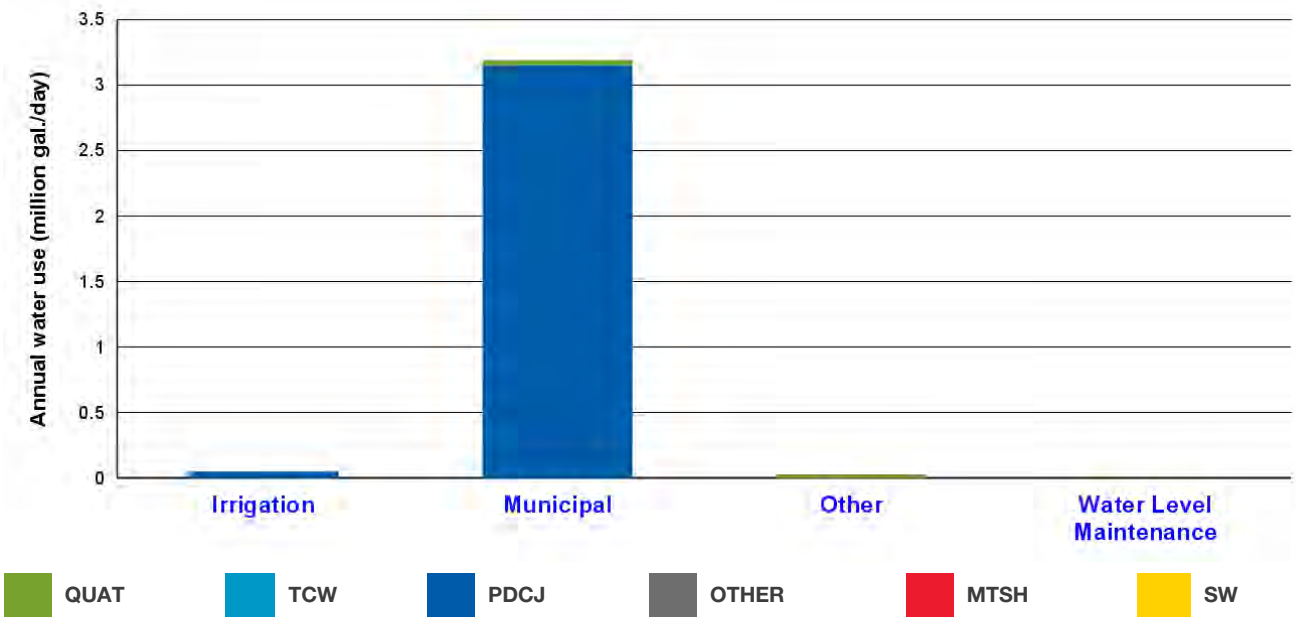
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	5	4	0
Quaternary (QUAT)	1	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

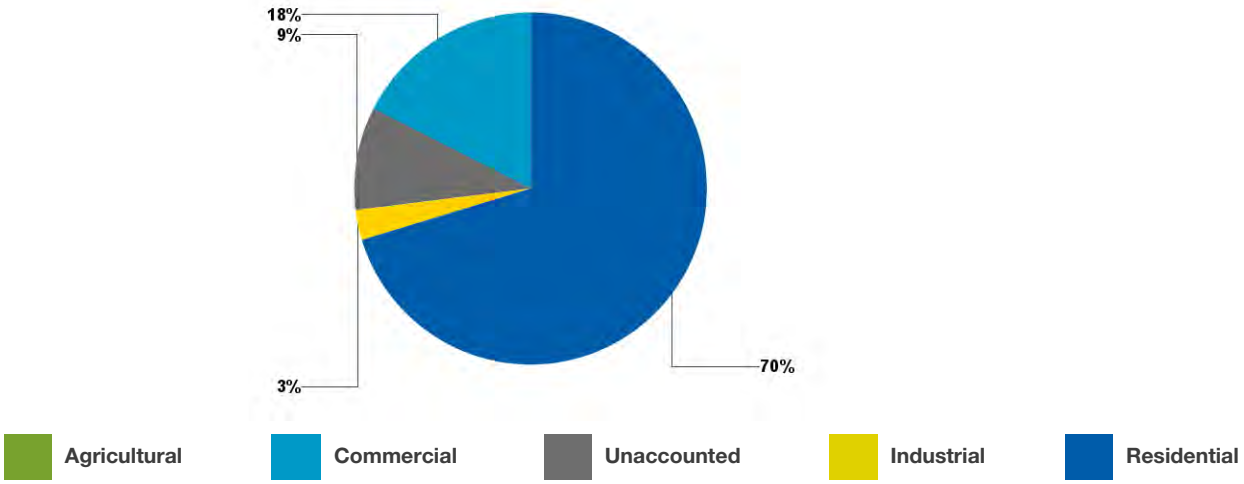
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

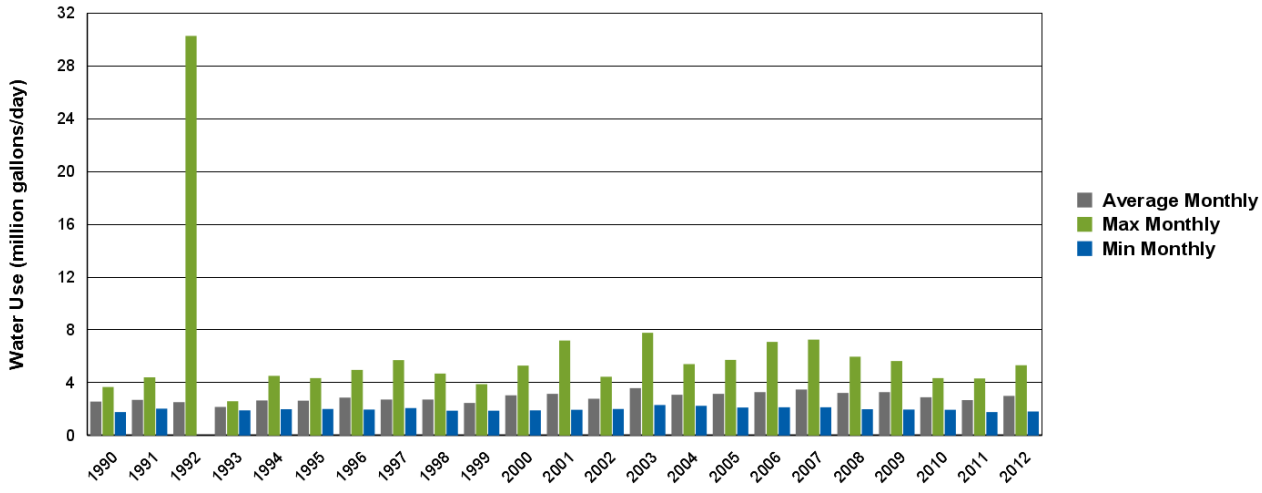
Municipal water treatment: Disinfection, Fluoride (Z), Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 993



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	26,157	27,157	27,457
Total Population	26,200	27,200	27,500
Projected Average Daily Water Use (Million Gal/Day)	3.3	3.4	3.5
Total Per Capita Water Use (Gal/Person/Day)	126.16	125.20	127.47
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	115	111	110

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Spring Lake Park Water Supply Profile

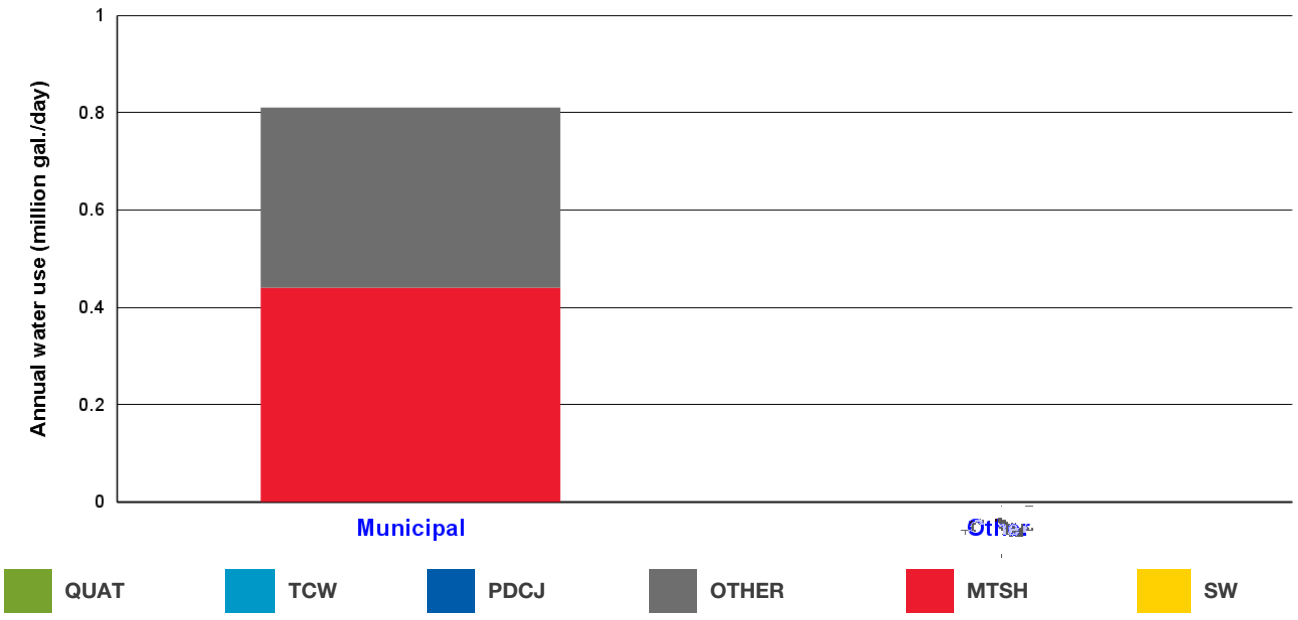
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	3	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

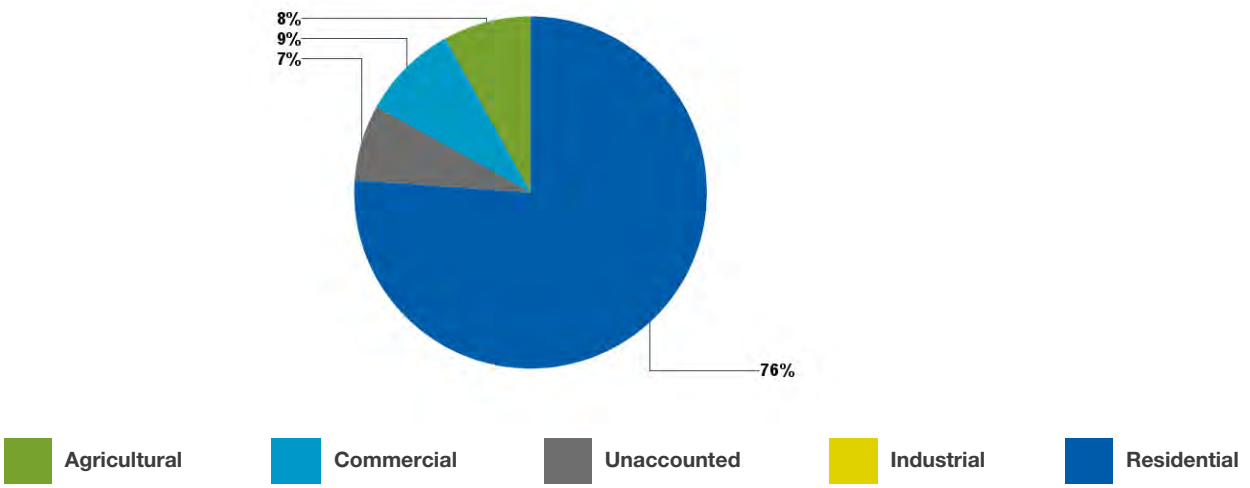
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

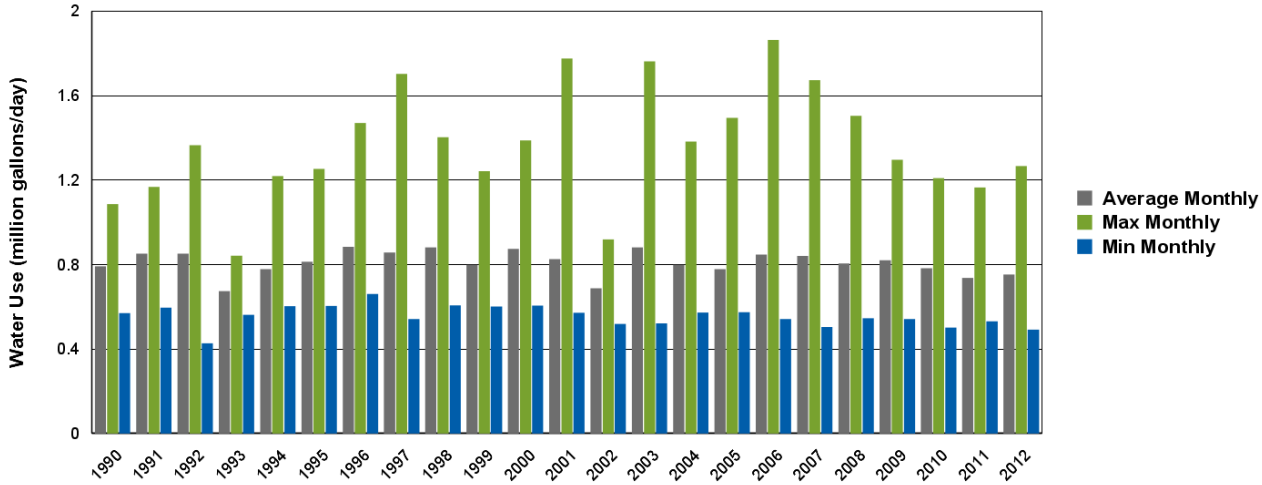
Municipal water treatment: Disinfection, Iron removal, Manganese removal, Radionuclides removal, Fluoride (Z), Other

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 255



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	6,590	6,840	7,020
Total Population	6,590	6,840	7,020
Projected Average Daily Water Use (Million Gal/Day)	0.8	0.9	0.9
Total Per Capita Water Use (Gal/Person/Day)	121.40	131.58	128.21
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	114	110	107

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Anthony Water Supply Profile

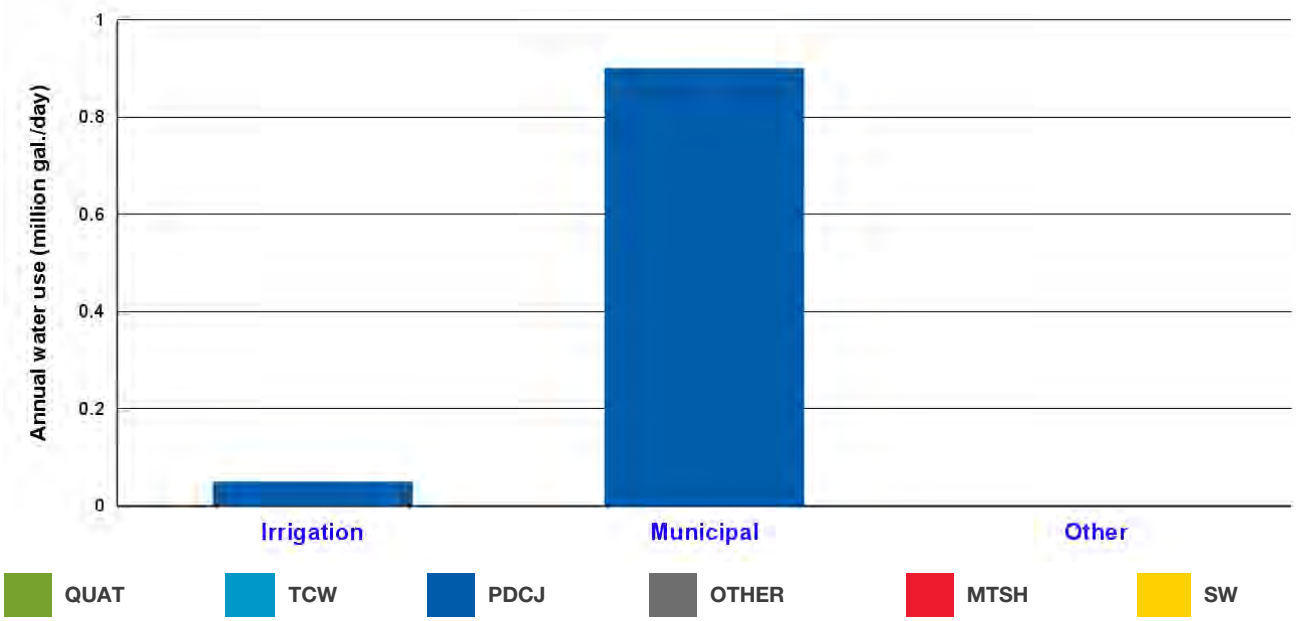
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	3	2	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

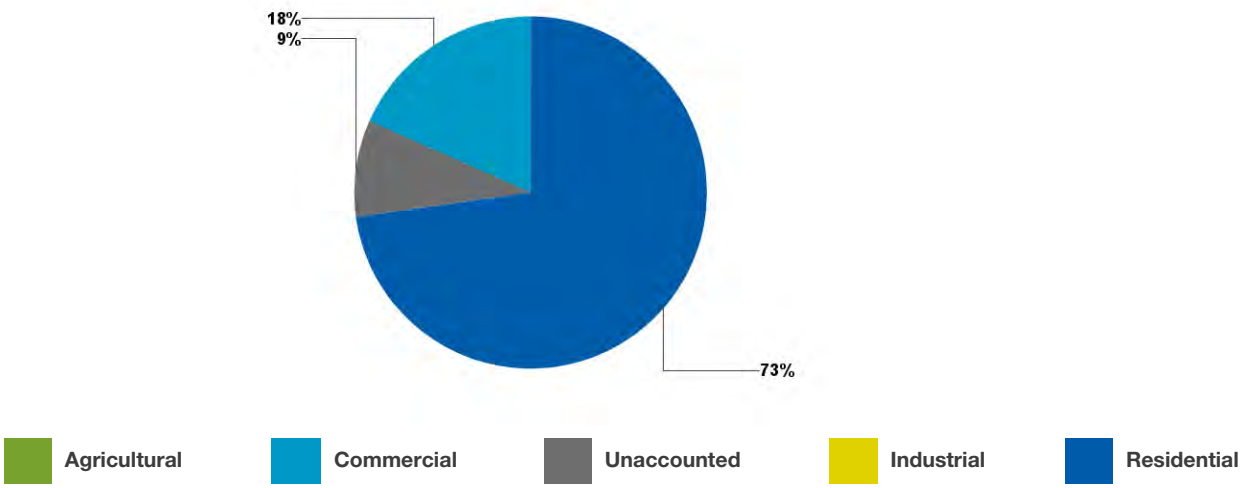
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

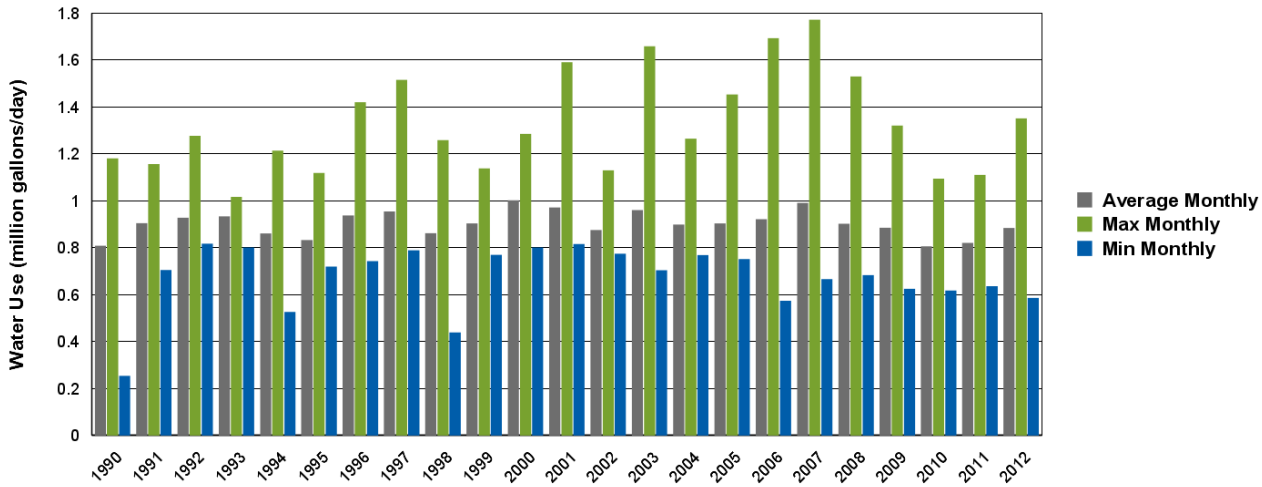
Municipal water treatment: Iron removal, Organics removal, Fluoride (Z), Disinfection, Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 295



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	9,050	9,950	10,600
Total Population	9,050	9,950	10,600
Projected Average Daily Water Use (Million Gal/Day)	1.5	1.7	1.8
Total Per Capita Water Use (Gal/Person/Day)	165.75	170.85	169.81
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	98	89	83

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Marys Point Water Supply Profile

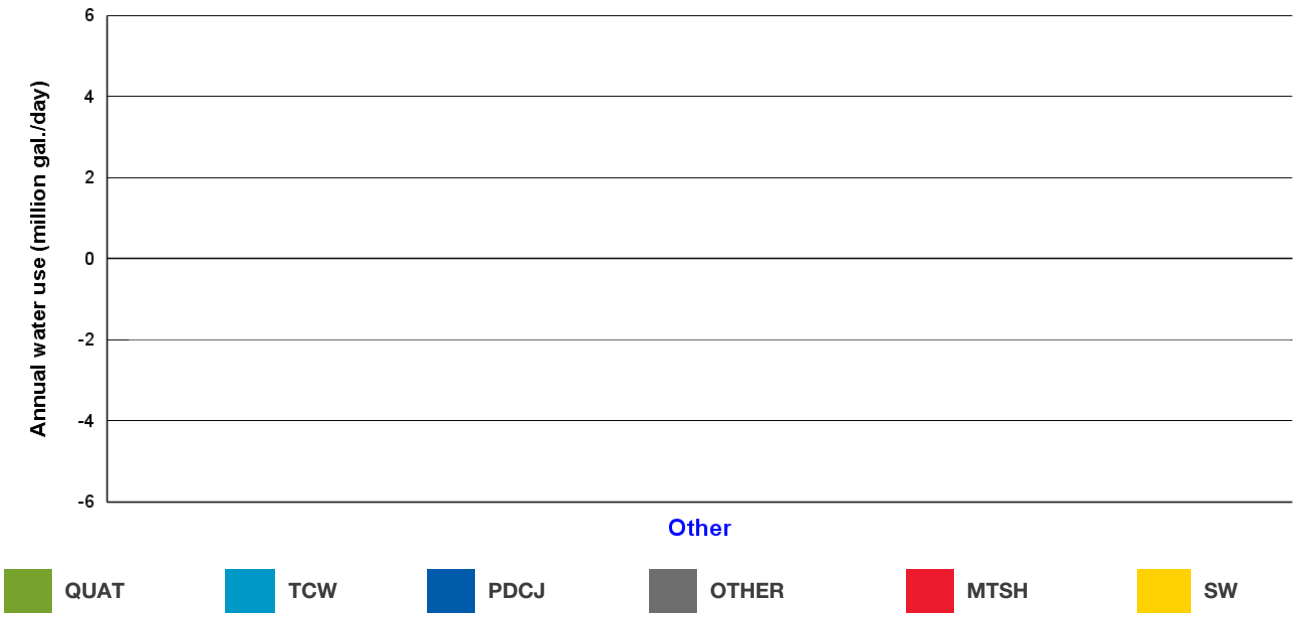
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Paul Park Water Supply Profile

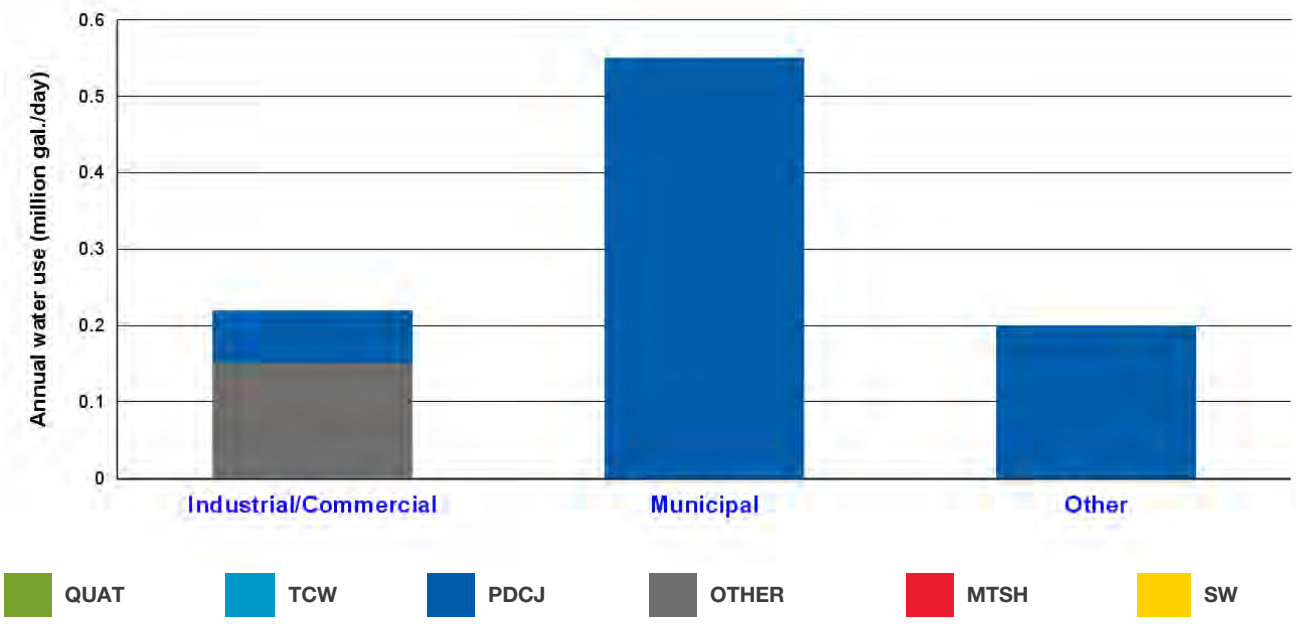
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	4	25	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	5	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

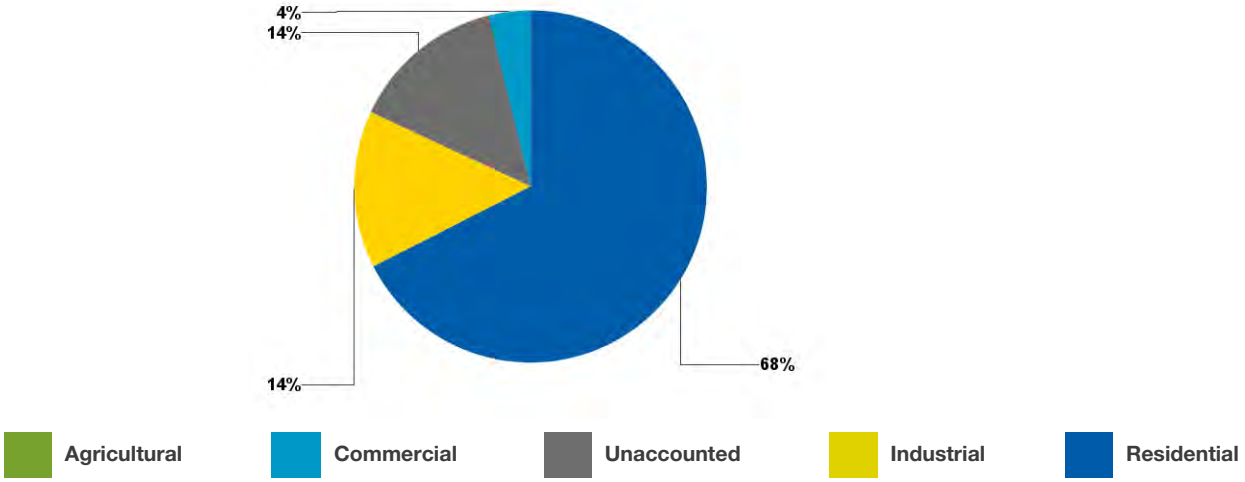
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

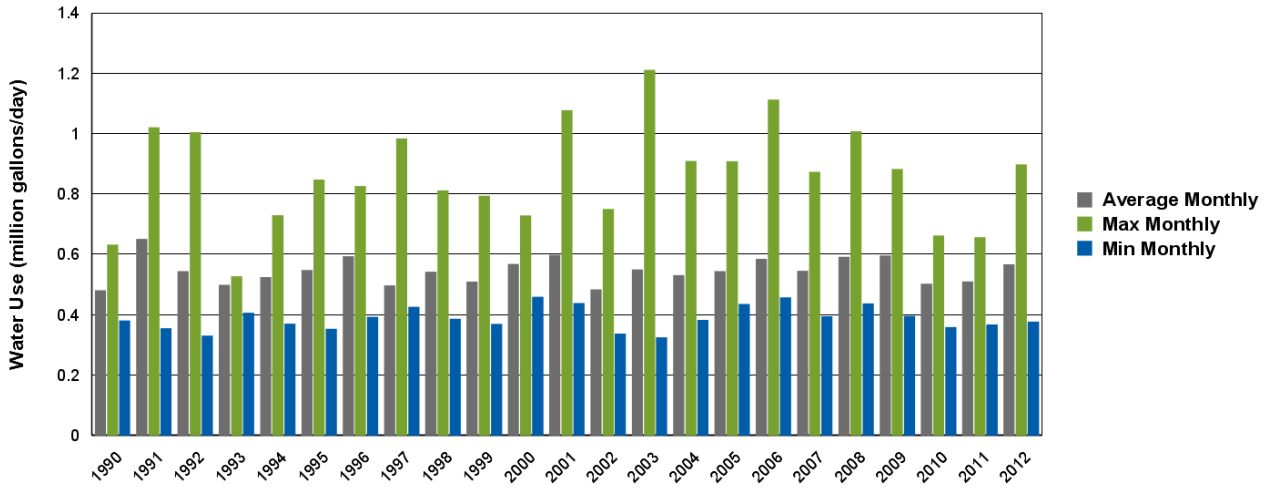
Municipal water treatment: Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 179



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	5,654	6,554	7,954
Total Population	5,600	6,500	7,900
Projected Average Daily Water Use (Million Gal/Day)	0.6	0.7	0.8
Total Per Capita Water Use (Gal/Person/Day)	106.12	106.81	100.58
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	100	87	71

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Paul Water Supply Profile

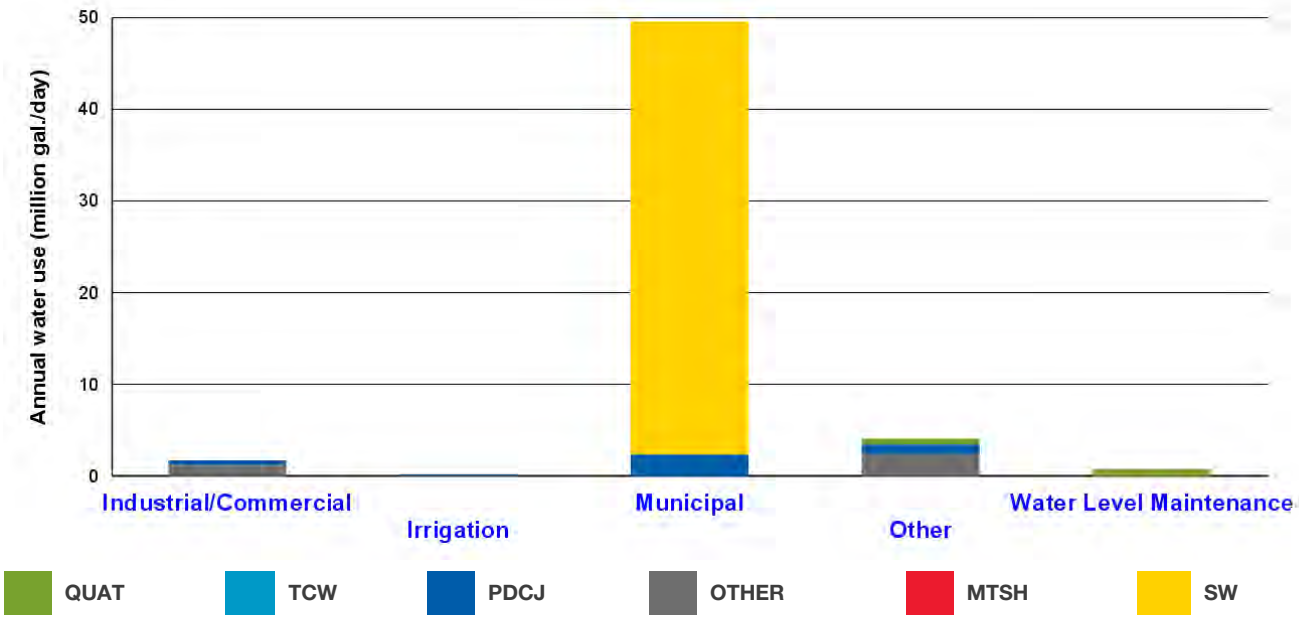
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	3	
Prairie du Chien-Jordan (PDCJ)	0	91	6
Quaternary (QUAT)	0	47	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	62	
Surface Water	0	4	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

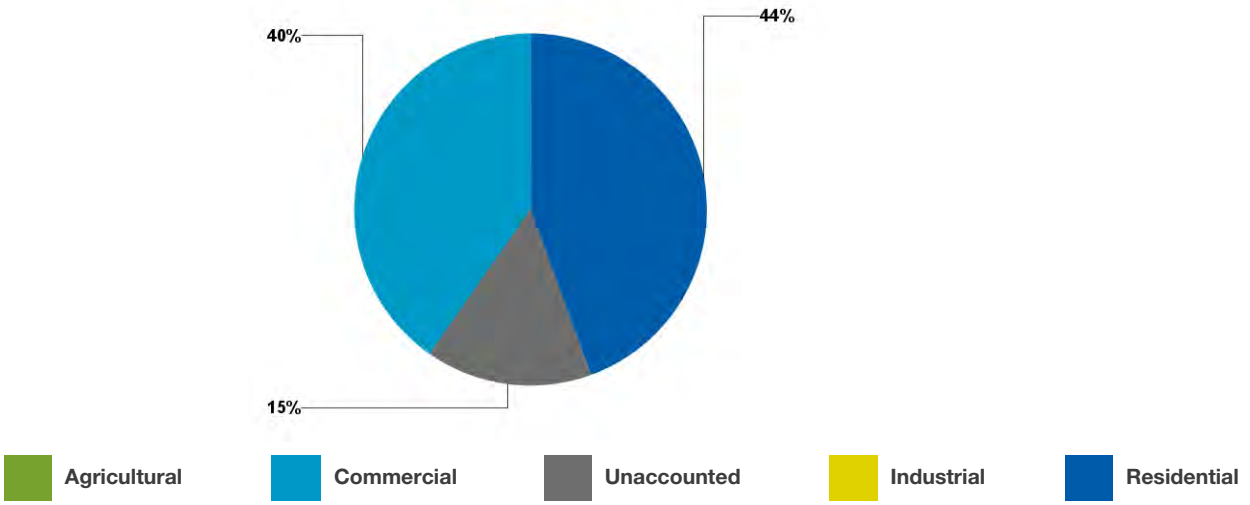
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

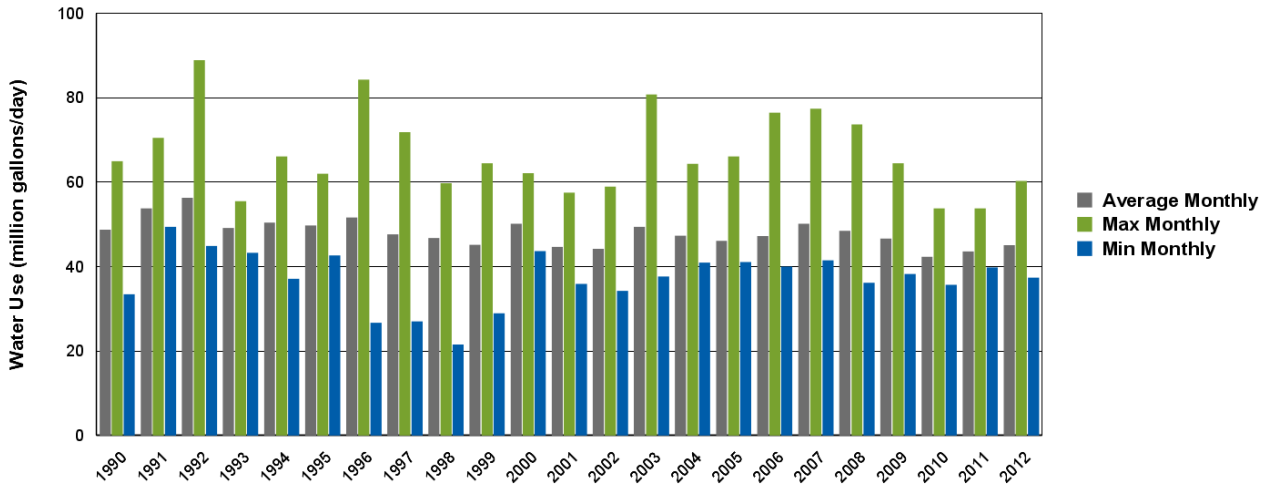
Municipal water treatment: Disinfection, Softening, Corrosion control - Lead/Copper, Fluoride (Z), Taste/Odor control, Particulate removal

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 14,200



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	440,887	466,560	492,232
Total Population	308,600	324,100	334,700
Projected Average Daily Water Use (Million Gal/Day)	45.9	45.9	45.9
Total Per Capita Water Use (Gal/Person/Day)	104.11	98.38	93.25
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	102	97	92

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Stillwater Water Supply Profile

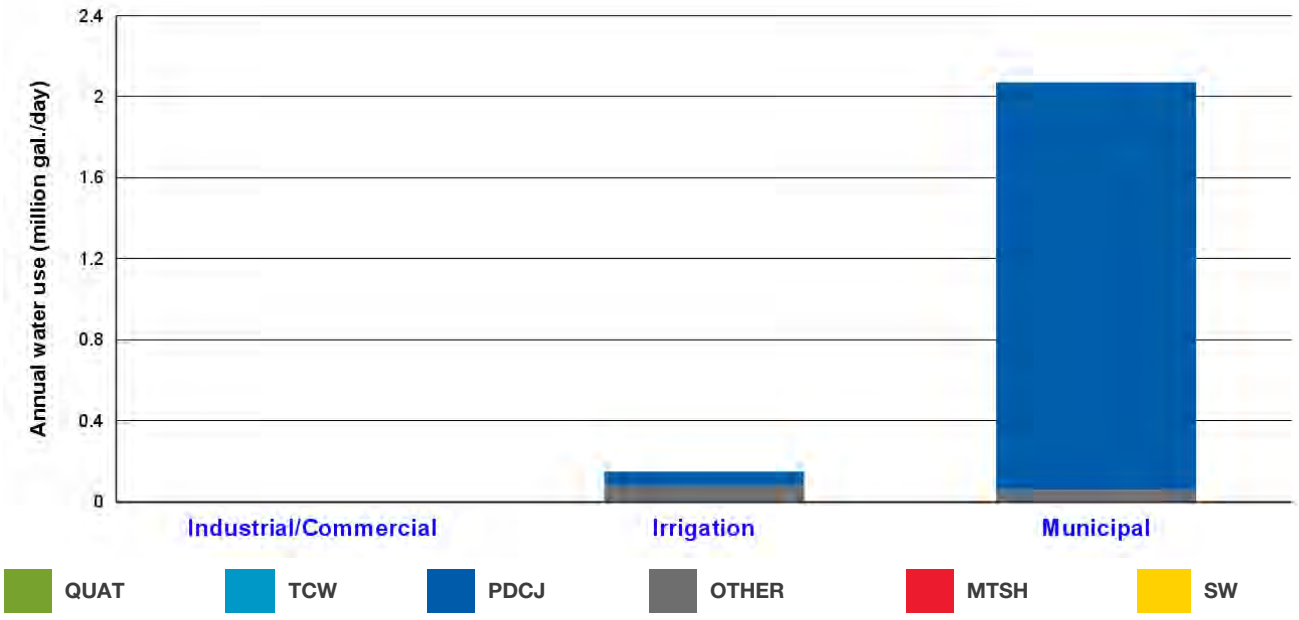
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	7	1	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

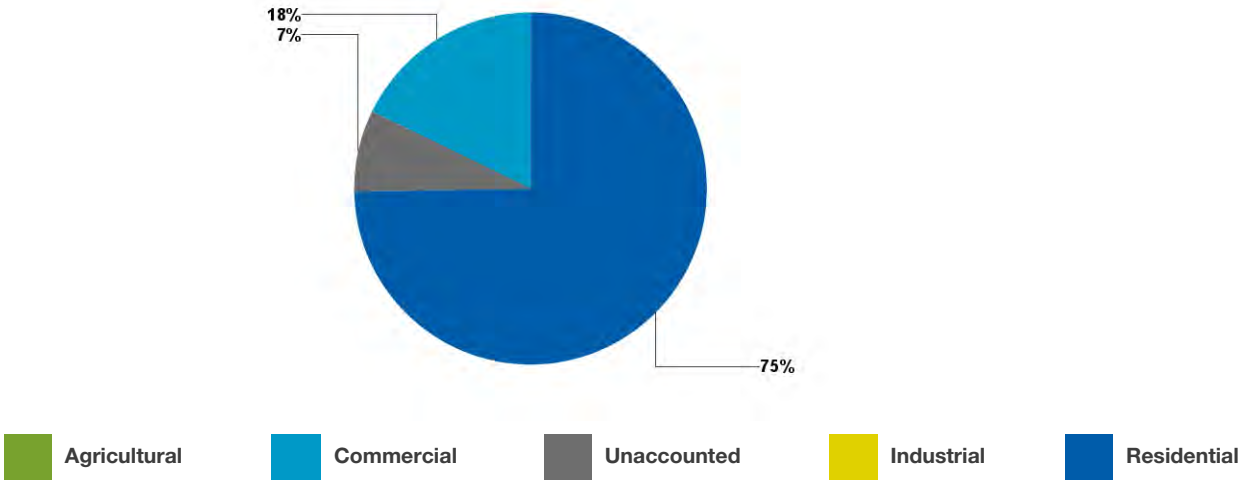
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

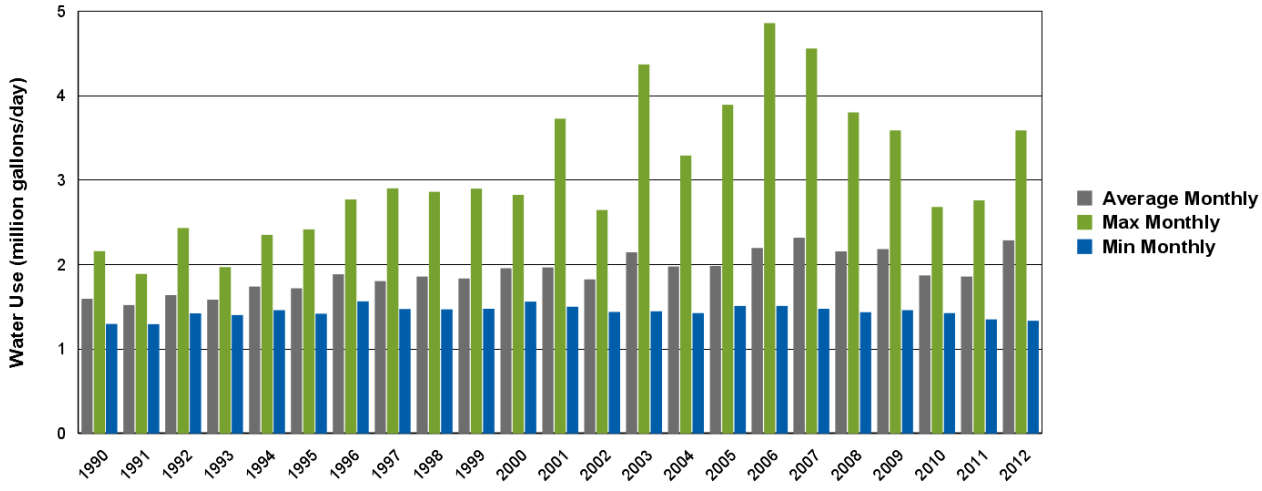
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Seasonal

2012 Permitted amount for municipal water supply (million gallons/year): 766



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	20,000	21,700	22,500
Total Population	20,000	21,700	22,500
Projected Average Daily Water Use (Million Gal/Day)	2.4	2.6	2.7
Total Per Capita Water Use (Gal/Person/Day)	120.00	119.82	120.00
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	114	105	102

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Stillwater Twp. Water Supply Profile

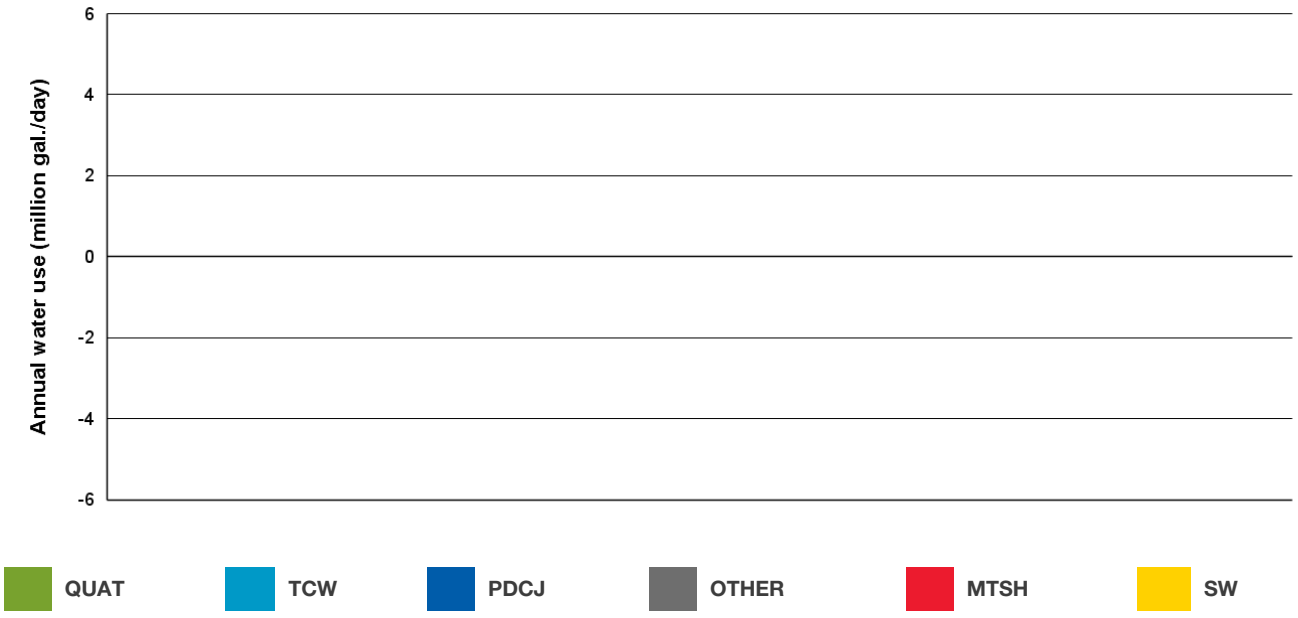
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Vadnais Heights Water Supply Profile

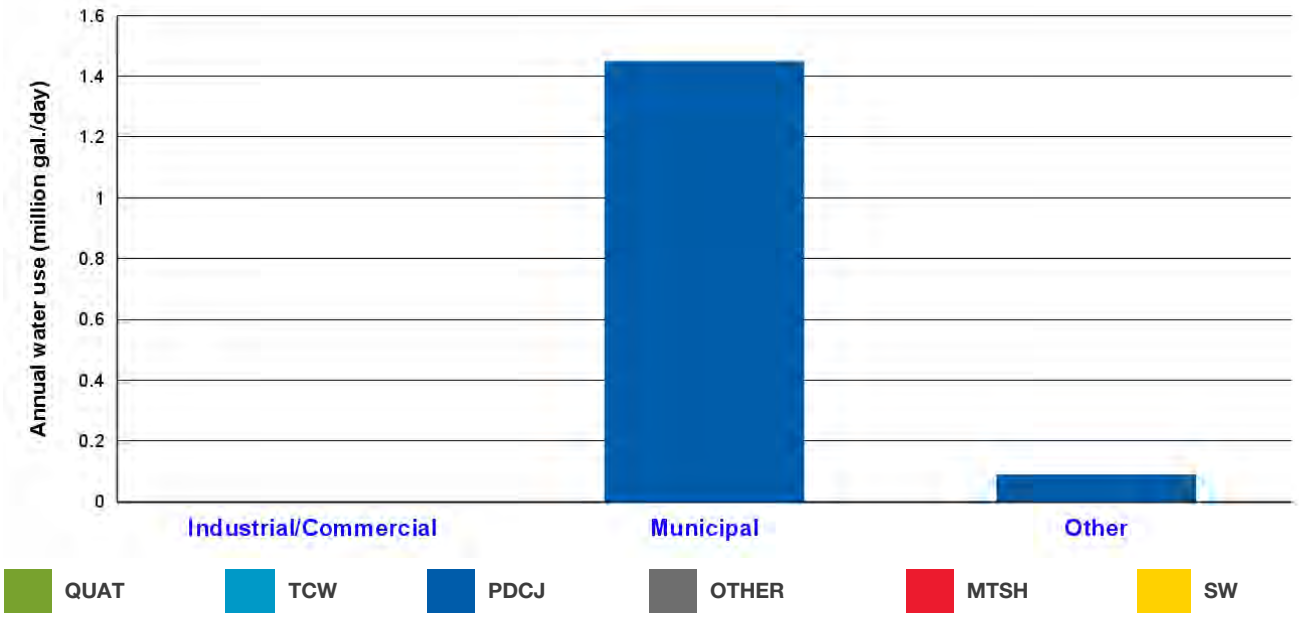
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	4	3	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

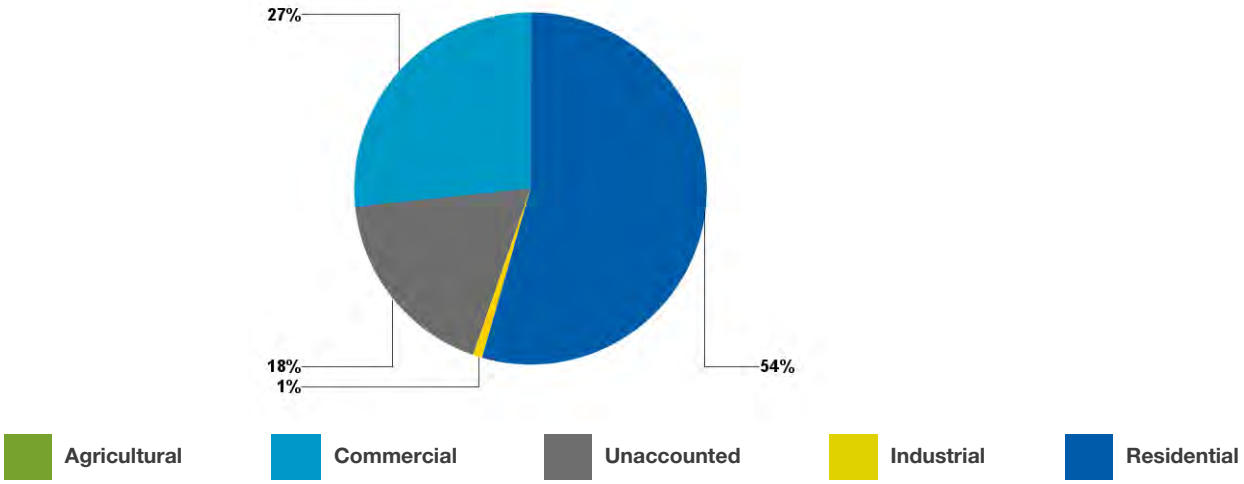
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

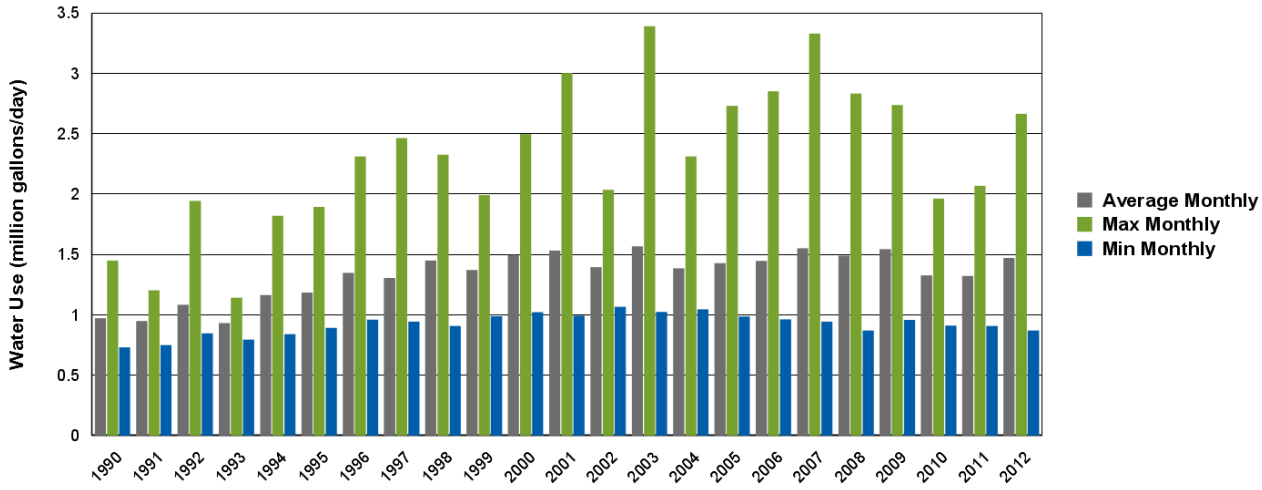
Municipal water treatment: Iron/Manganese Sequestration, Fluoride (Z), Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 440



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	13,200	14,100	14,500
Total Population	13,200	14,100	14,500
Projected Average Daily Water Use (Million Gal/Day)	1.5	1.6	1.7
Total Per Capita Water Use (Gal/Person/Day)	113.64	113.48	117.24
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	112	104	102

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

West Lakeland Twp. Water Supply Profile

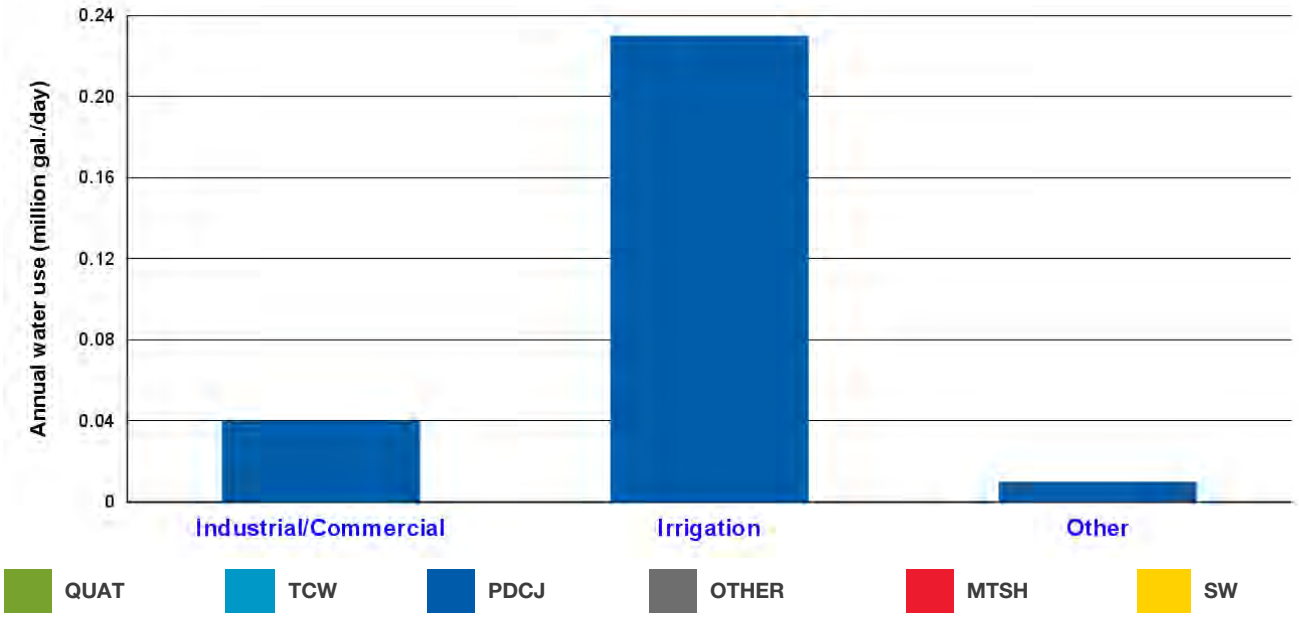
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	7	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and

projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

White Bear Lake Water Supply Profile

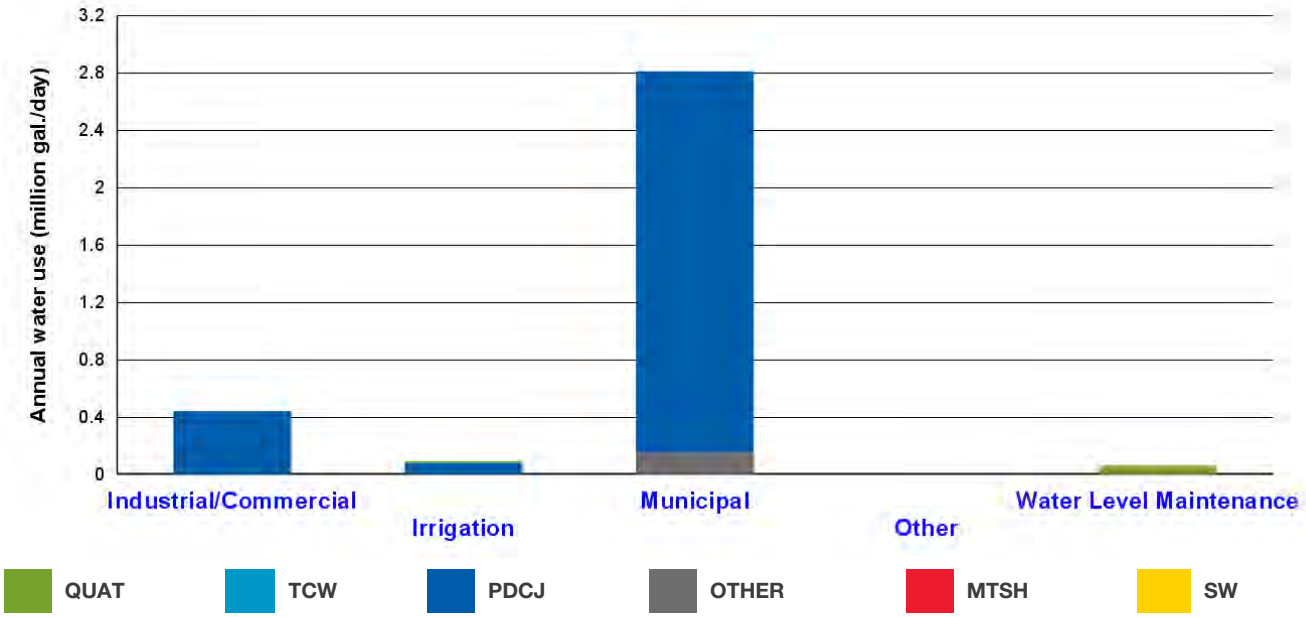
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	4	3	0
Quaternary (QUAT)	0	6	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

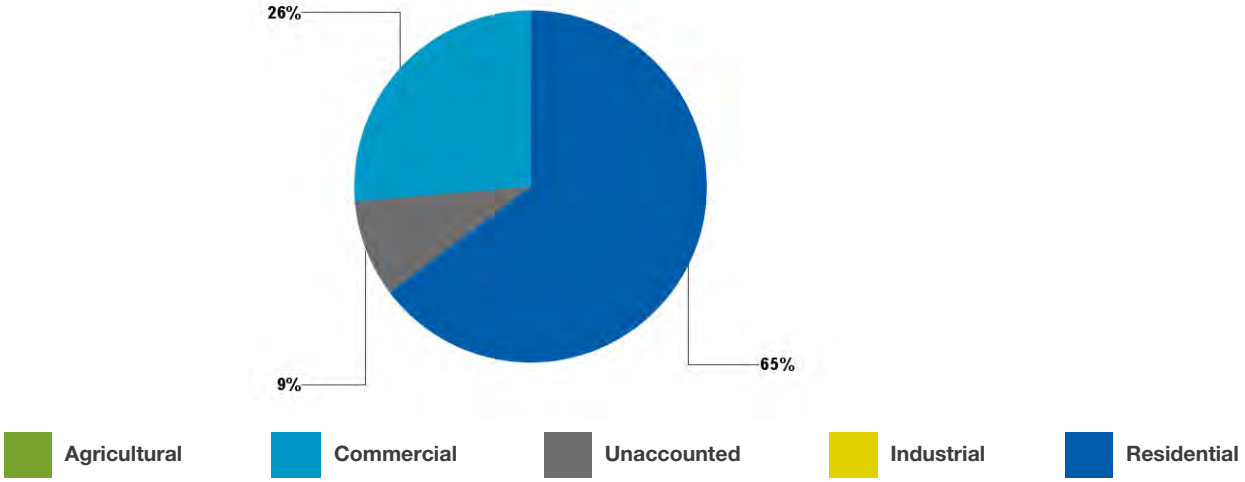
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

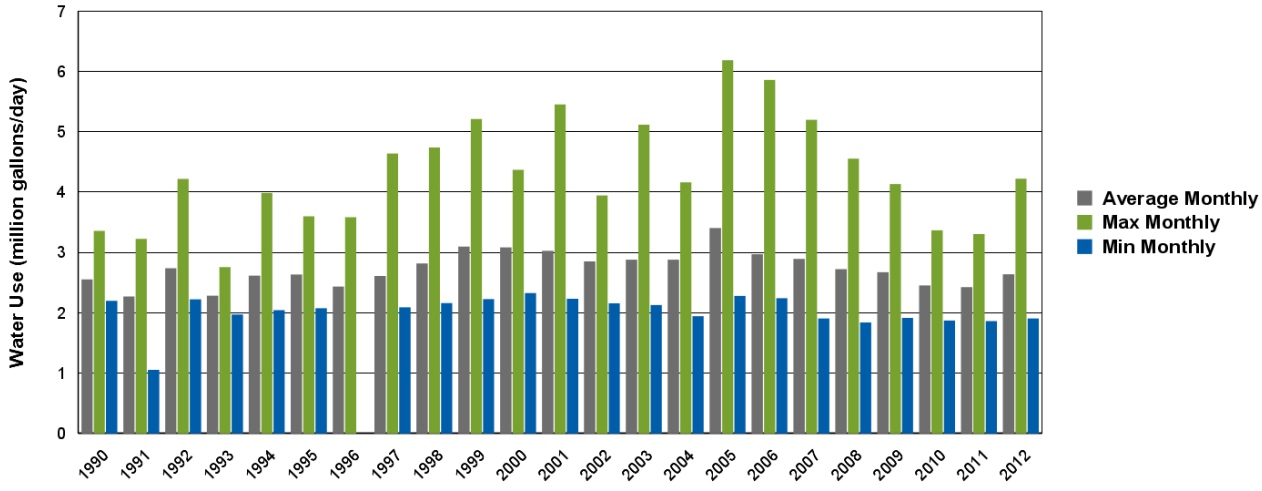
Municipal water treatment: Disinfection, Softening, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 878



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	25,250	26,940	29,080
Total Population	24,350	26,040	28,180
Projected Average Daily Water Use (Million Gal/Day)	2.9	3.1	3.3
Total Per Capita Water Use (Gal/Person/Day)	114.85	115.07	113.48
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	105	98	91

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

White Bear Twp. Water Supply Profile

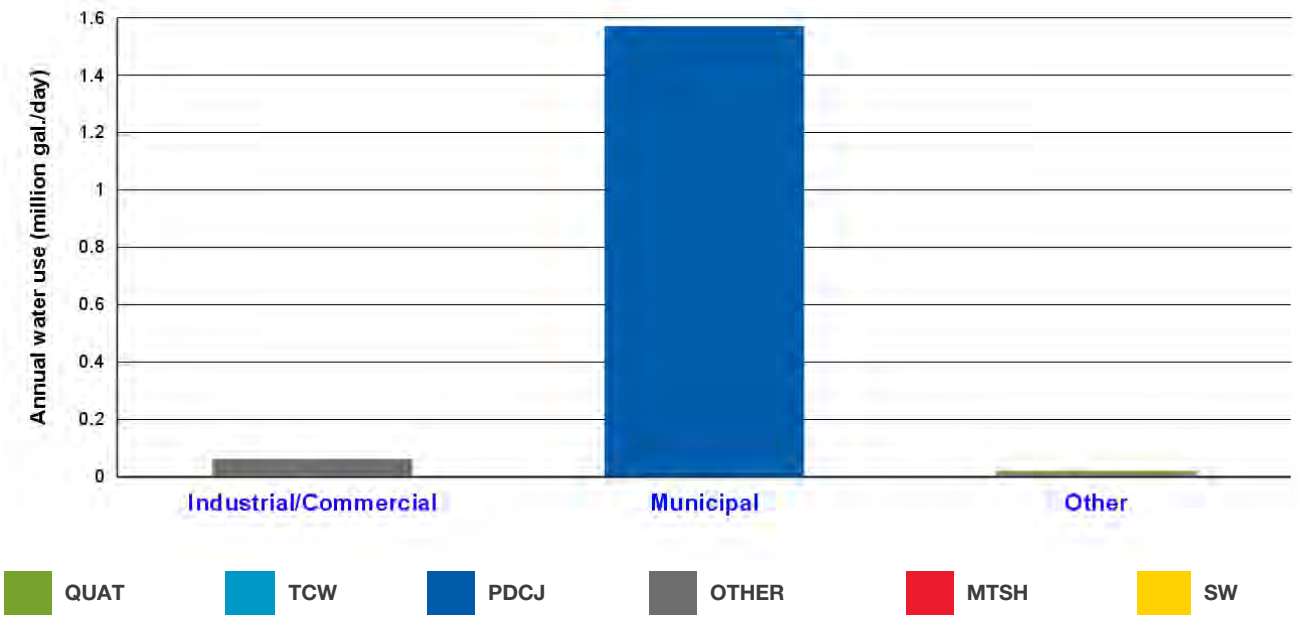
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	7	1	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	4	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

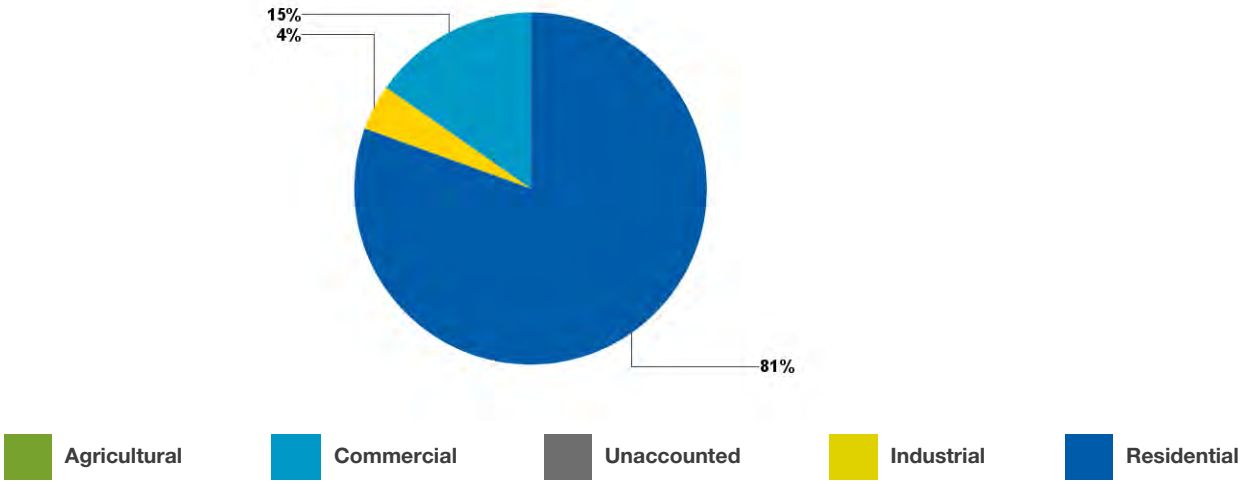
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

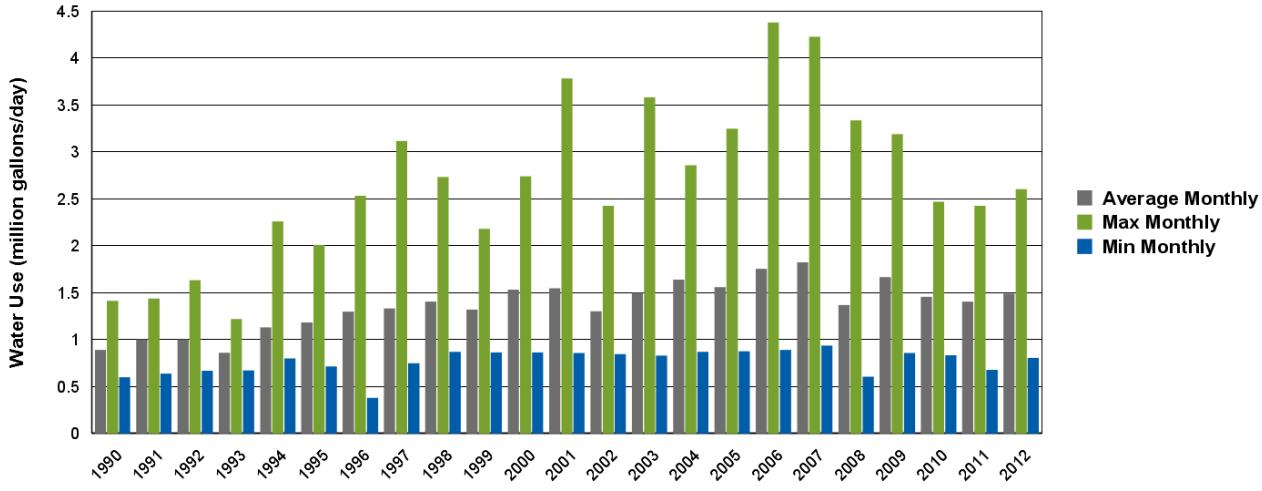
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Iron removal, Fluoride (Z)

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 542



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	11,708	12,208	12,408
Total Population	11,300	11,800	12,000
Projected Average Daily Water Use (Million Gal/Day)	1.4	1.5	1.5
Total Per Capita Water Use (Gal/Person/Day)	119.58	122.87	120.89
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	127	122	120

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Willernie Water Supply Profile

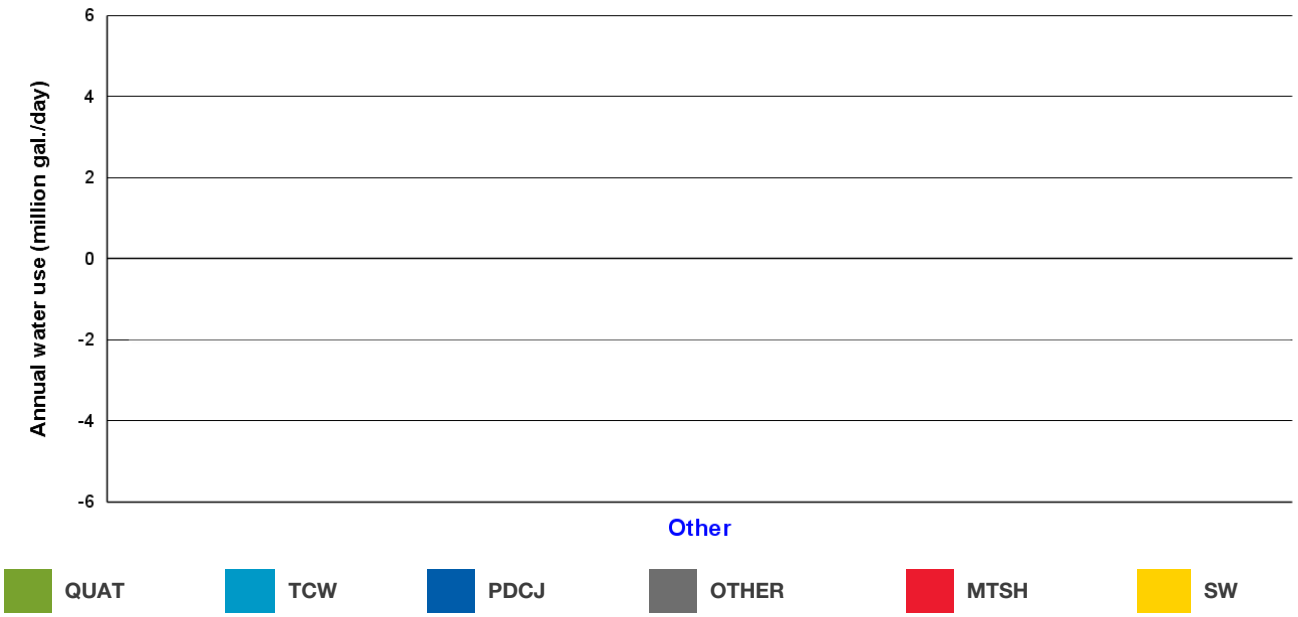
Overview of water system and use in the community:

The community owns and operates their own water supply system and contracts with Mahtomedi to supply water.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	4
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Woodbury Water Supply Profile

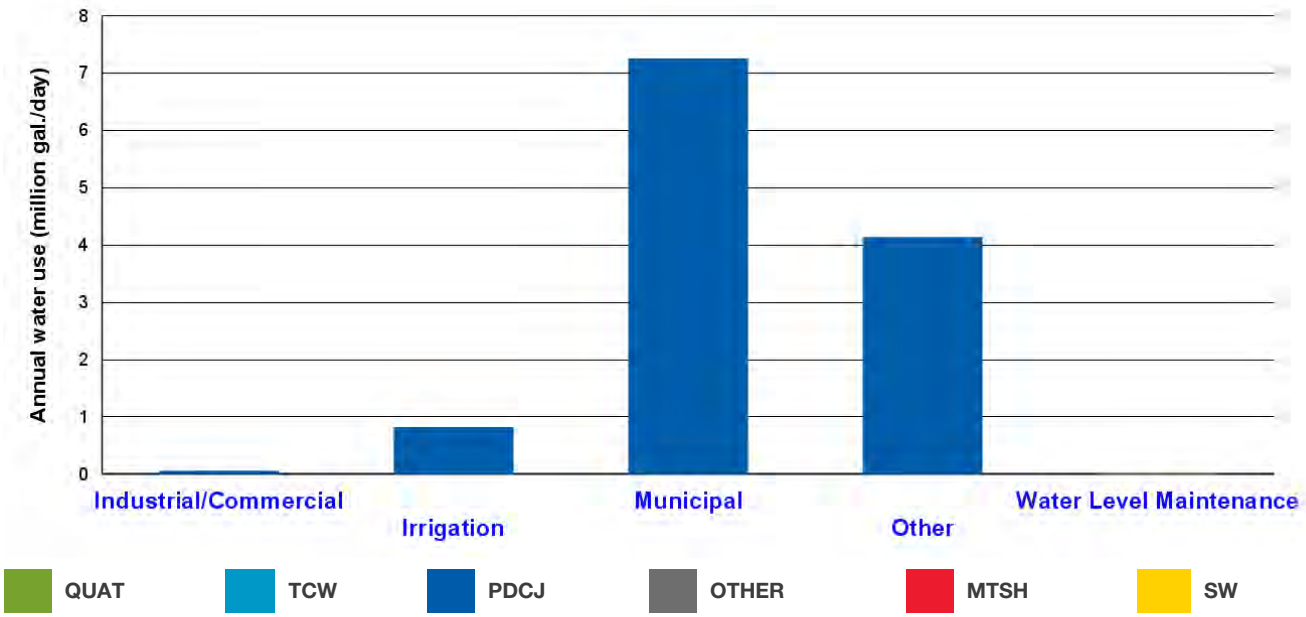
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	17	18	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

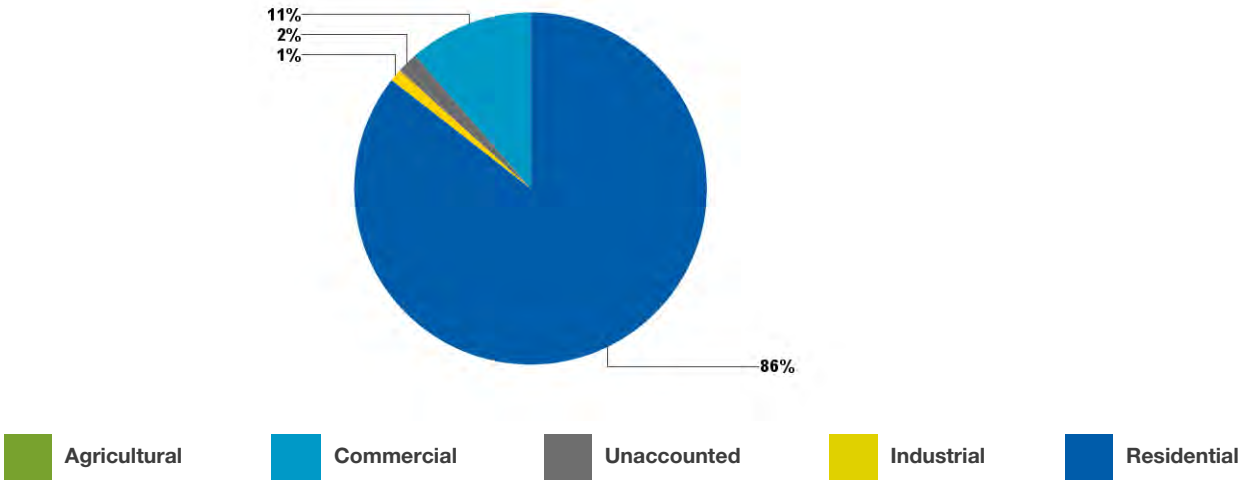
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

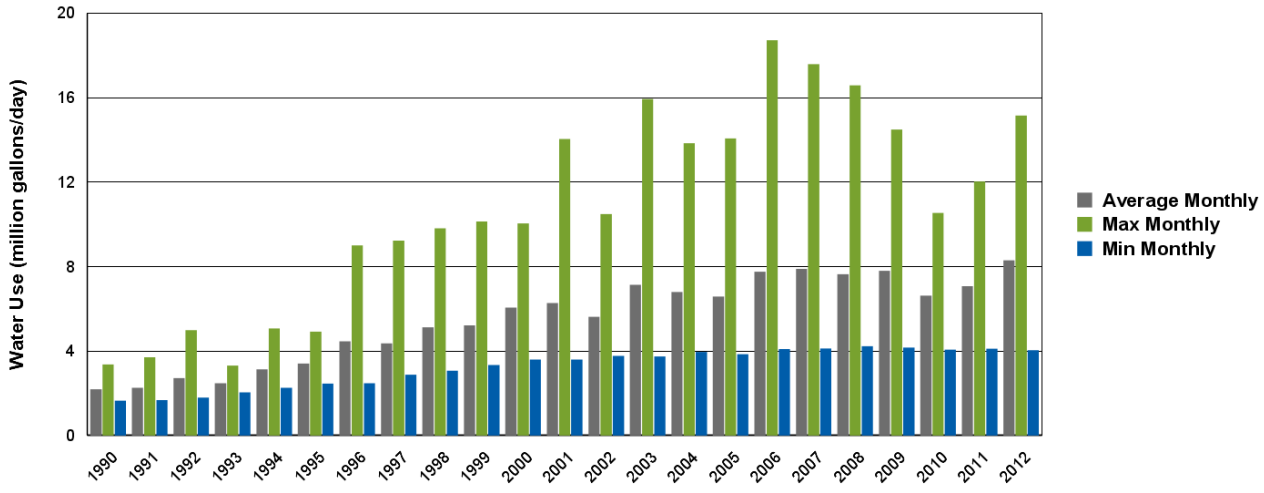
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 2,958



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	69,339	79,739	82,539
Total Population	74,000	84,400	87,200
Projected Average Daily Water Use (Million Gal/Day)	8.5	9.8	10.2
Total Per Capita Water Use (Gal/Person/Day)	122.59	122.90	123.58
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	120	104	101

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

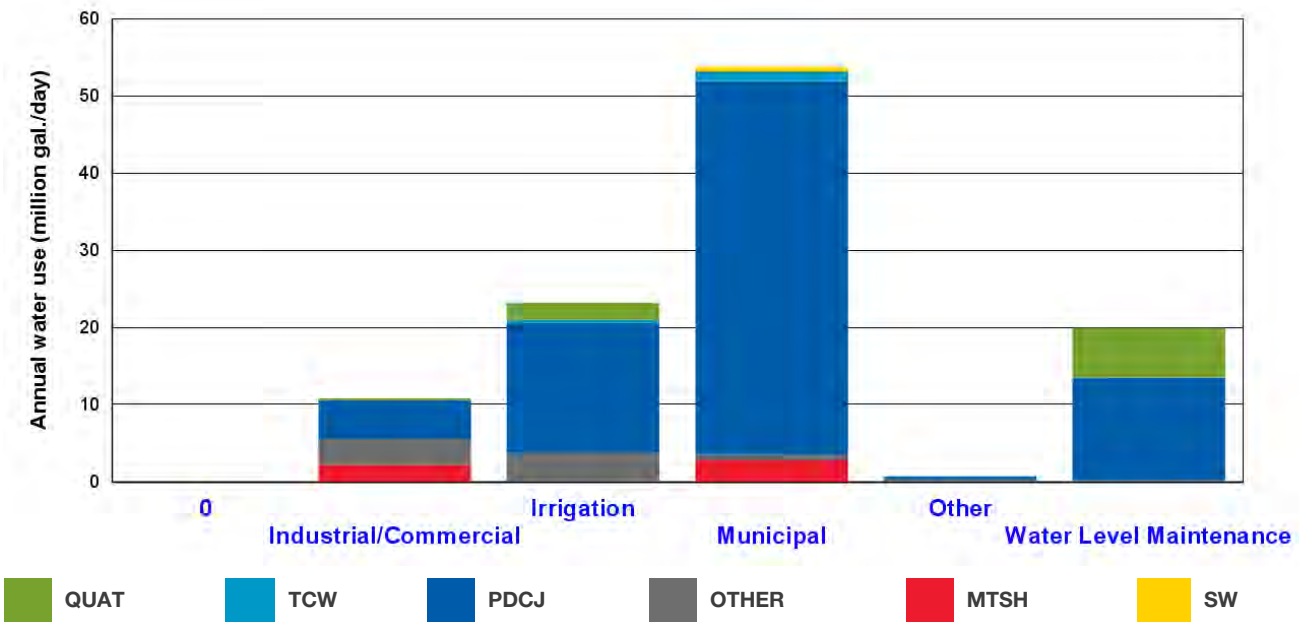
The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

South and East Metro Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	481,962	541,780	604,158
Total Population	487,684	547,252	609,380
Projected Average Daily Water Use (Million Gal/Day)	3.2	3.5	3.9
Total Per Capita Water Use (Gal/Person/Day)	112	112	112
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	110	98	89

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Apple Valley Water Supply Profile

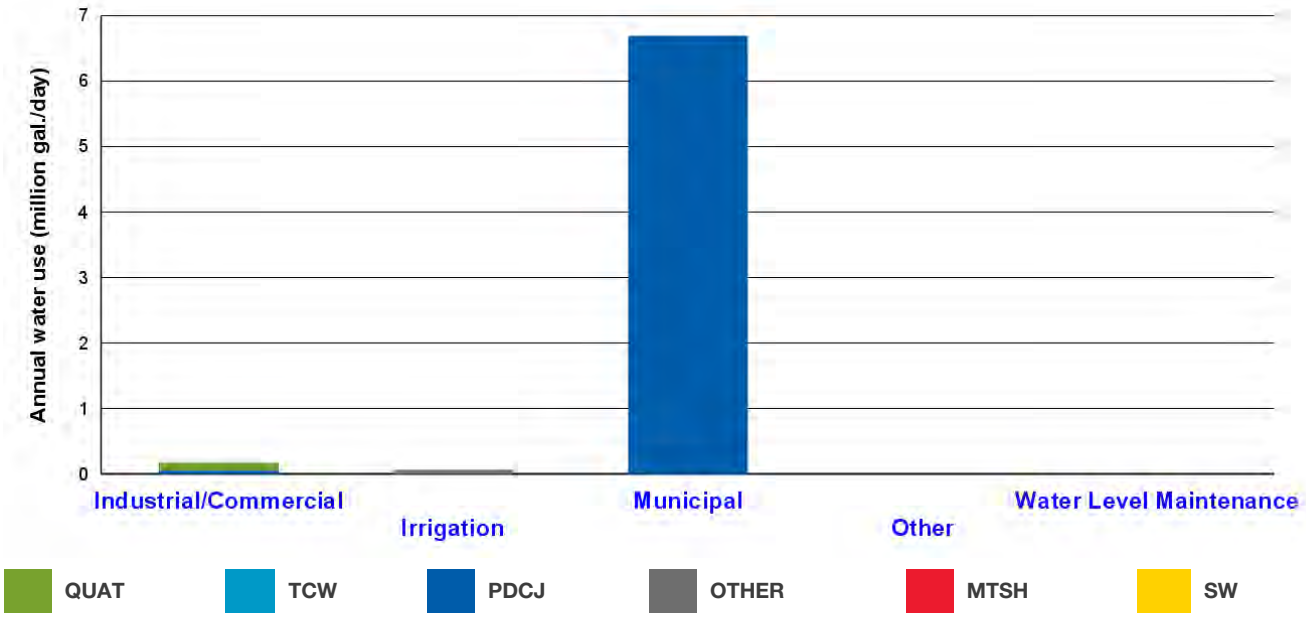
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	17	4	0
Quaternary (QUAT)	0	28	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

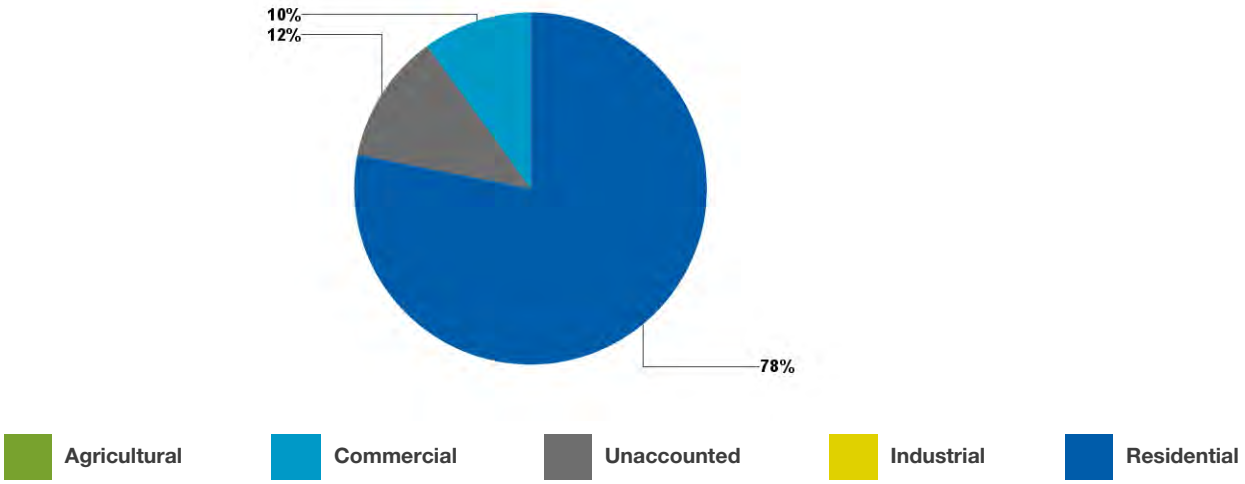
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

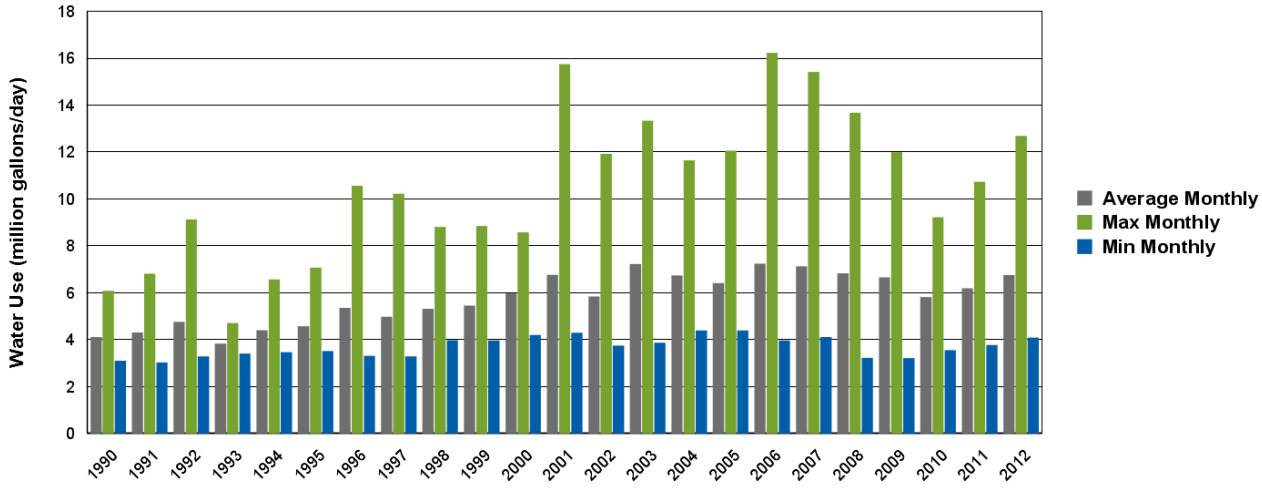
Municipal water treatment: Fluoride (Z), Iron removal, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 2,210



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	56,100	62,700	65,400
Total Population	56,300	62,900	65,600
Projected Average Daily Water Use (Million Gal/Day)	6.7	7.5	7.9
Total Per Capita Water Use (Gal/Person/Day)	119.43	119.62	120.80
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	120	108	103

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Burnsville Water Supply Profile

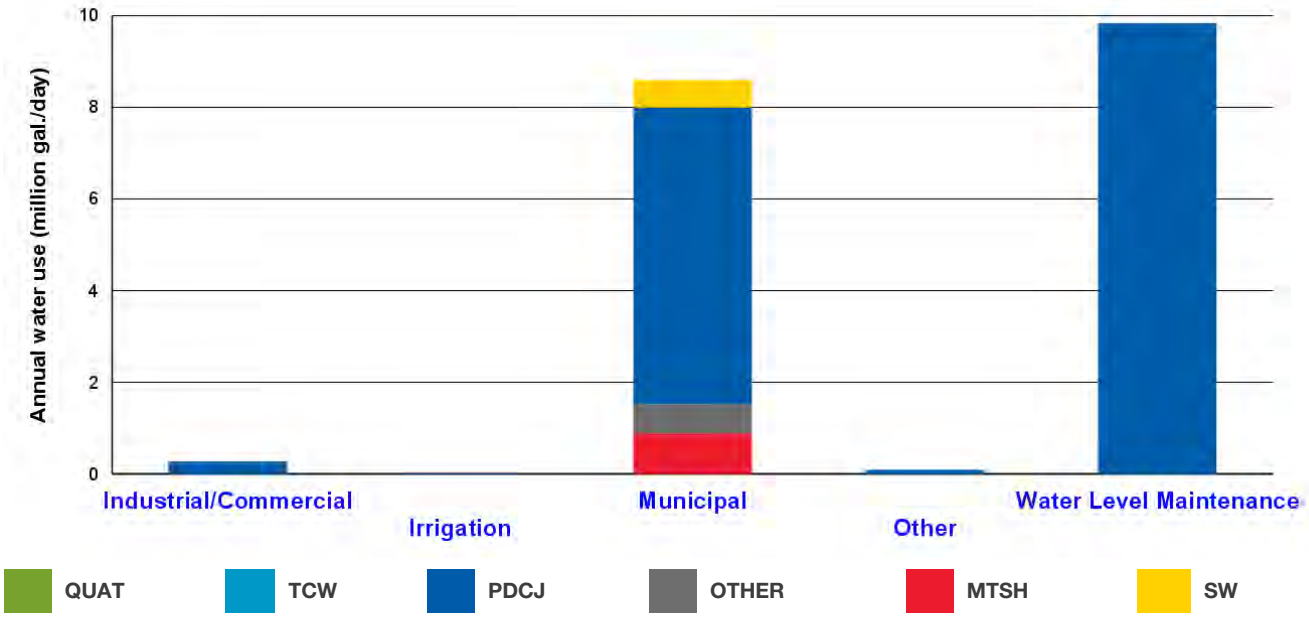
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	15	13	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	0	
Surface Water	1	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

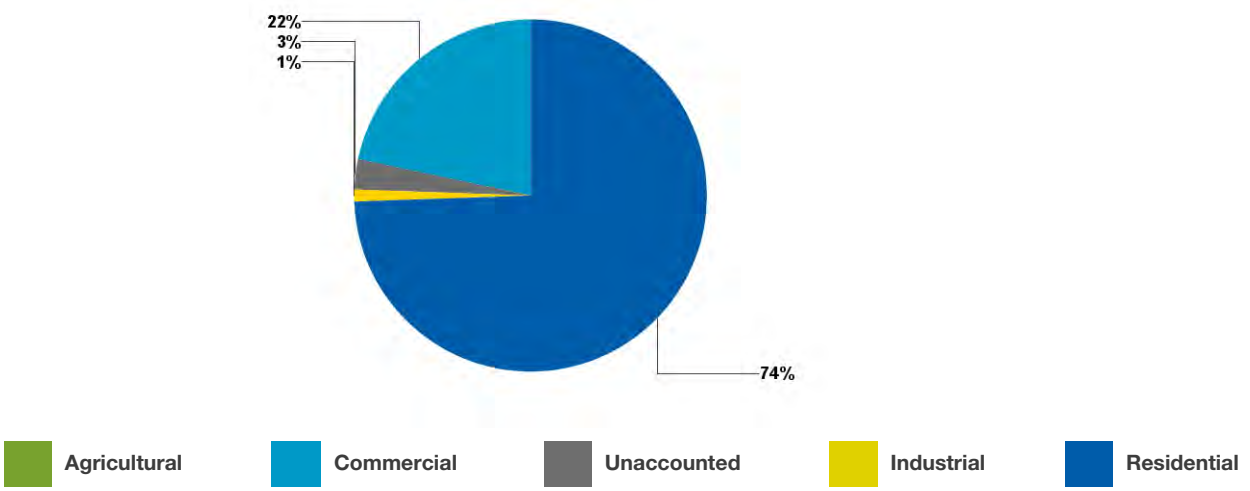
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

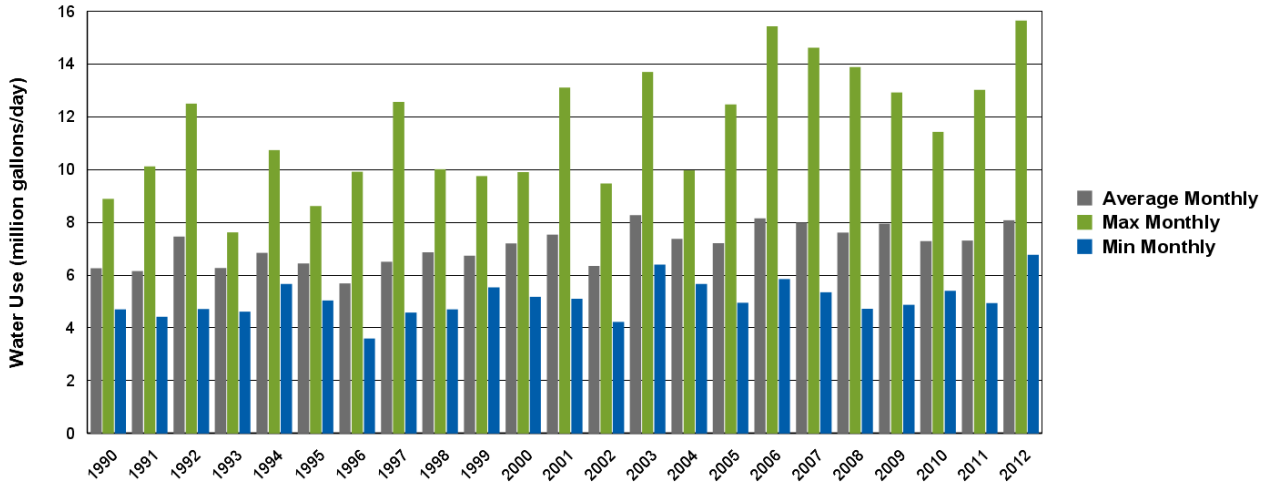
Municipal water treatment: Disinfection, Iron removal, Particulate removal, Fluoride (Z), Taste/Odor control

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 2,865



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	63,200	65,700	67,000
Total Population	62,900	65,400	66,700
Projected Average Daily Water Use (Million Gal/Day)	7.8	8.2	8.3
Total Per Capita Water Use (Gal/Person/Day)	123.42	124.81	123.88
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	128	123	121

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
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The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Castle Rock Twp. Water Supply Profile

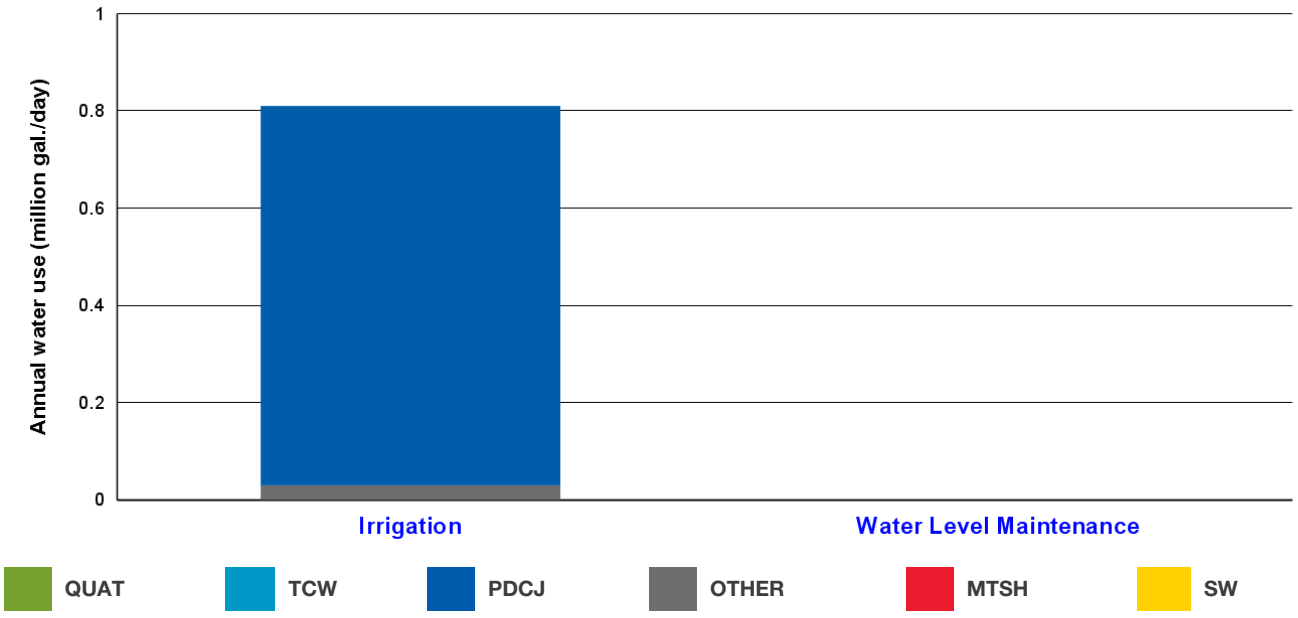
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	18	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Cedar Lake Twp. Water Supply Profile

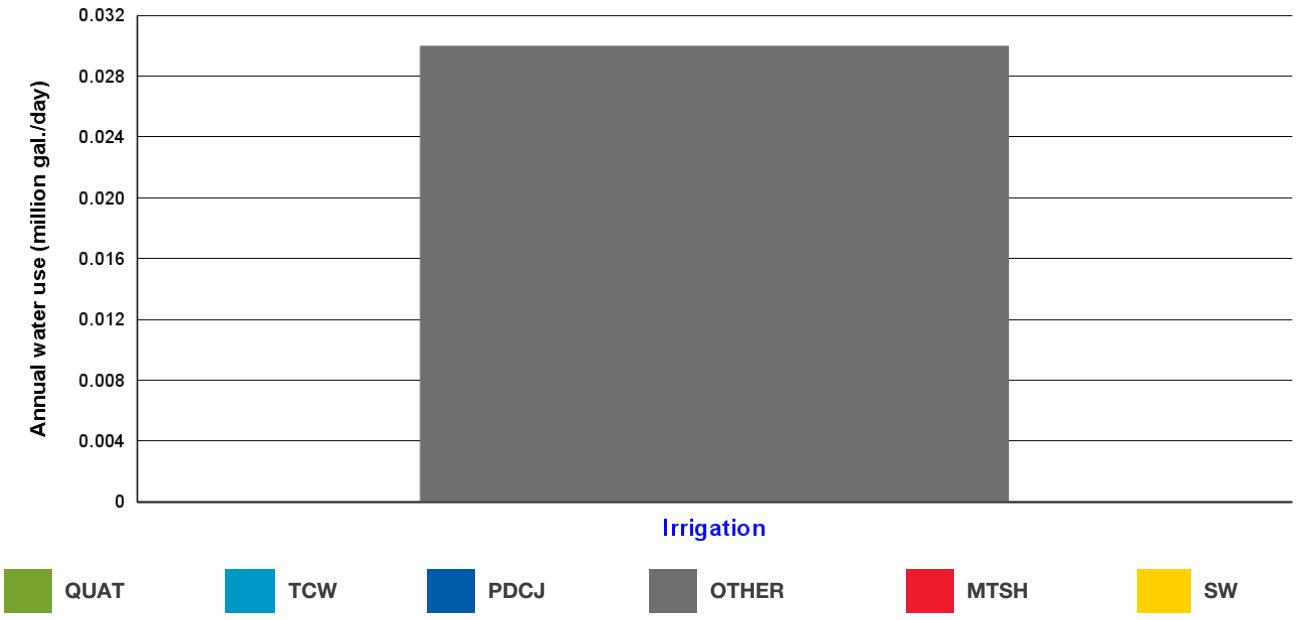
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Credit River Twp. Water Supply Profile

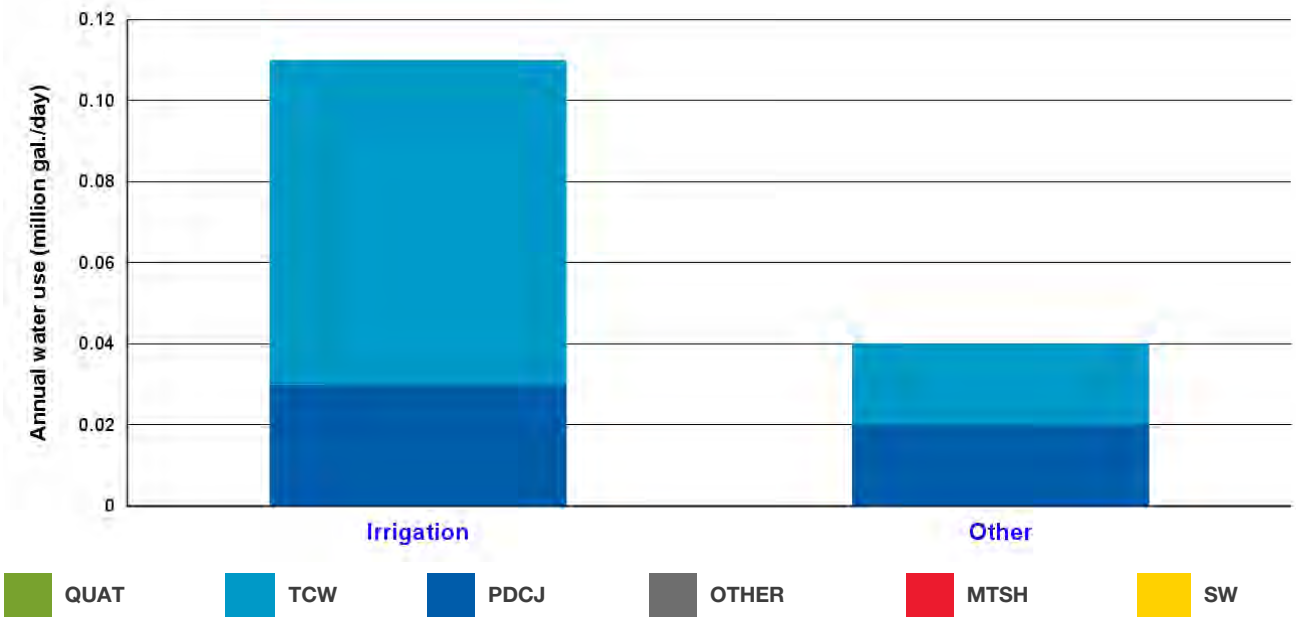
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	4	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	2	
Other	0	0	
Surface Water	0	4	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Coates Water Supply Profile

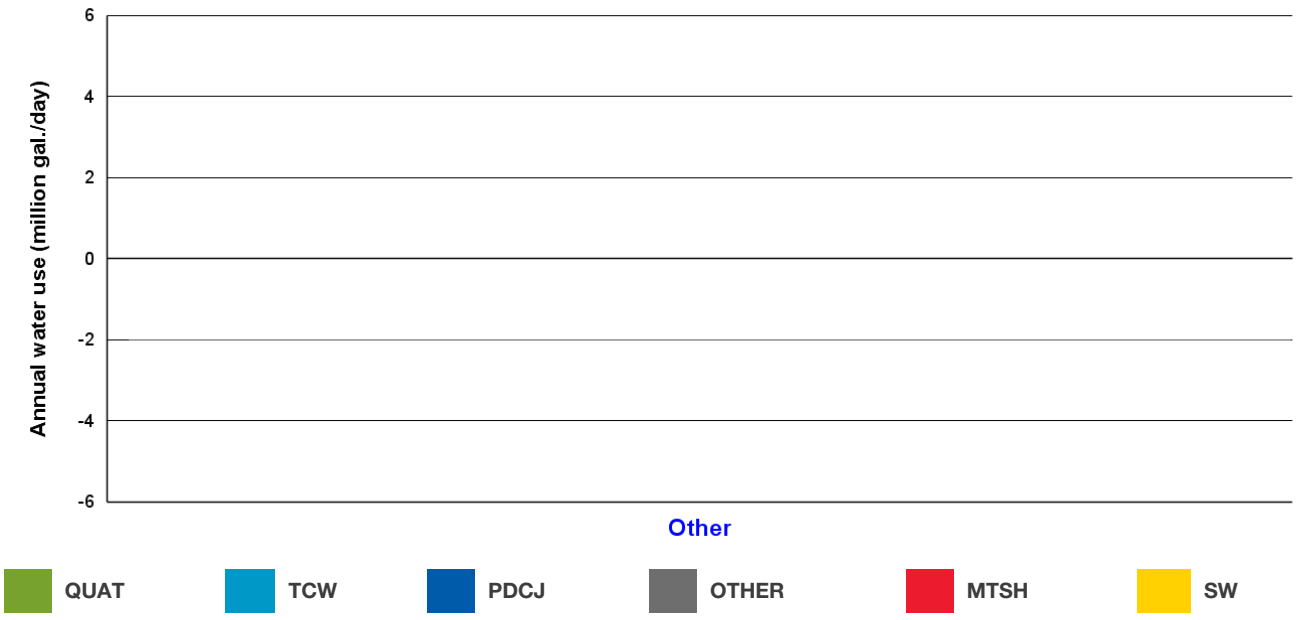
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
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suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Douglas Twp. Water Supply Profile

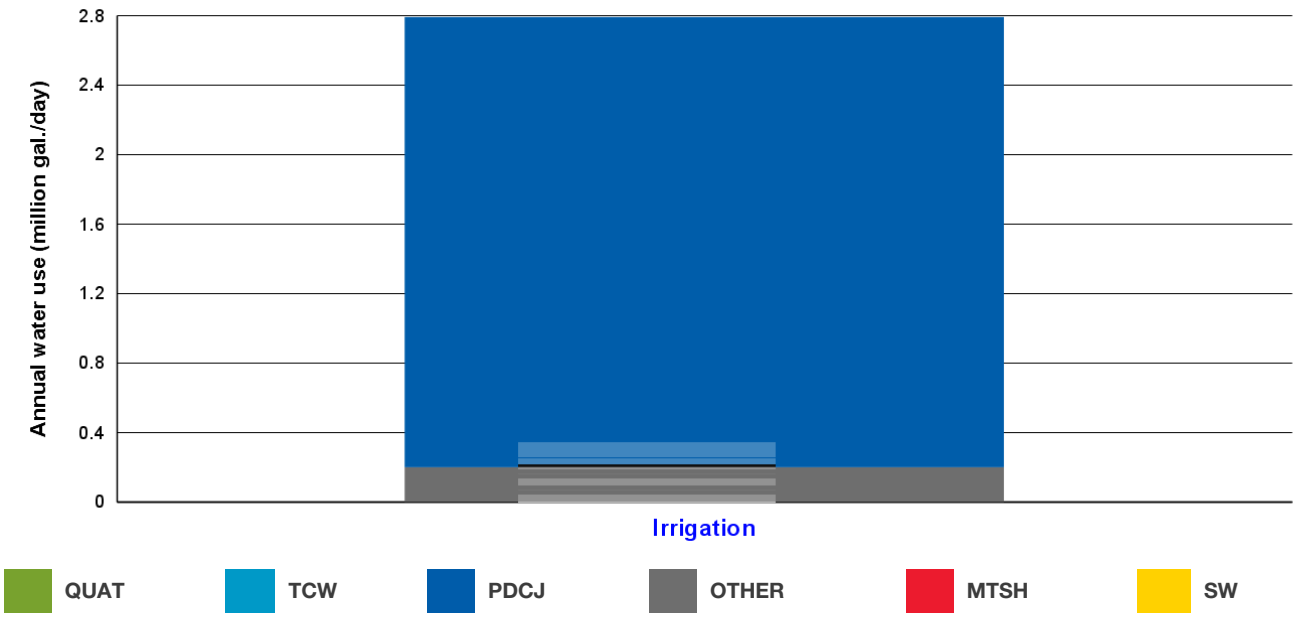
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	42	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines

are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Eagan Water Supply Profile

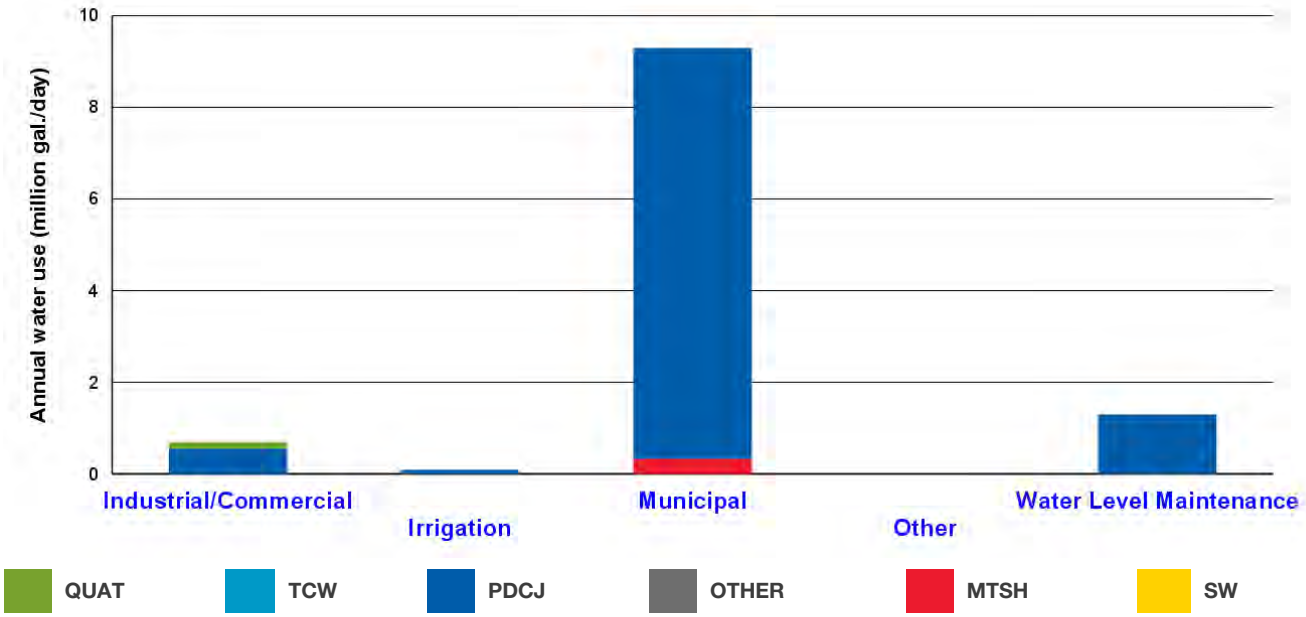
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	21	16	0
Quaternary (QUAT)	0	38	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

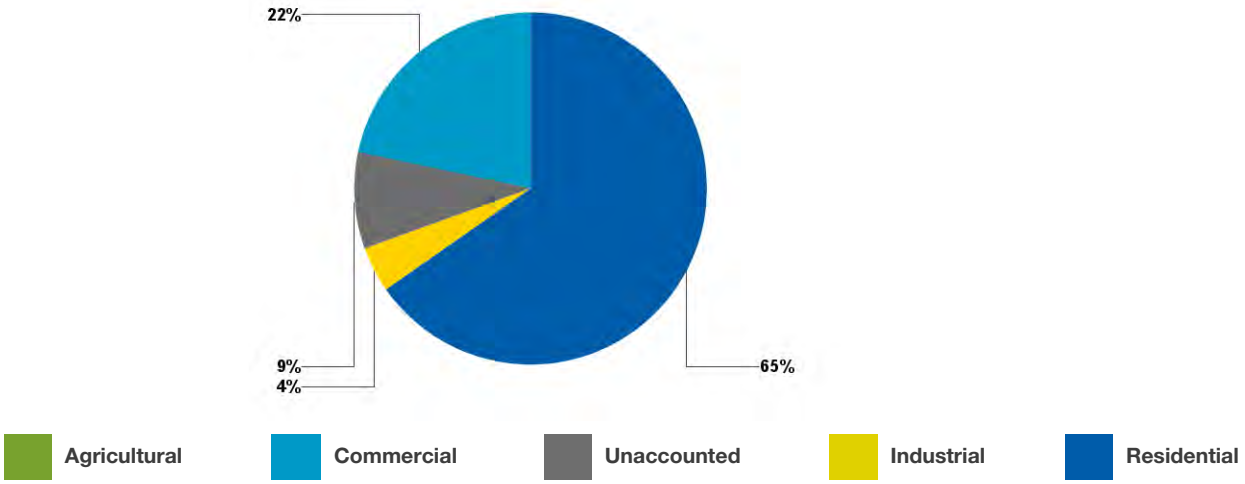
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

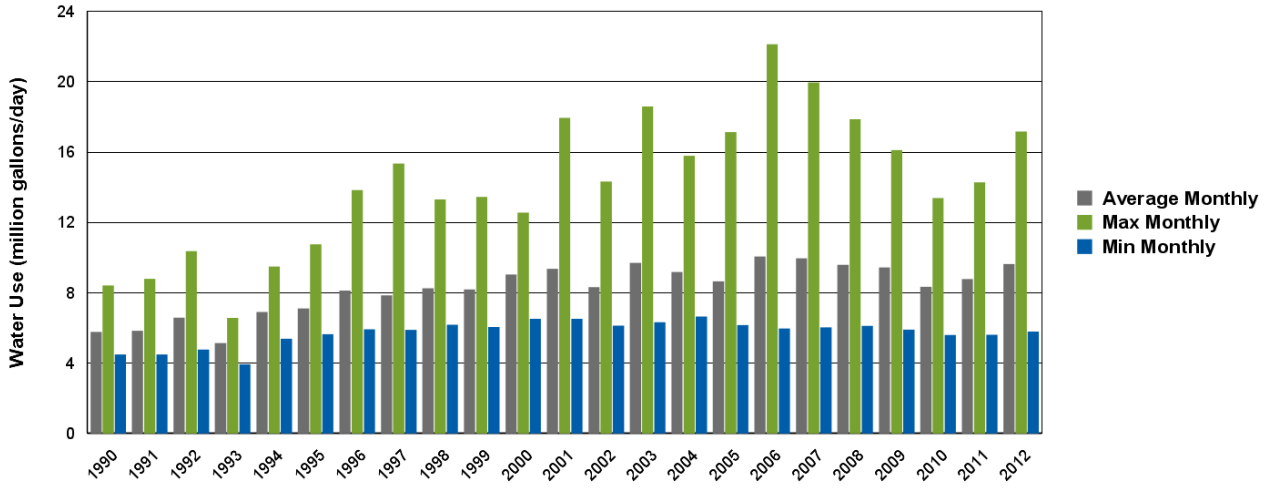
Municipal water treatment: Fluoride (Z), Manganese removal, Iron removal, Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 3,212



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	69,074	71,672	74,270
Total Population	66,804	69,402	72,000
Projected Average Daily Water Use (Million Gal/Day)	9.6	9.9	10.3
Total Per Capita Water Use (Gal/Person/Day)	138.98	138.13	138.68
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	139	134	130

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Elko New Market Water Supply Profile

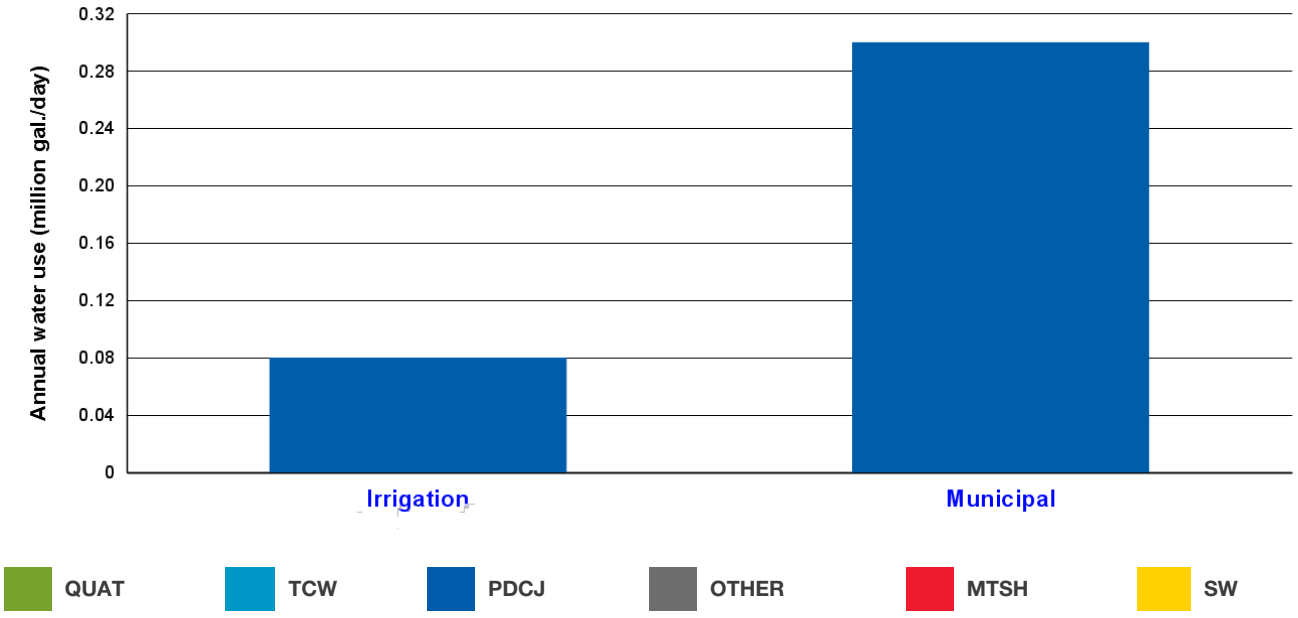
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	9	1	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

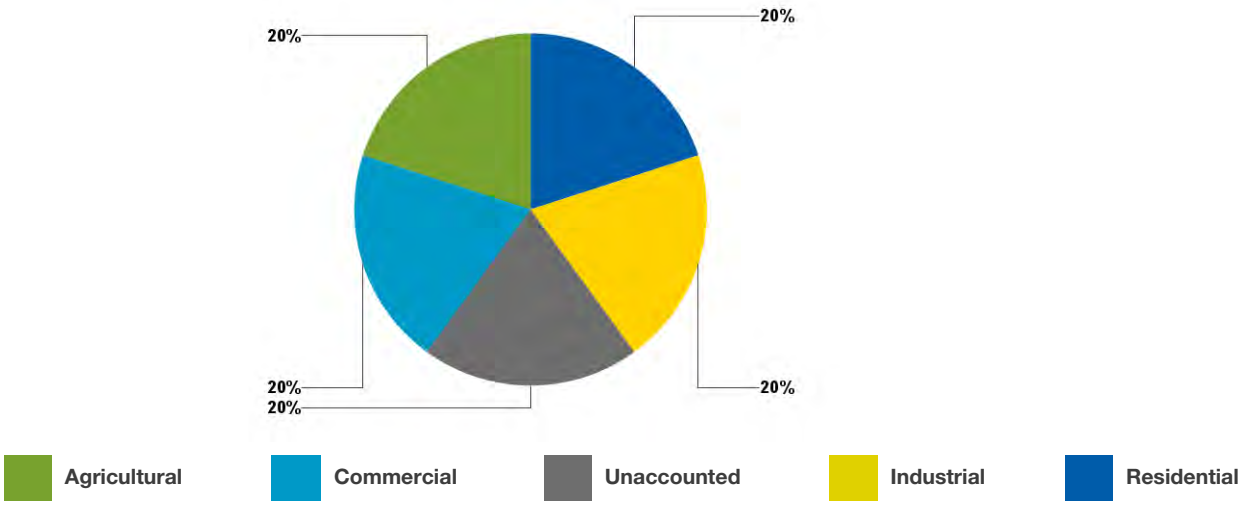
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

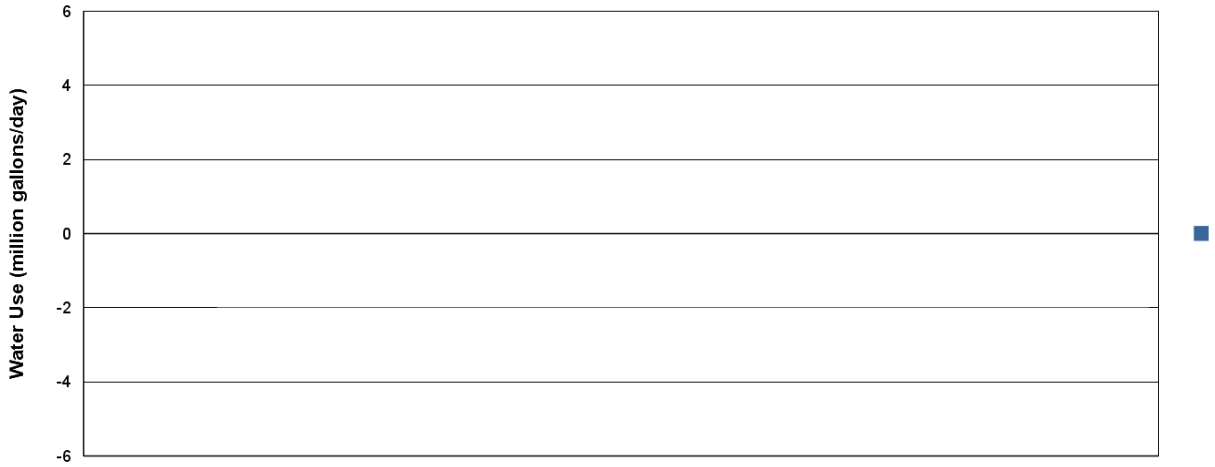
Municipal water treatment: Radionuclides removal, Disinfection, Softening, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 0



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	5,800	8,000	12,200
Total Population	5,800	8,000	12,200
Projected Average Daily Water Use (Million Gal/Day)	0.4	0.6	0.9
Total Per Capita Water Use (Gal/Person/Day)	68.97	75.00	73.77
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	59	42	28

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Empire Twp. Water Supply Profile

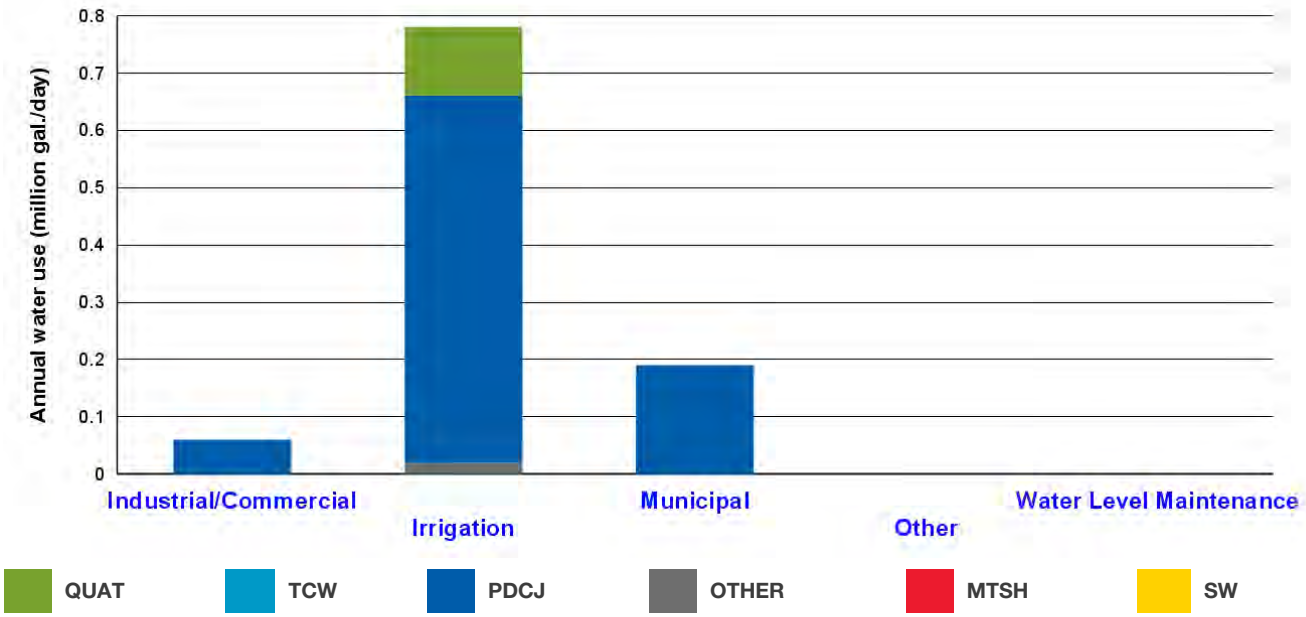
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	3	27	0
Quaternary (QUAT)	0	15	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	12	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

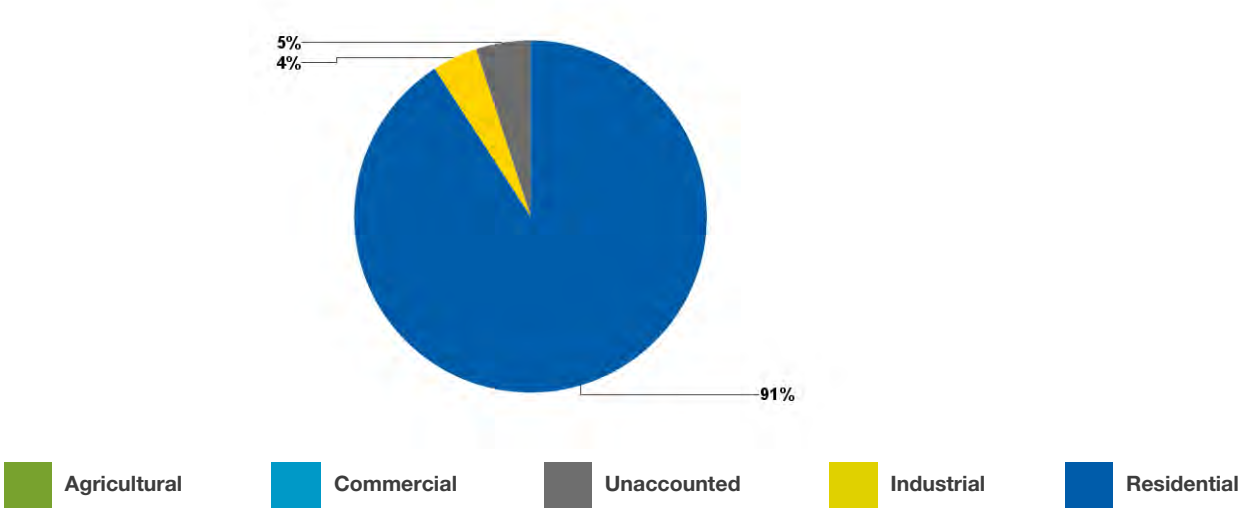
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

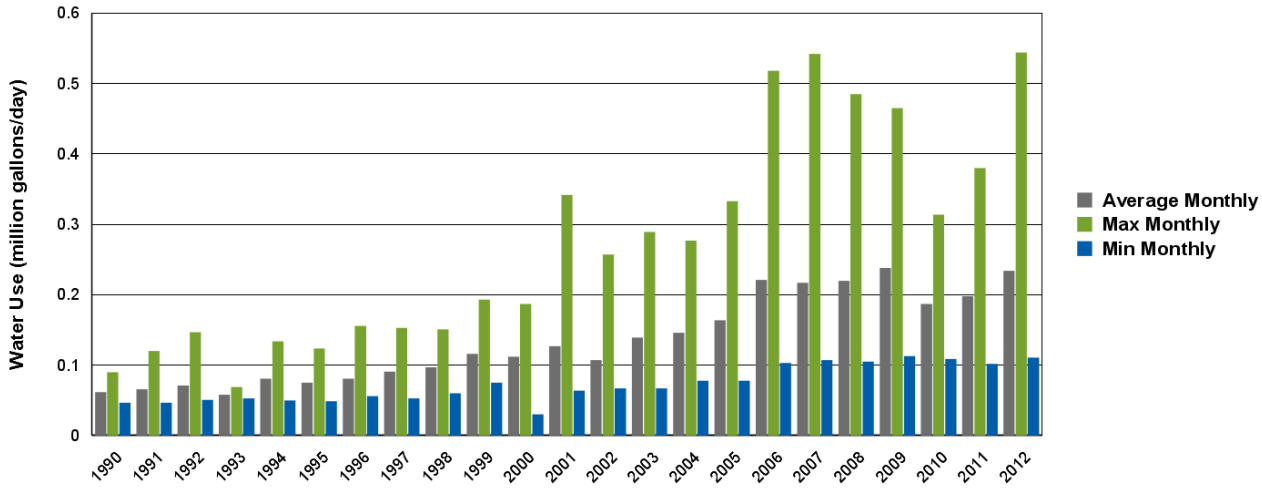
Municipal water treatment: Fluoride (Z), Iron/Manganese Sequestration, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 81



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,690	3,710	4,820
Total Population	3,170	4,190	5,300
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.4	0.5
Total Per Capita Water Use (Gal/Person/Day)	111.52	107.82	103.73
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	87	63	48

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Eureka Twp. Water Supply Profile

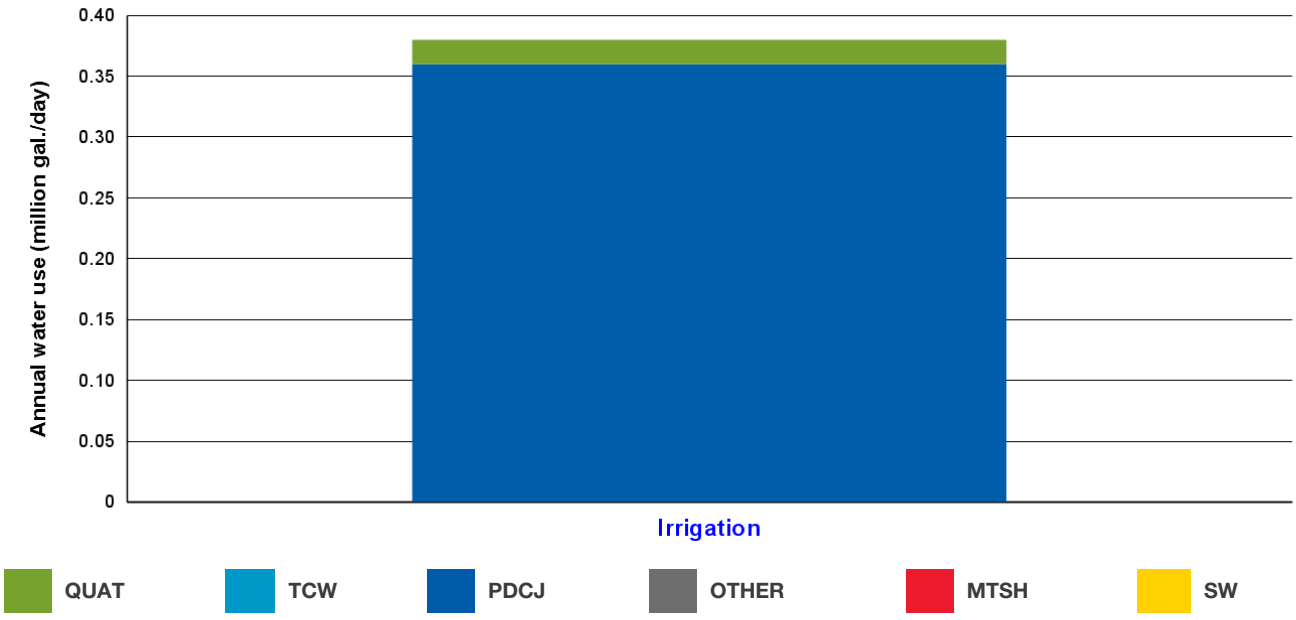
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	12	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	10	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Farmington Water Supply Profile

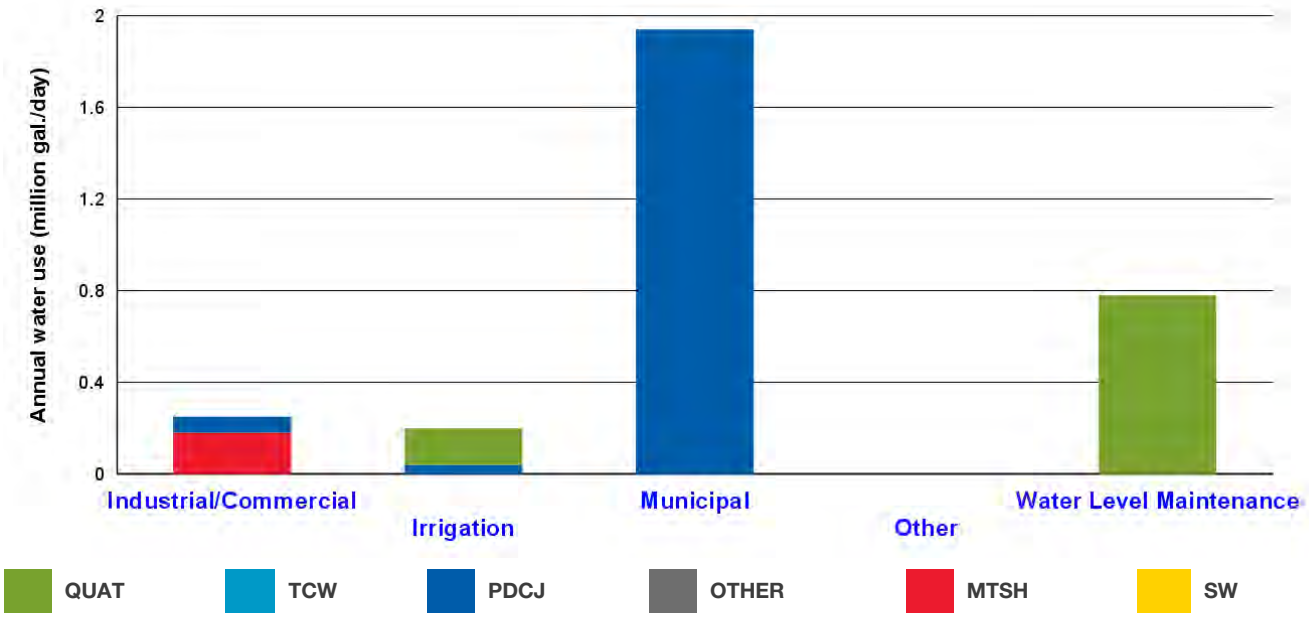
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	1	
Prairie du Chien-Jordan (PDCJ)	8	3	0
Quaternary (QUAT)	0	21	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

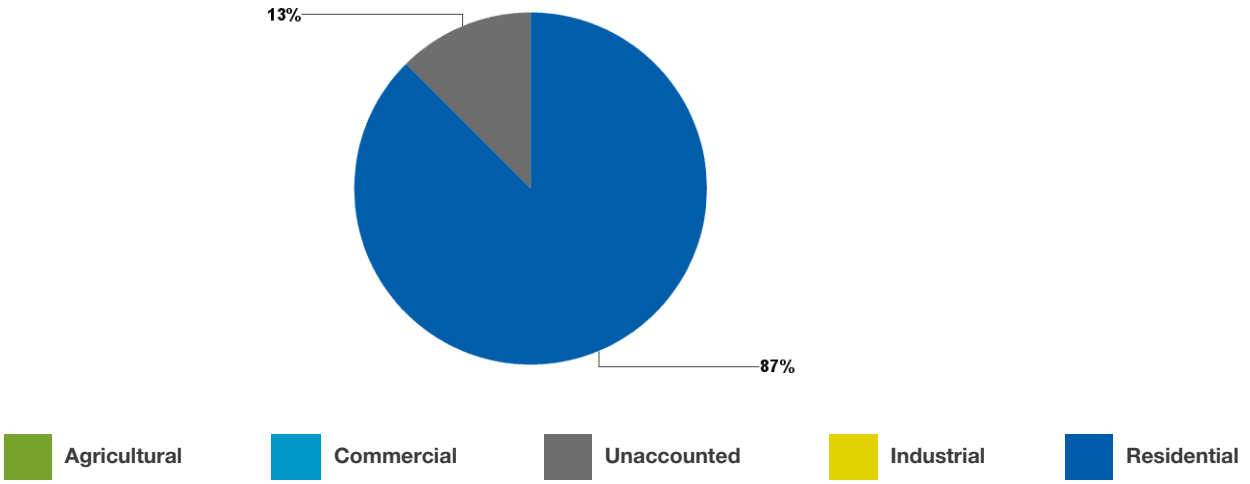
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

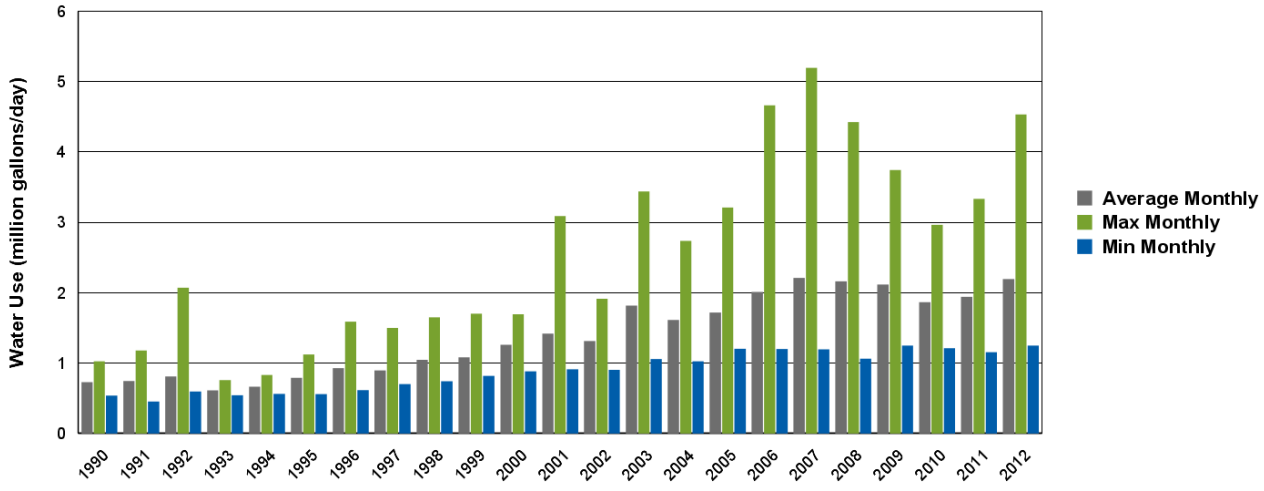
Municipal water treatment: Iron/Manganese Sequestration, Fluoride (Z), Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 703



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	22,100	26,000	31,500
Total Population	22,100	26,000	31,500
Projected Average Daily Water Use (Million Gal/Day)	2.3	2.8	3.3
Total Per Capita Water Use (Gal/Person/Day)	104.07	107.69	104.76
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	99	84	70

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Greenvale Twp. Water Supply Profile

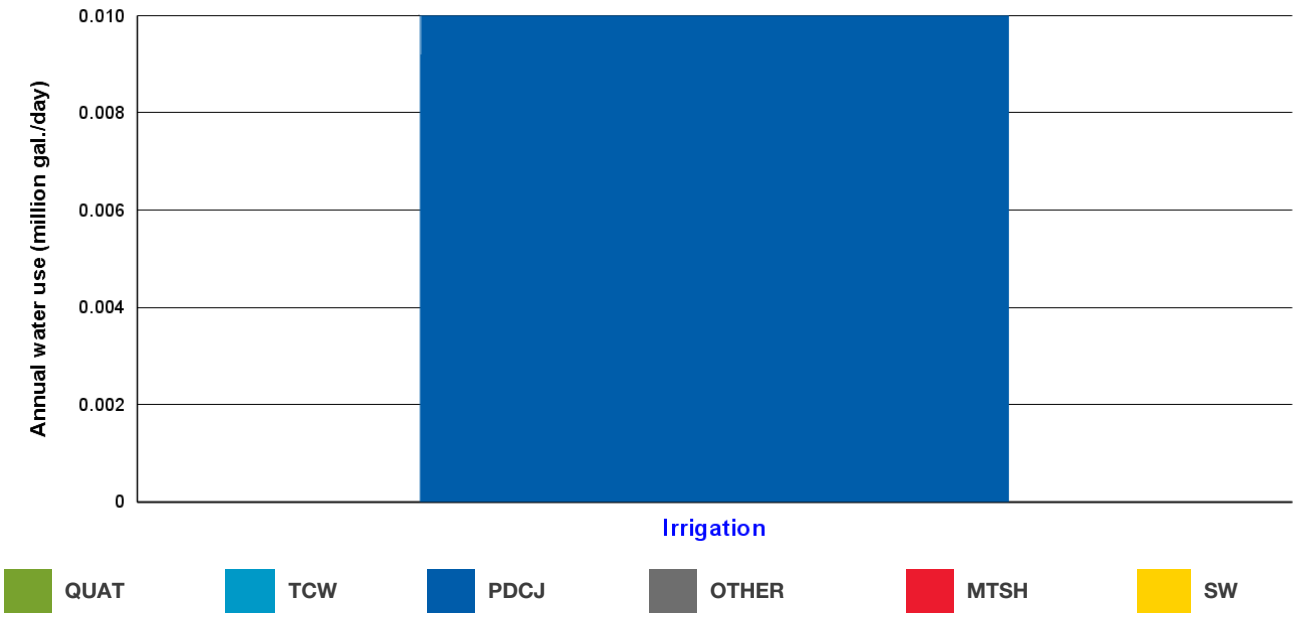
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Grey Cloud Island Twp. Water Supply Profile

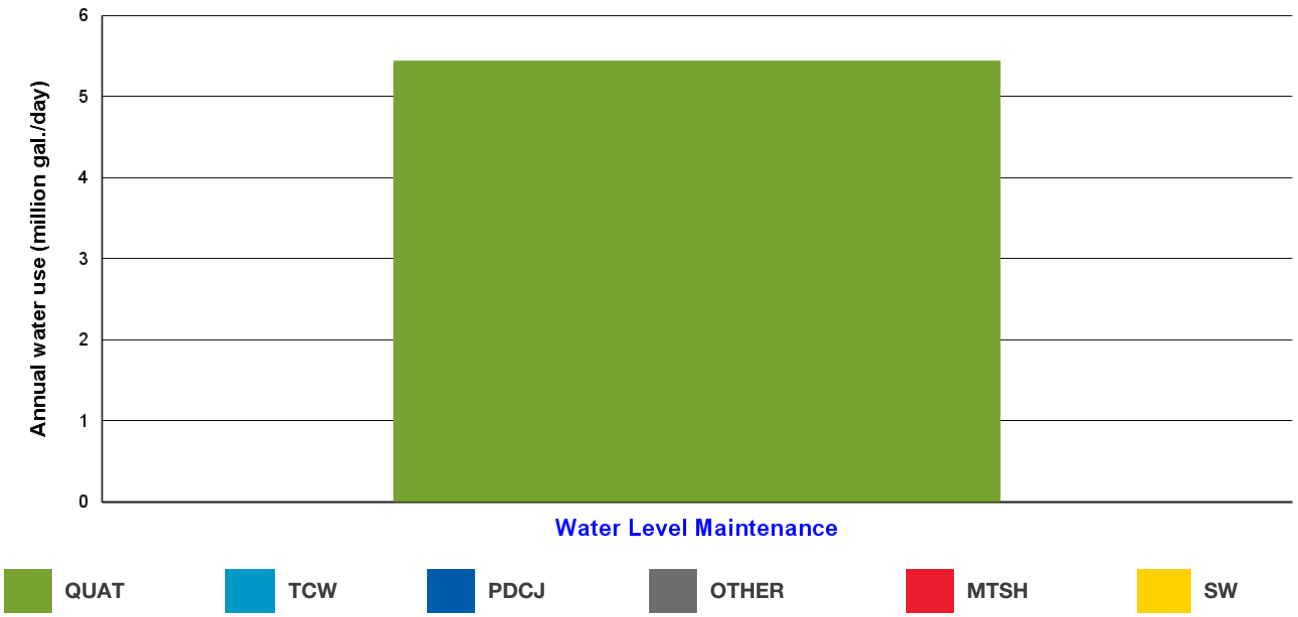
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hampton Twp. Water Supply Profile

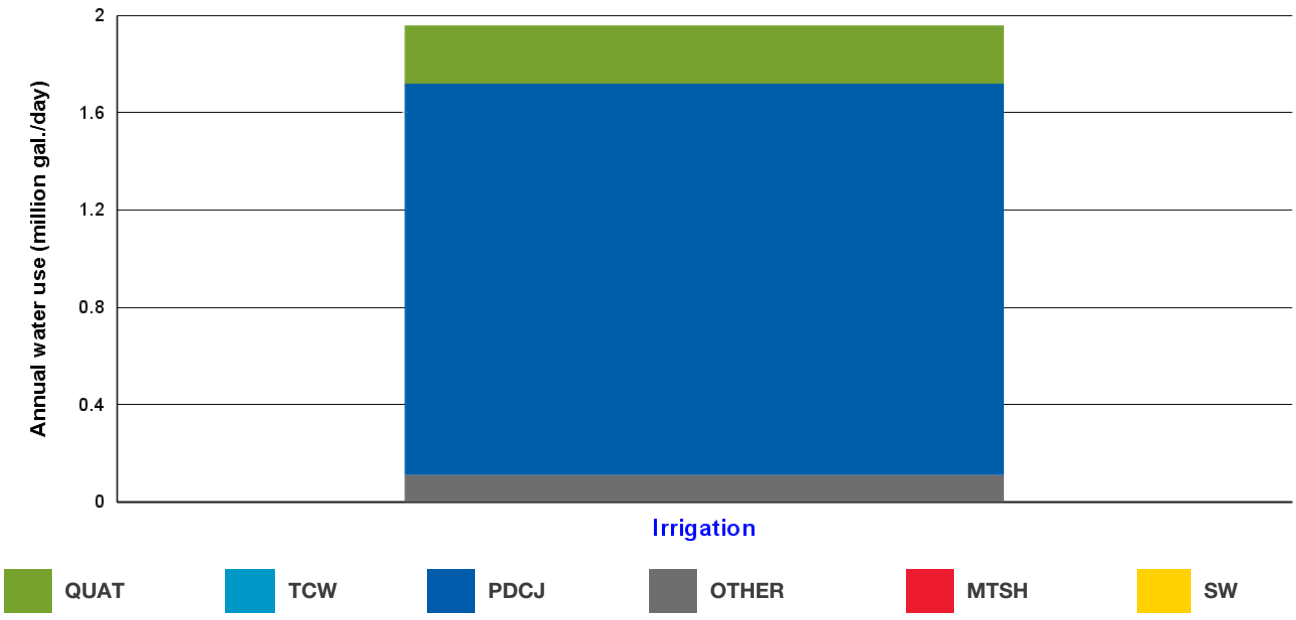
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	31	0
Quaternary (QUAT)	0	5	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hampton Water Supply Profile

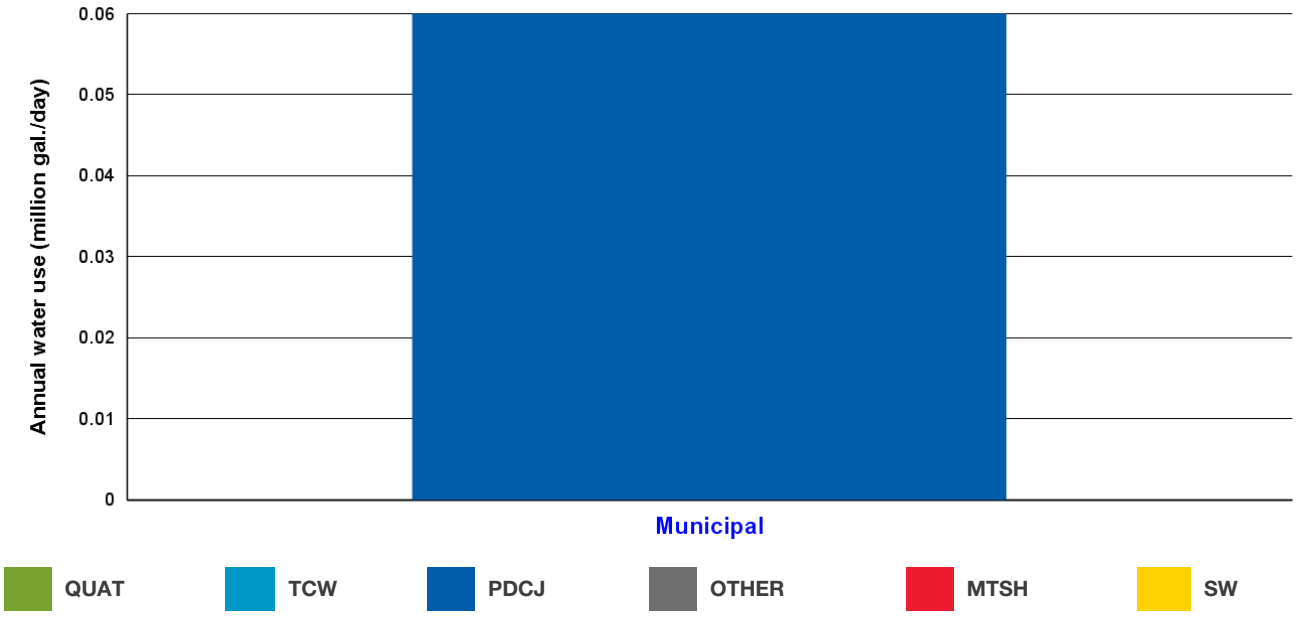
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

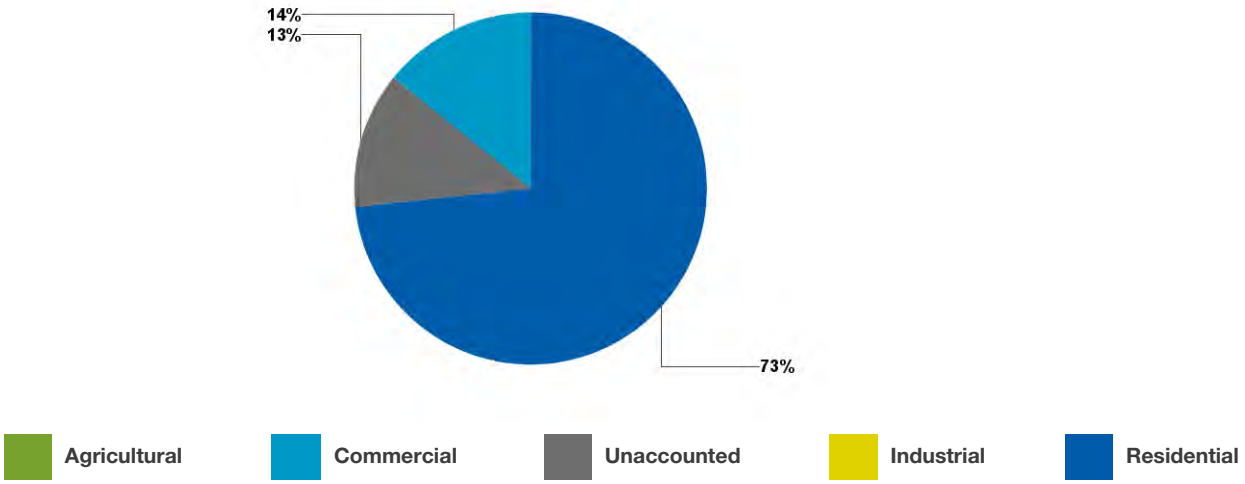
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

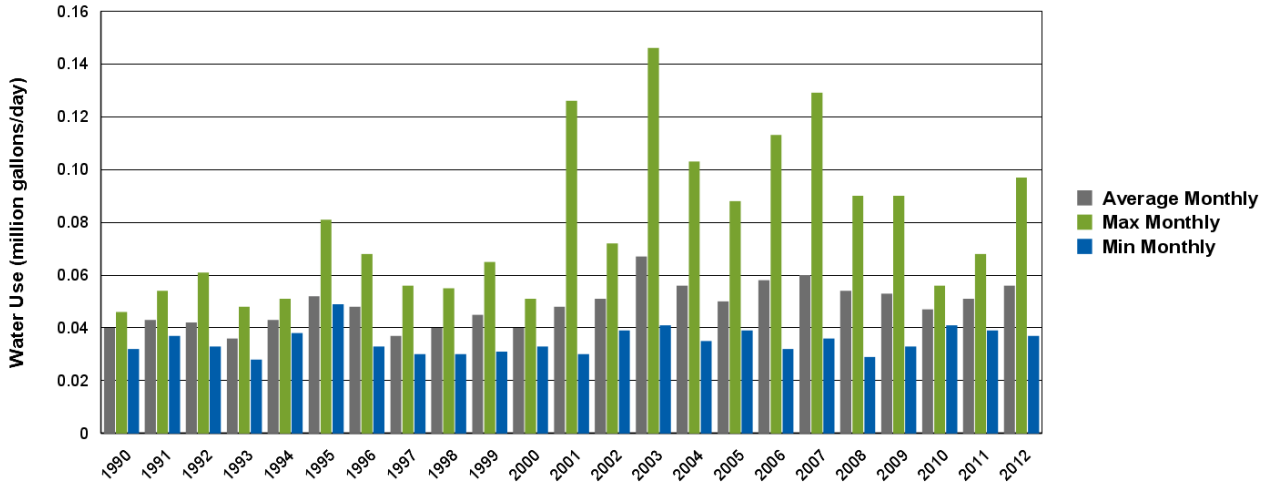
Municipal water treatment: Fluoride (Z)

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 17



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	969	1,249	1,529
Total Population	720	750	780
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	103.20	80.06	65.40
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	58	45	37

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hastings Water Supply Profile

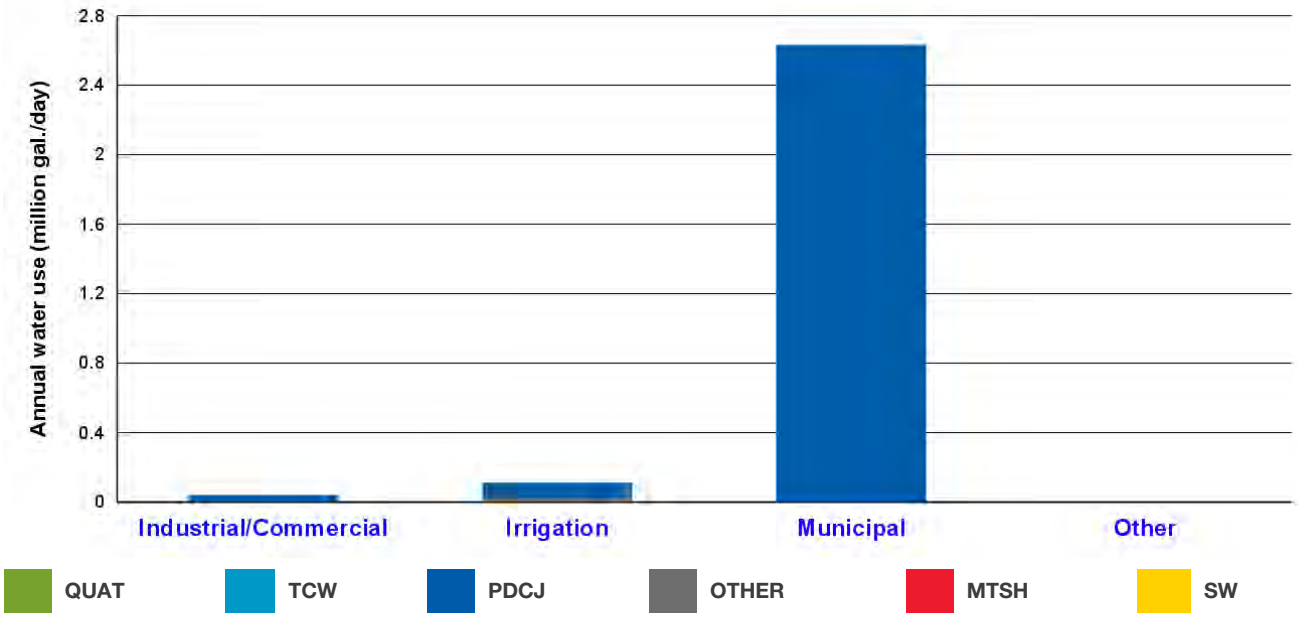
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	3	
Prairie du Chien-Jordan (PDCJ)	7	8	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	2	2	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

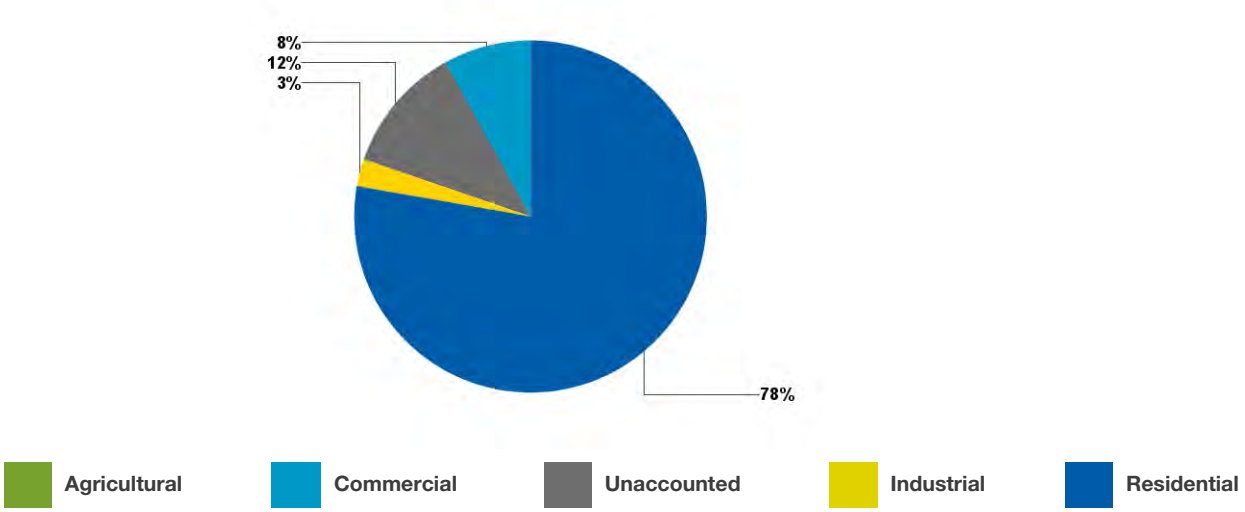
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

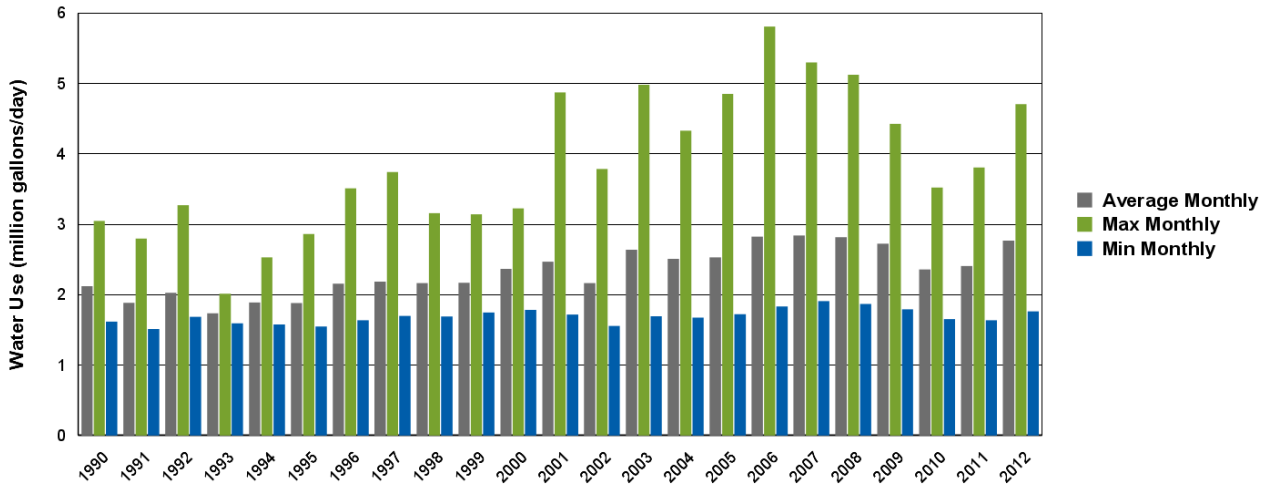
Municipal water treatment: Fluoride (Z), Nitrate removal, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 886



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	23,100	25,900	30,100
Total Population	23,100	25,900	30,100
Projected Average Daily Water Use (Million Gal/Day)	2.9	3.3	3.8
Total Per Capita Water Use (Gal/Person/Day)	125.54	127.41	126.25
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	120	107	92

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Inver Grove Heights Water Supply Profile

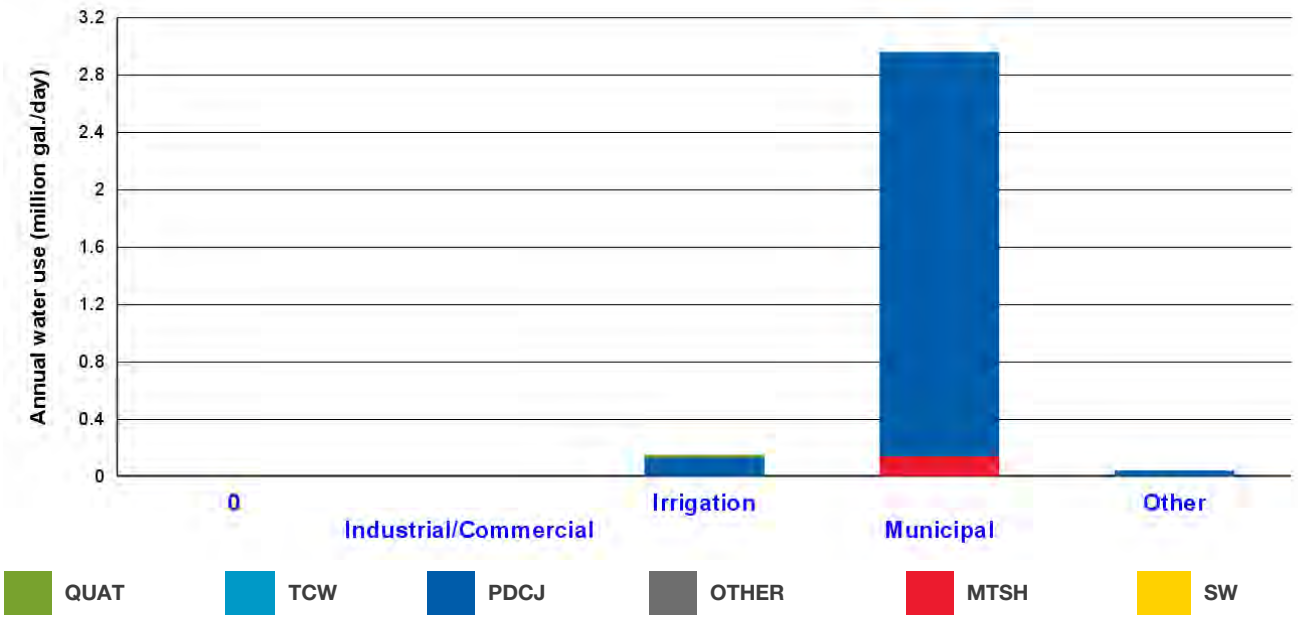
Overview of water system and use in the community:

The community owns and operates their own water supply system, with Eagan as a water source for a small portion of the community.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	1	
Prairie du Chien-Jordan (PDCJ)	7	6	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	1	
Other	1	4	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

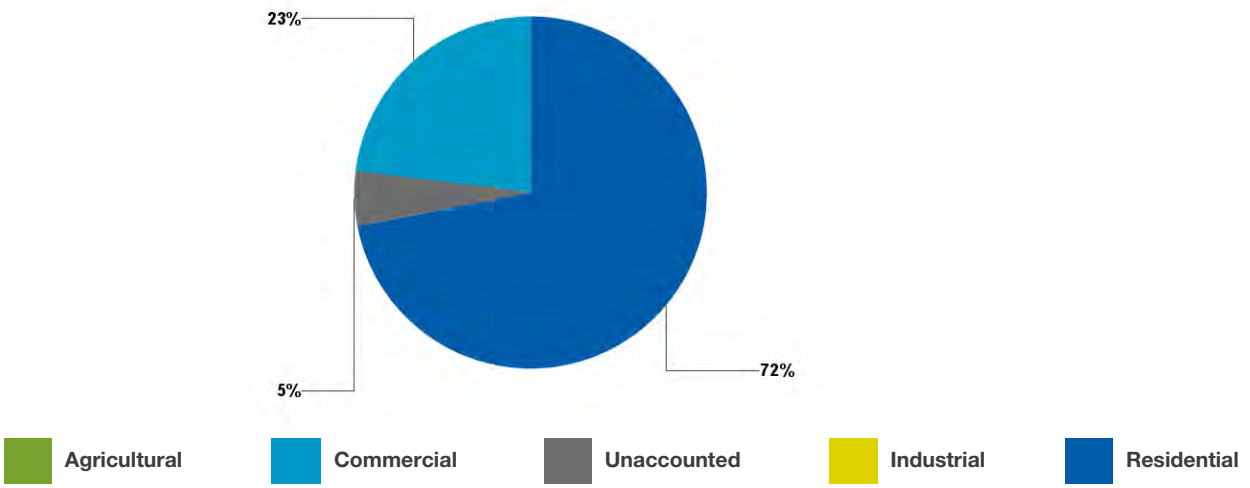
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

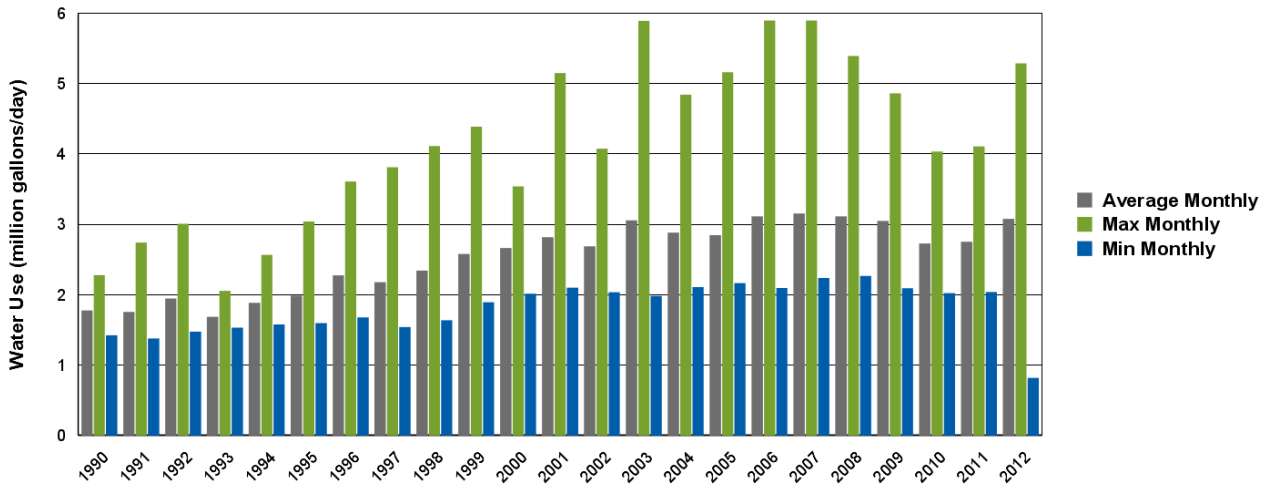
Municipal water treatment: Fluoride (Z), Disinfection, Radionuclides removal, Manganese removal, Iron removal

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 1,060



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	37,000	42,100	47,600
Total Population	37,000	42,100	47,600
Projected Average Daily Water Use (Million Gal/Day)	3.2	3.6	4.1
Total Per Capita Water Use (Gal/Person/Day)	86.49	85.51	86.13
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	83	73	65

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Jackson Twp. Water Supply Profile

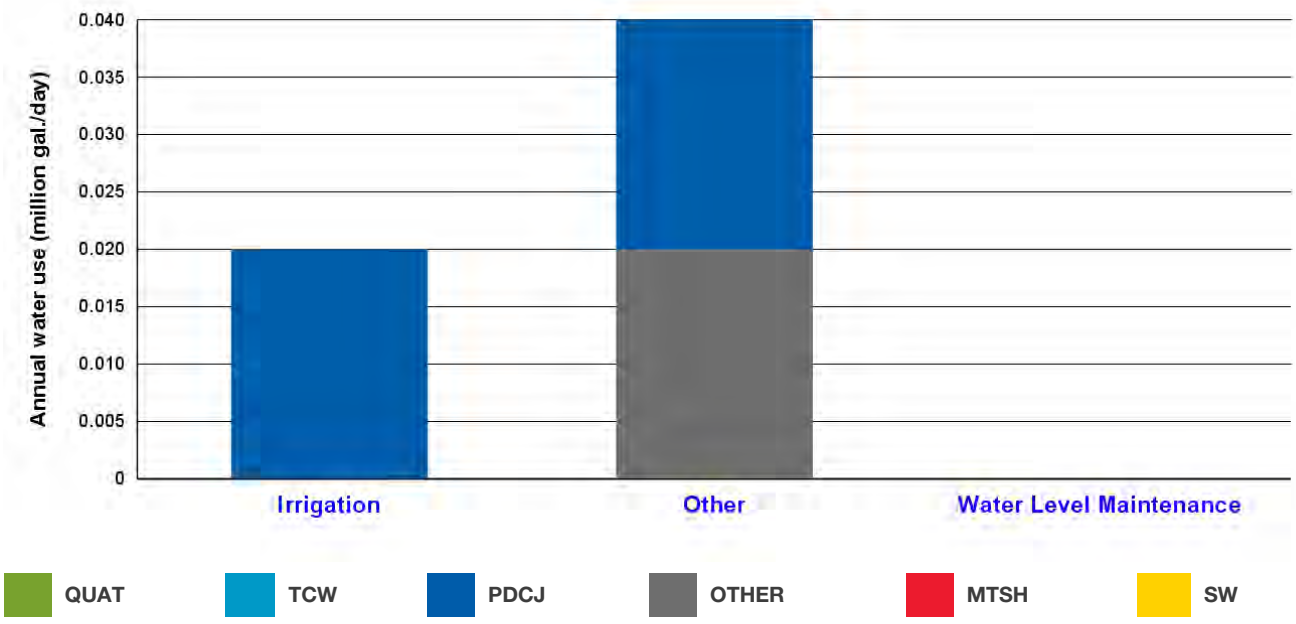
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	3	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

– Compliance with Safe Drinking Water Act standards

– Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

– Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lakeville Water Supply Profile

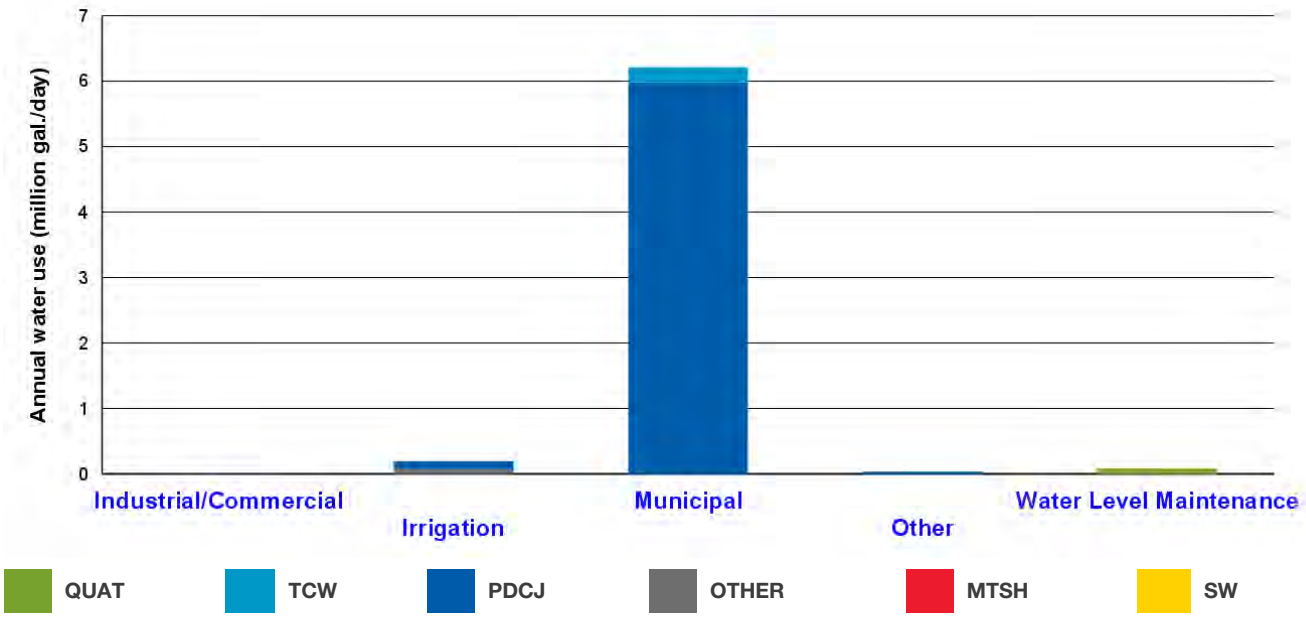
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	17	14	0
Quaternary (QUAT)	0	5	
Tunnel City-Wonewoc (TCW)	1	0	
Other	0	5	
Surface Water	0	5	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

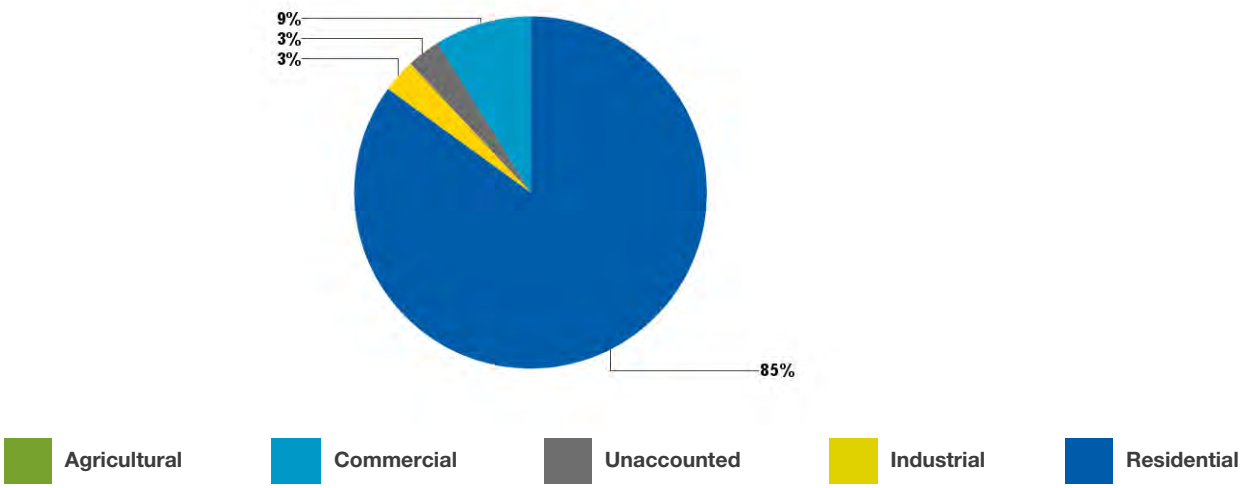
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

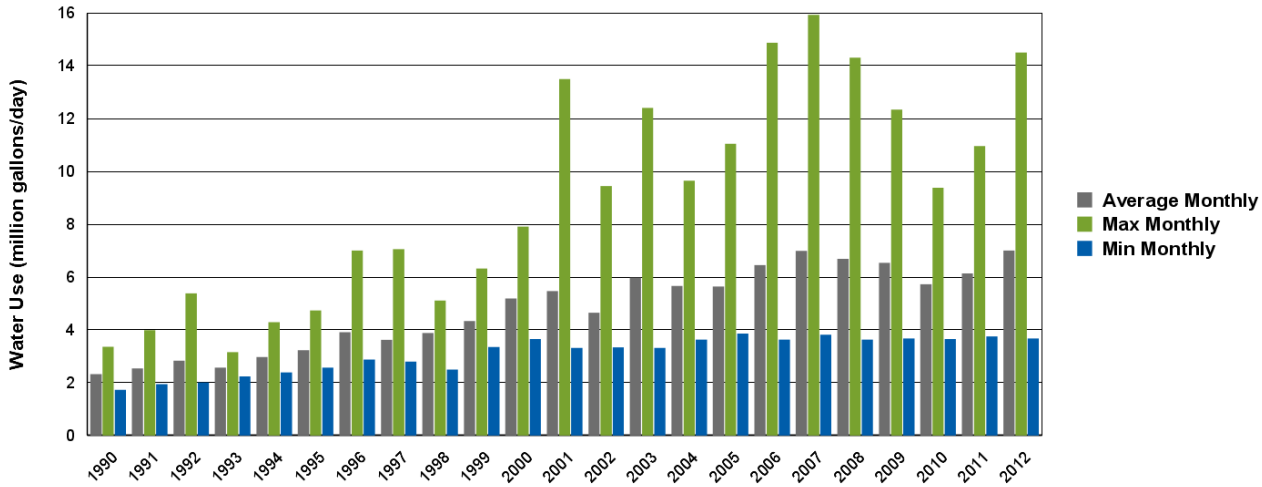
Municipal water treatment: Iron removal, Fluoride (Z), Manganese removal, Iron/Manganese Sequestration, Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 2,469



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	59,617	69,817	80,917
Total Population	61,600	71,800	82,900
Projected Average Daily Water Use (Million Gal/Day)	7.0	8.2	9.6
Total Per Capita Water Use (Gal/Person/Day)	117.42	117.45	118.64
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	118	100	87

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Lilydale Water Supply Profile

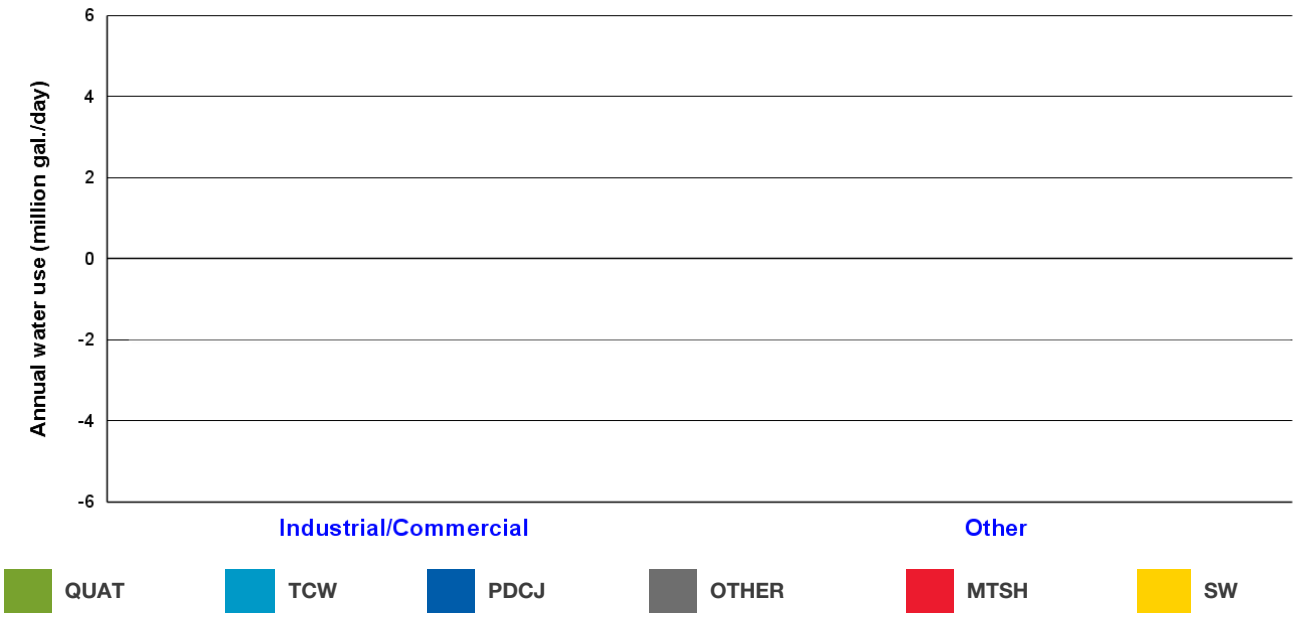
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Louisville Twp. Water Supply Profile

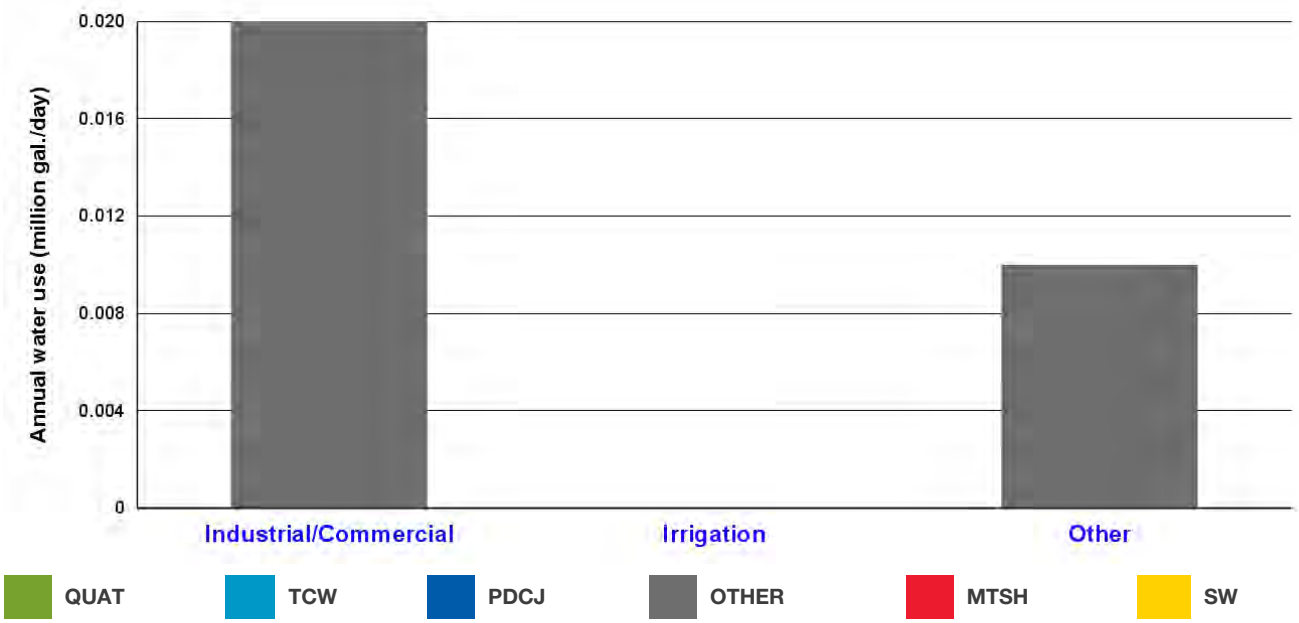
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	1	
Prairie du Chien-Jordan (PDCJ)	0	3	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.

- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Marshan Twp. Water Supply Profile

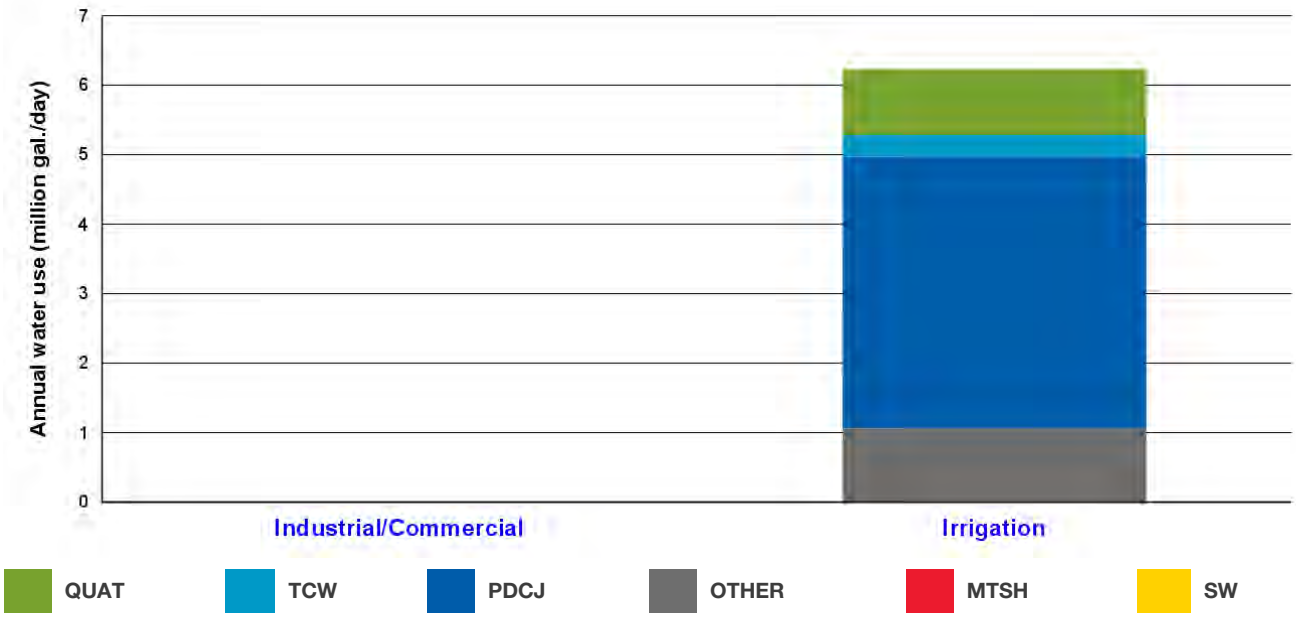
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	58	0
Quaternary (QUAT)	0	15	
Tunnel City-Wonewoc (TCW)	0	4	
Other	0	11	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines

are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Mendota Water Supply Profile

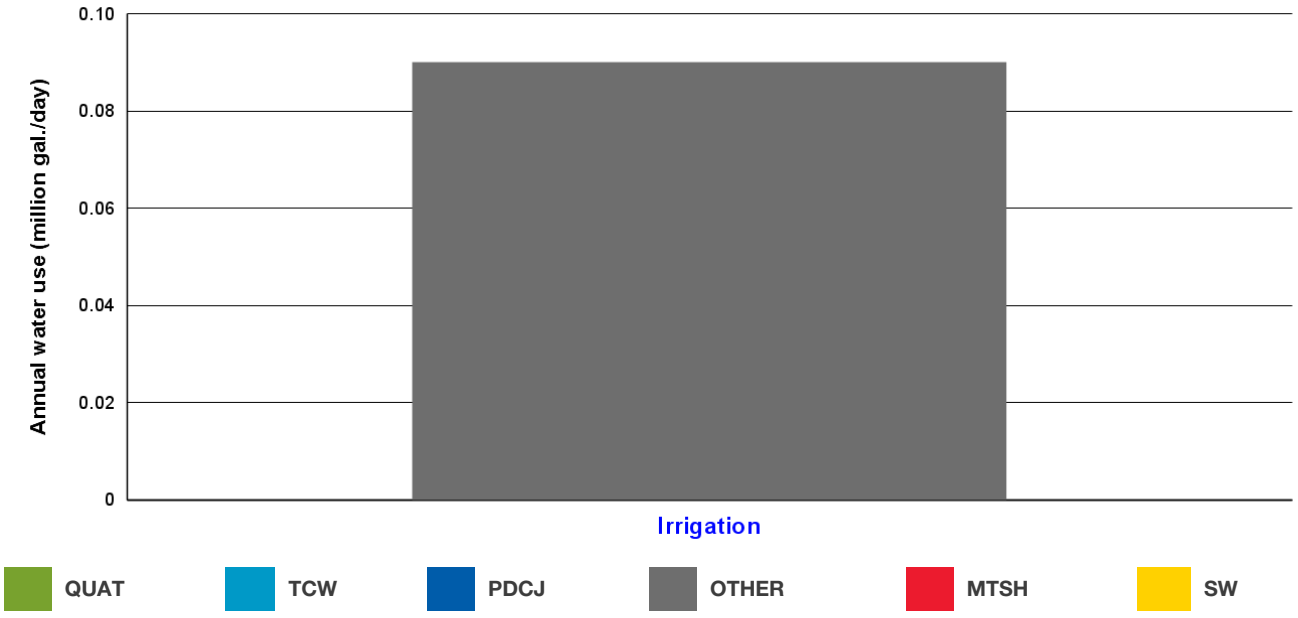
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	6
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.

- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Mendota Heights Water Supply Profile

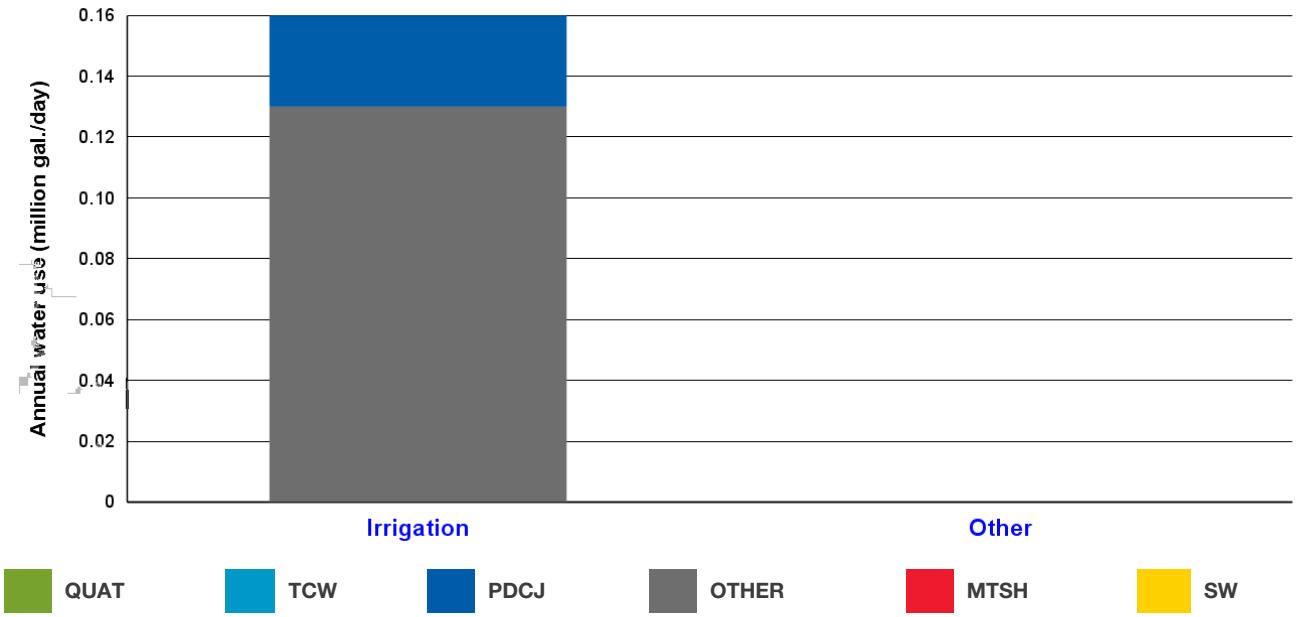
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	5	6
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Miesville Water Supply Profile

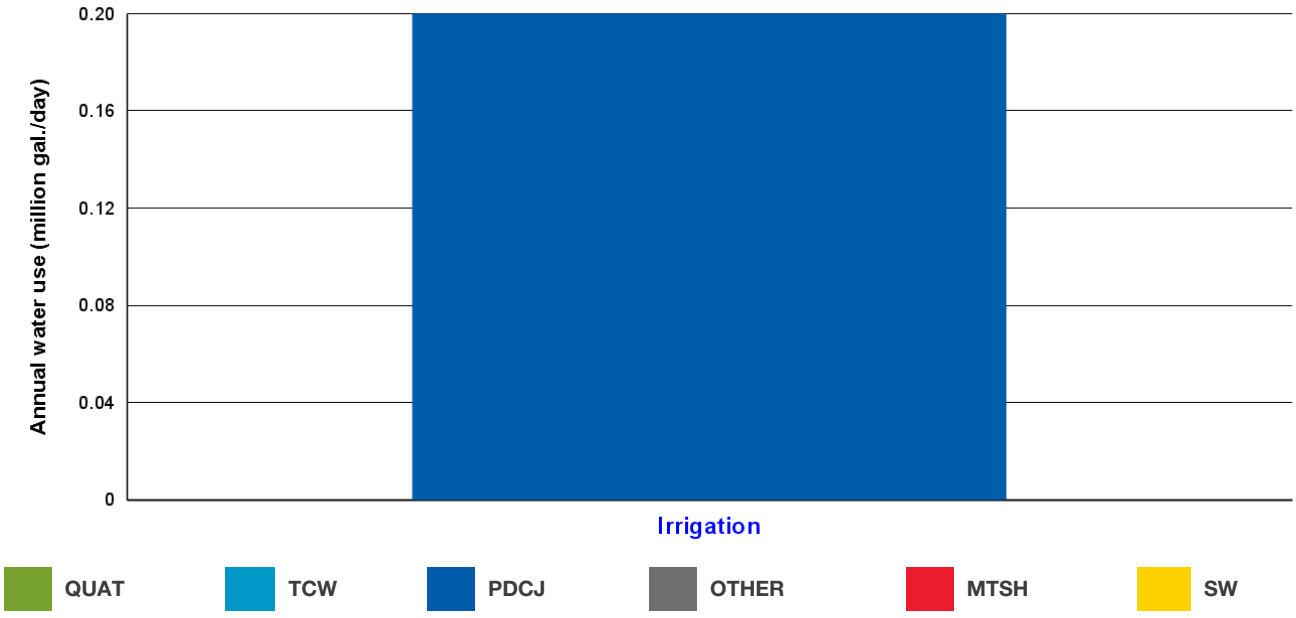
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	3	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

New Market Twp. Water Supply Profile

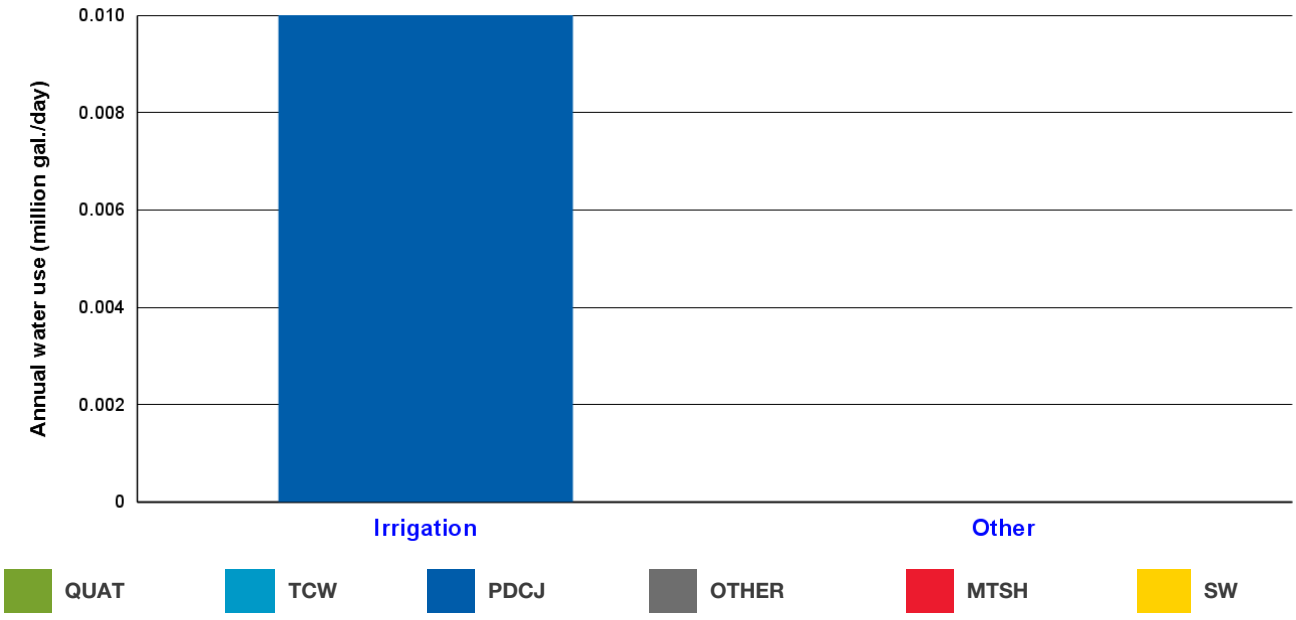
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	3	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

New Trier Water Supply Profile

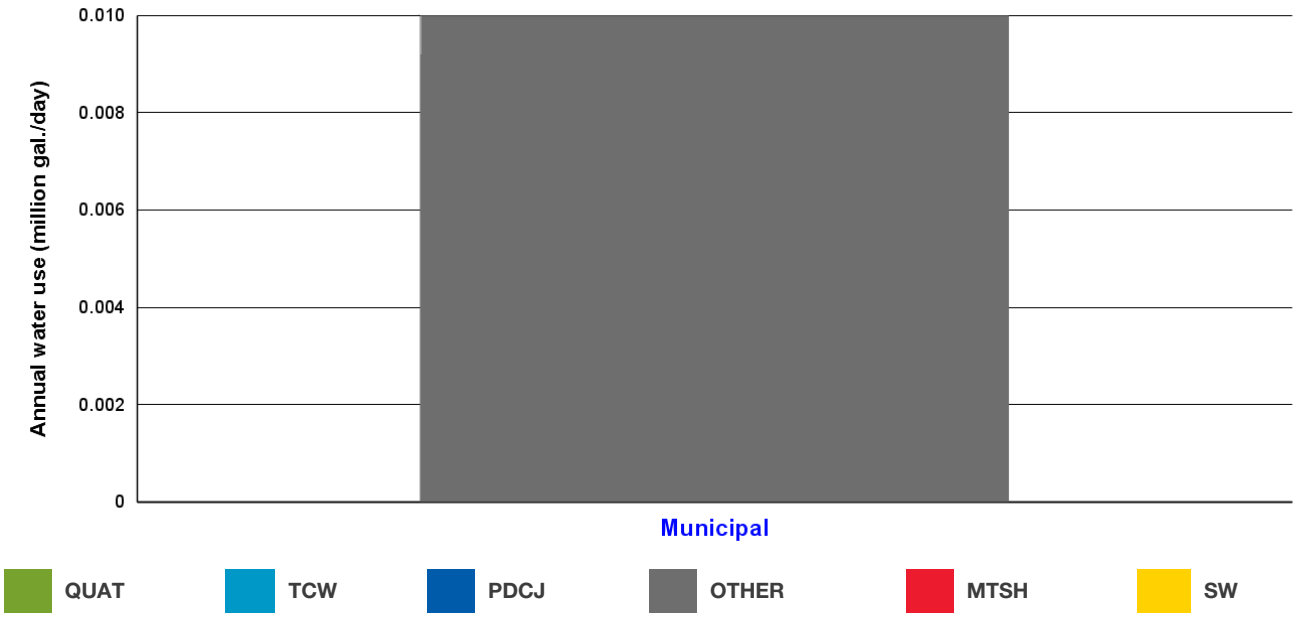
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

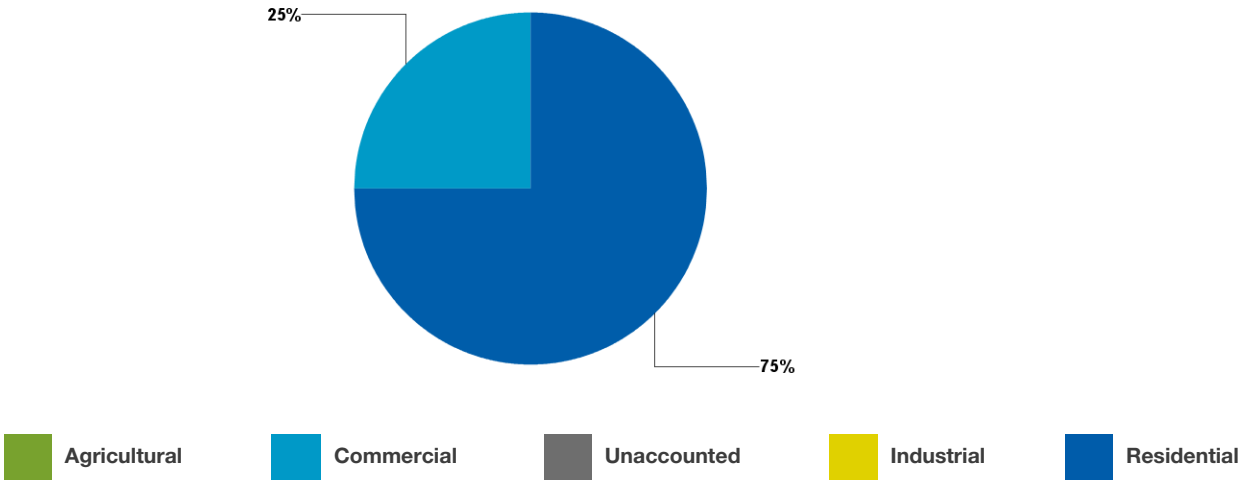
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

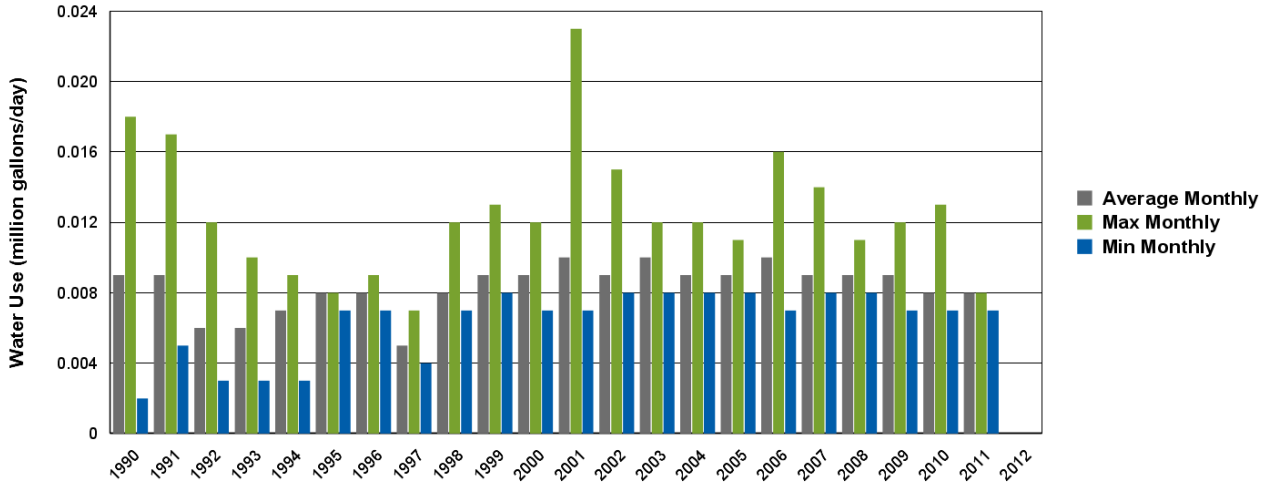
Municipal water treatment: Fluoride (Z), Disinfection

Rate structure: Unknown

2012 Permitted amount for municipal water supply (million gallons/year): 2



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	120	150	150
Total Population	120	150	150
Projected Average Daily Water Use (Million Gal/Day)	0.01	0.01	0.01
Total Per Capita Water Use (Gal/Person/Day)	83.33	66.67	66.67
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	N/A	N/A	N/A

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Nininger Twp. Water Supply Profile

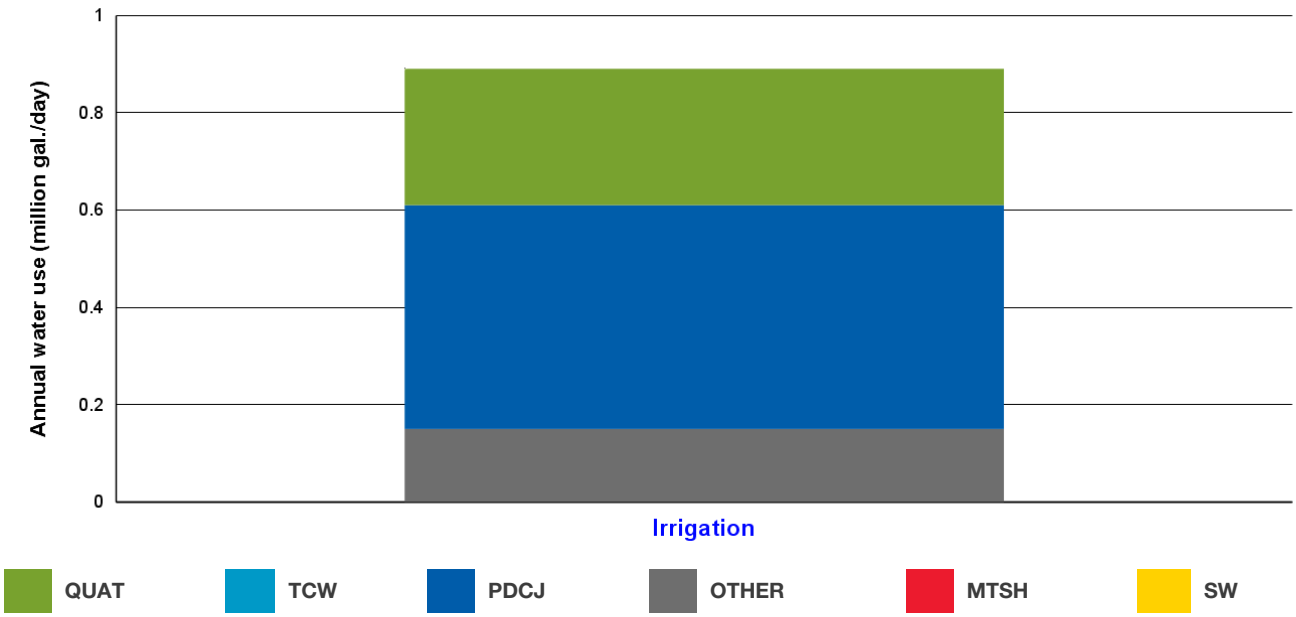
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	5	0
Quaternary (QUAT)	0	4	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	6	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines

are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Northfield Water Supply Profile

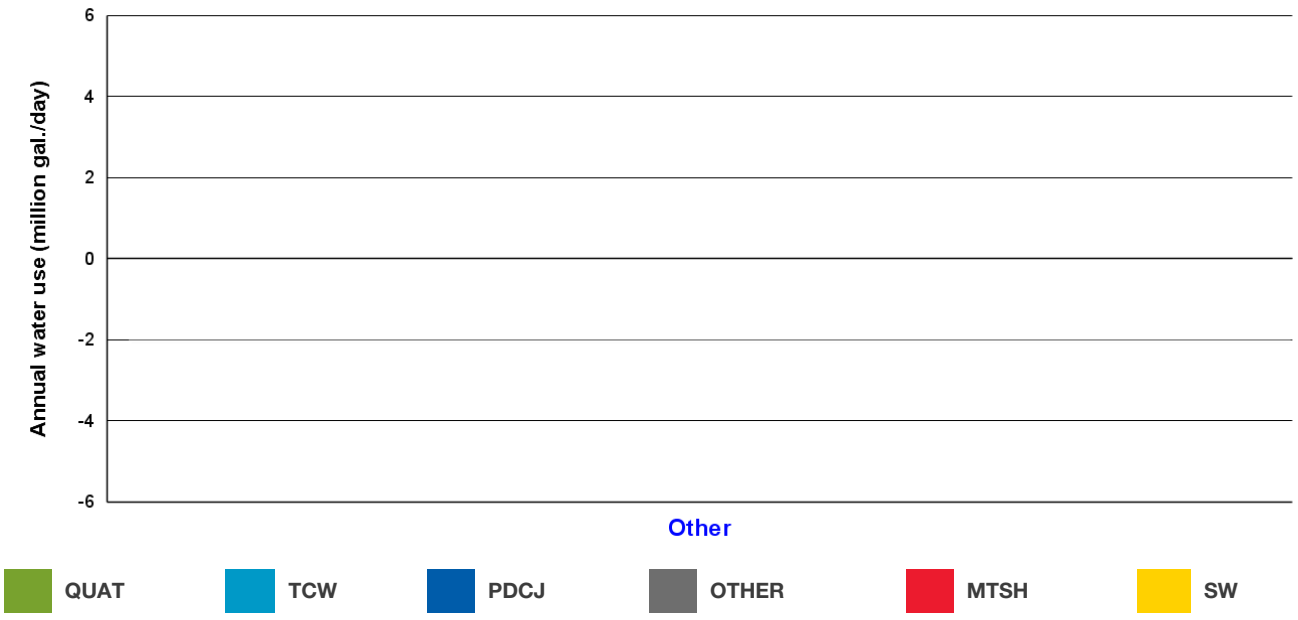
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Prior Lake Water Supply Profile

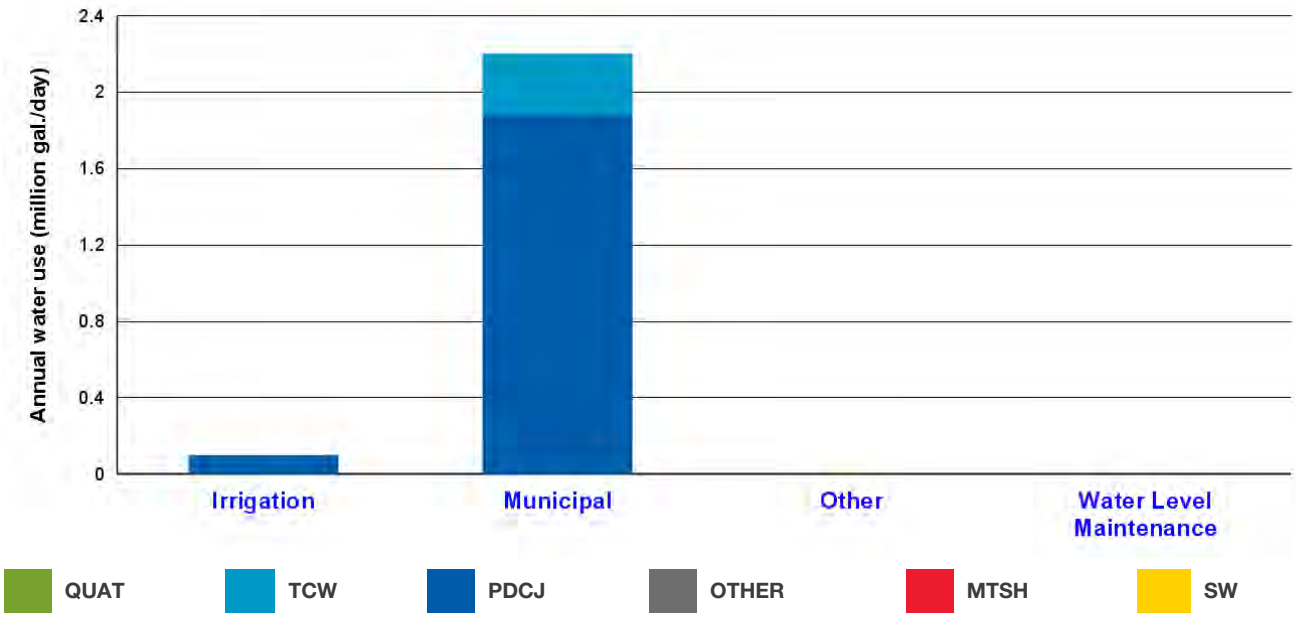
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	5	2	0
Quaternary (QUAT)	2	3	
Tunnel City-Wonewoc (TCW)	2	0	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

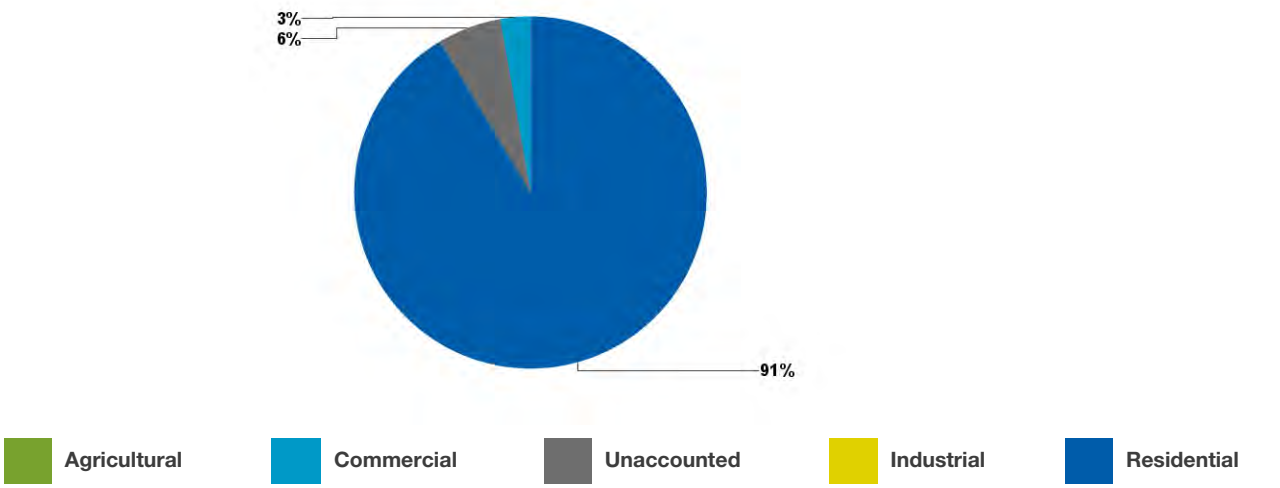
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

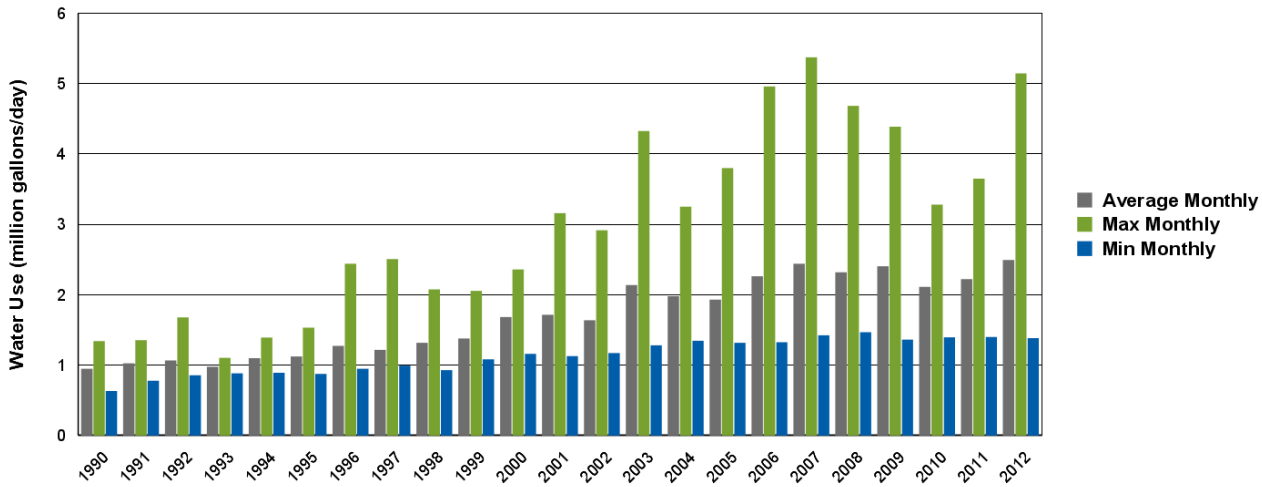
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Other, Fluoride (Z), Iron/ Manganese Removal, Taste/Odor control

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 855



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	25,500	31,300	39,300
Total Population	25,500	31,300	39,300
Projected Average Daily Water Use (Million Gal/Day)	2.7	3.3	4.2
Total Per Capita Water Use (Gal/Person/Day)	105.88	105.43	106.87
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	98	80	63

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

    – Compliance with Safe Drinking Water Act standards

    – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

    – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Randolph Twp. Water Supply Profile

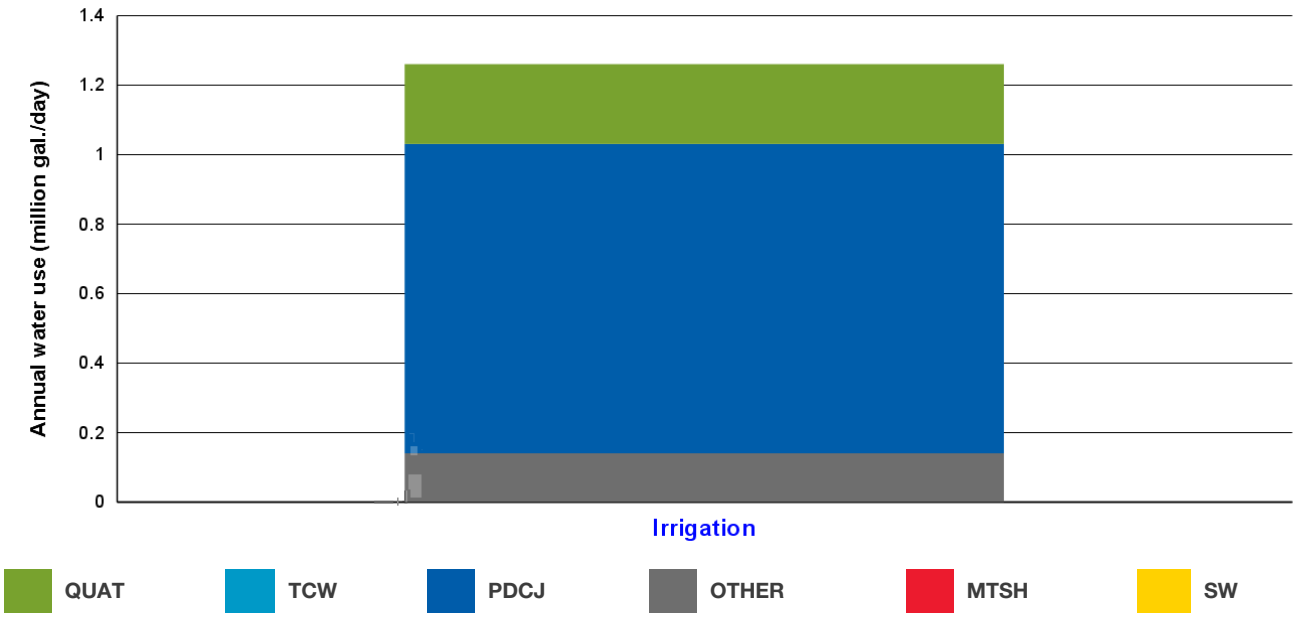
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	16	0
Quaternary (QUAT)	0	8	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Randolph Water Supply Profile

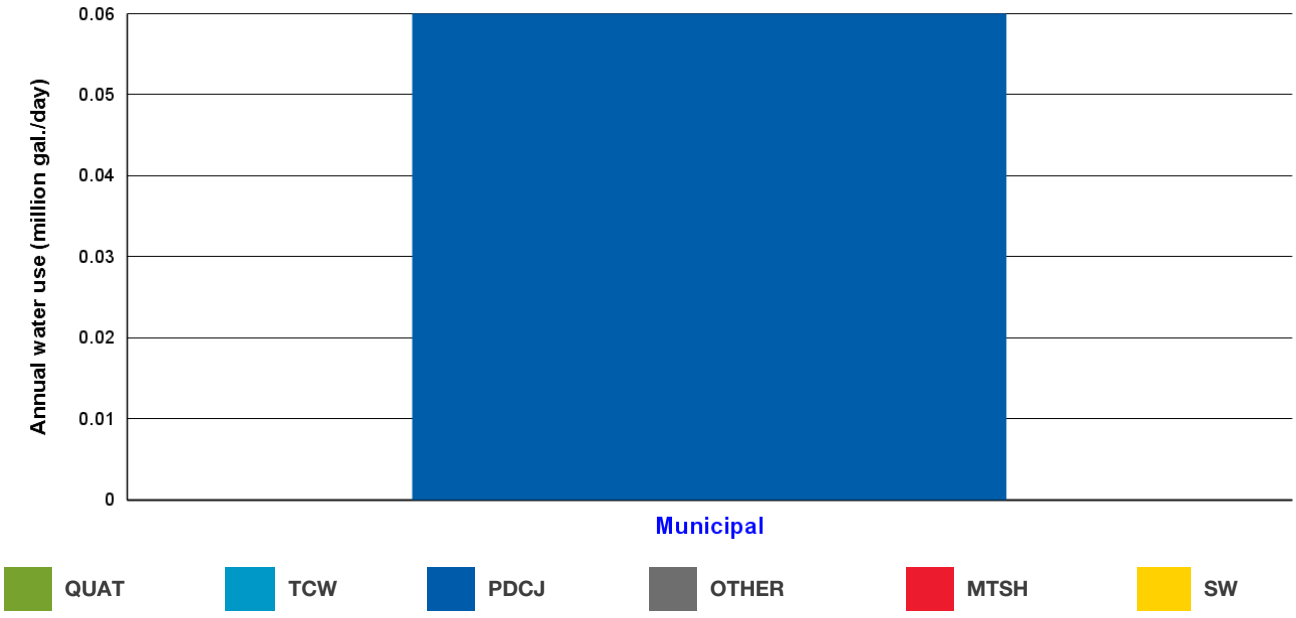
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	1	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

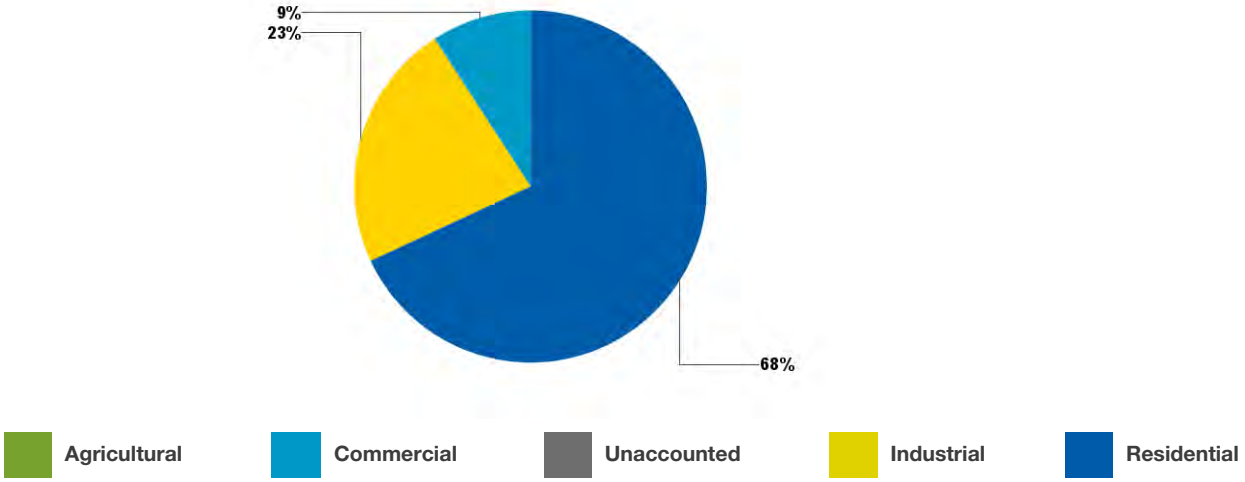
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

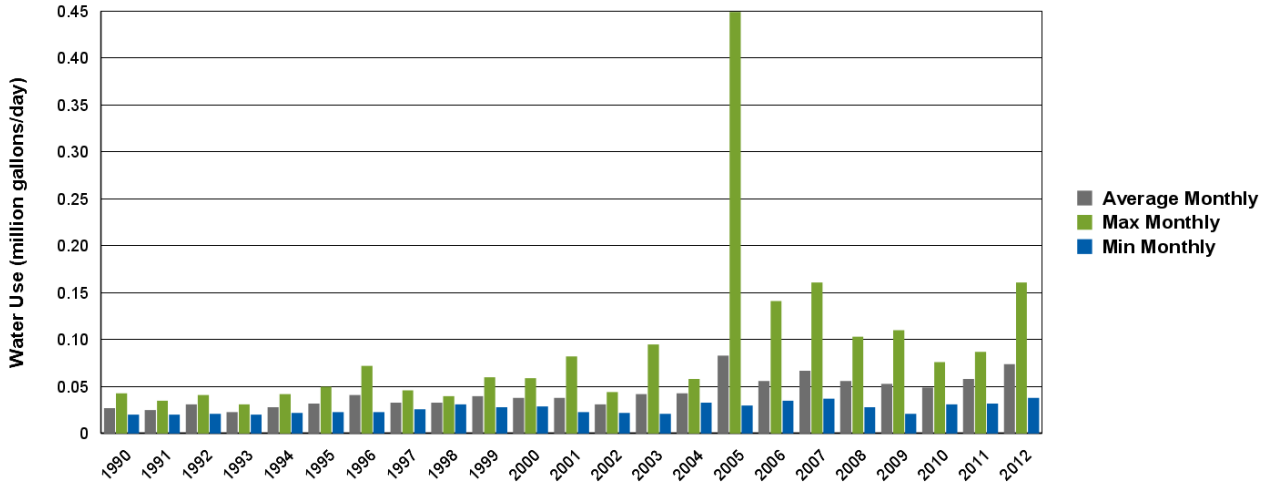
Municipal water treatment: Disinfection, Fluoride (Z)

Rate structure: Unknown

2012 Permitted amount for municipal water supply (million gallons/year): 27



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	450	440	440
Total Population	450	440	440
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	222.22	227.27	227.27
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	165	168	168

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Ravenna Twp. Water Supply Profile

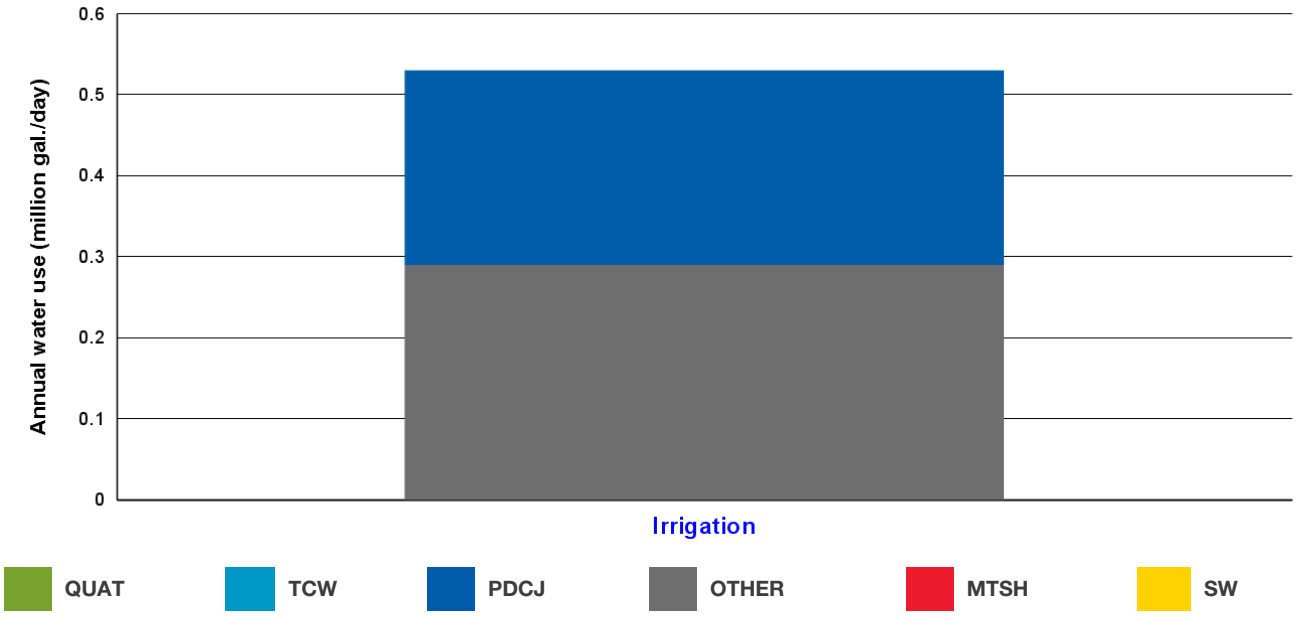
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	4	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional

water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Rosemount Water Supply Profile

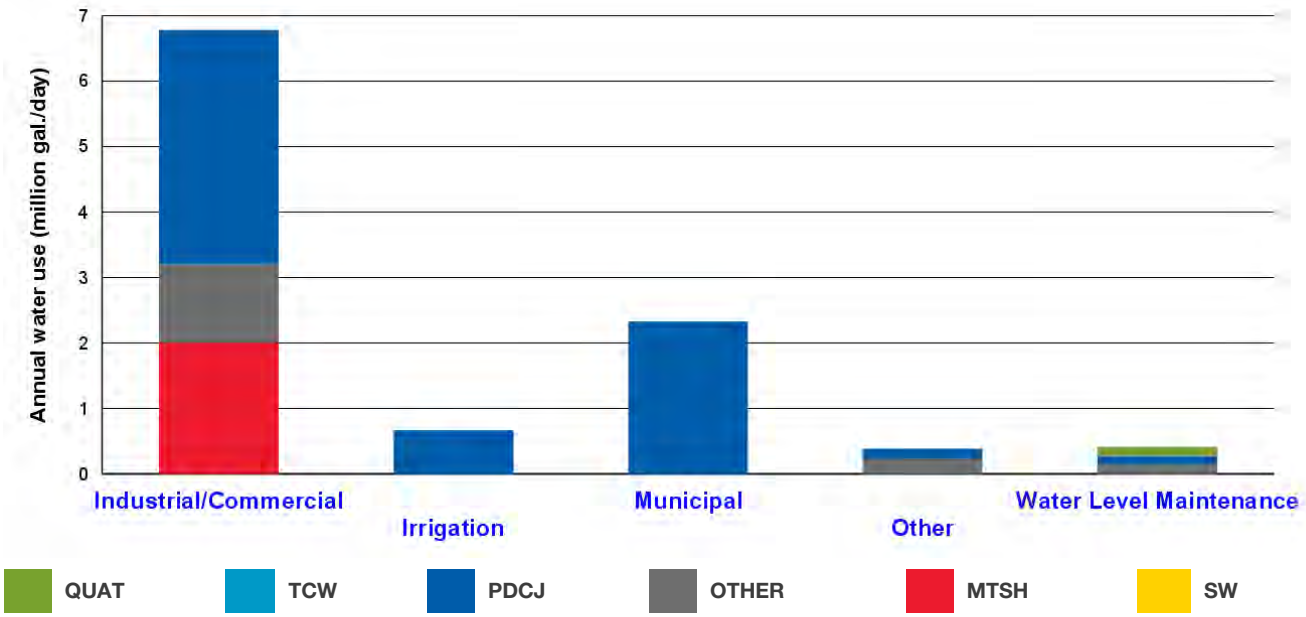
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	6	
Prairie du Chien-Jordan (PDCJ)	12	39	0
Quaternary (QUAT)	0	9	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	12	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

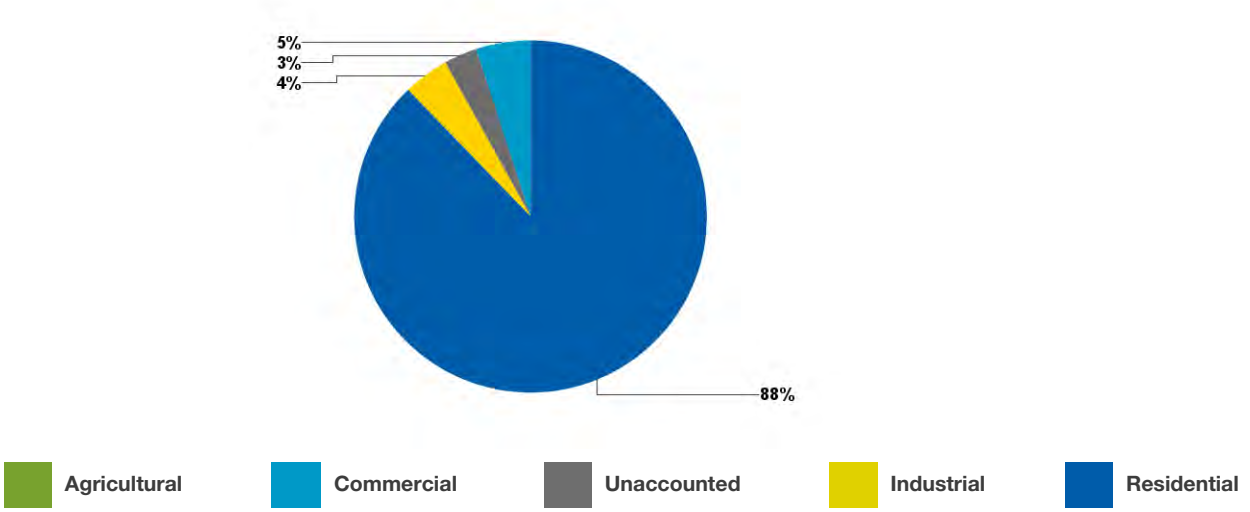
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

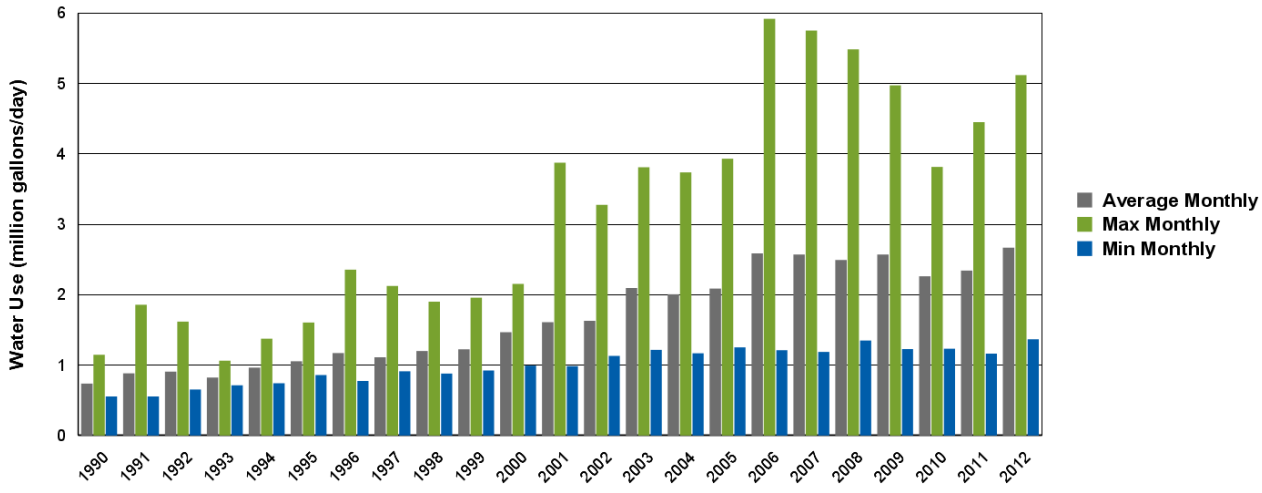
Municipal water treatment: Fluoride (Z), Iron/Manganese Sequestration, Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 937



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	22,937	28,737	34,537
Total Population	24,700	30,500	36,300
Projected Average Daily Water Use (Million Gal/Day)	2.6	3.3	3.9
Total Per Capita Water Use (Gal/Person/Day)	113.35	114.83	112.92
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	116	93	77

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.

- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Savage Water Supply Profile

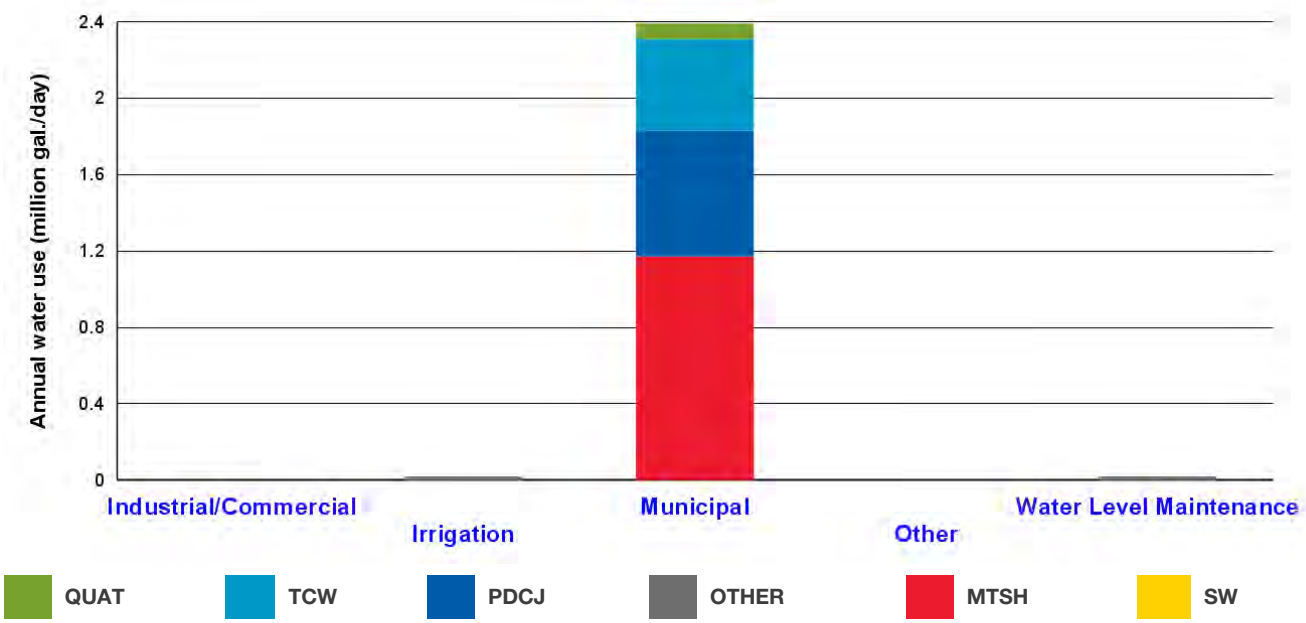
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	4	0	
Prairie du Chien-Jordan (PDCJ)	3	3	0
Quaternary (QUAT)	3	7	
Tunnel City-Wonewoc (TCW)	2	0	
Other	1	4	
Surface Water	0	3	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

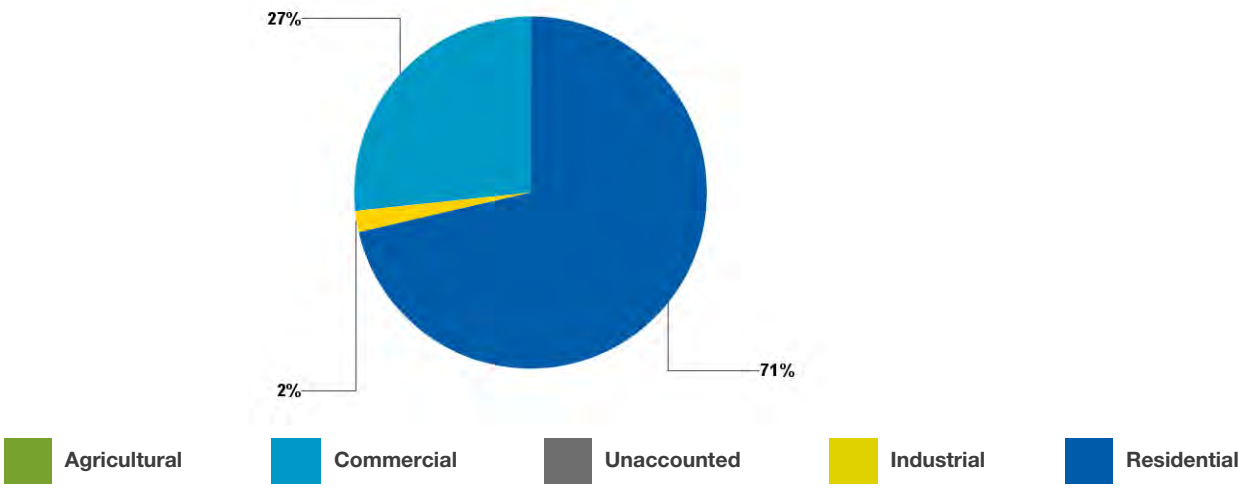
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

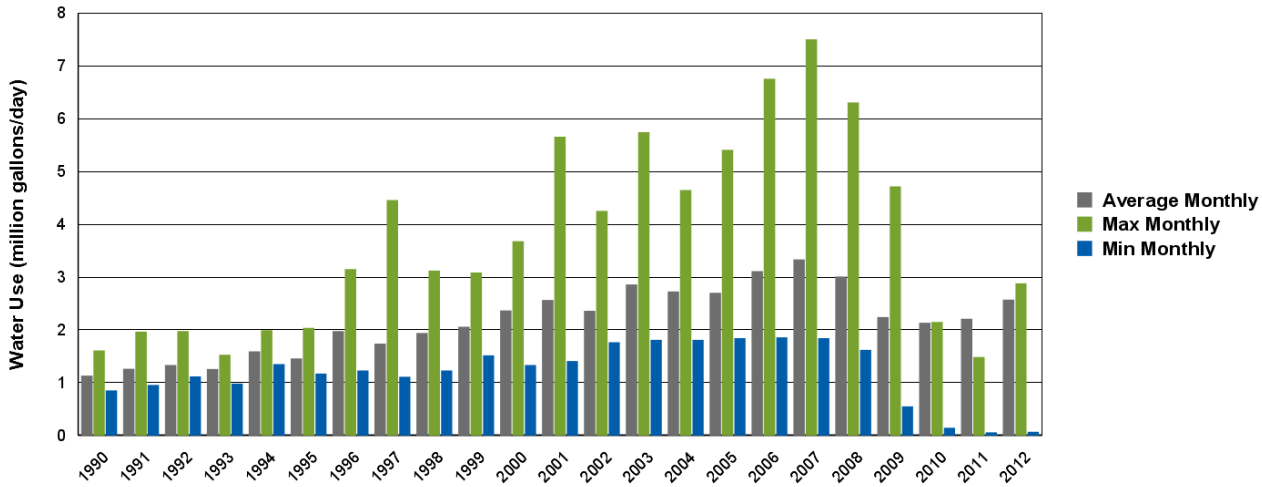
Municipal water treatment: Iron/Manganese Removal, Disinfection, Radionuclides removal, Other, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 1,006



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	32,803	35,603	37,103
Total Population	33,900	36,700	38,200
Projected Average Daily Water Use (Million Gal/Day)	2.6	2.8	2.9
Total Per Capita Water Use (Gal/Person/Day)	79.26	78.65	78.16
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	78	72	69

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
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    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Sciota Twp. Water Supply Profile

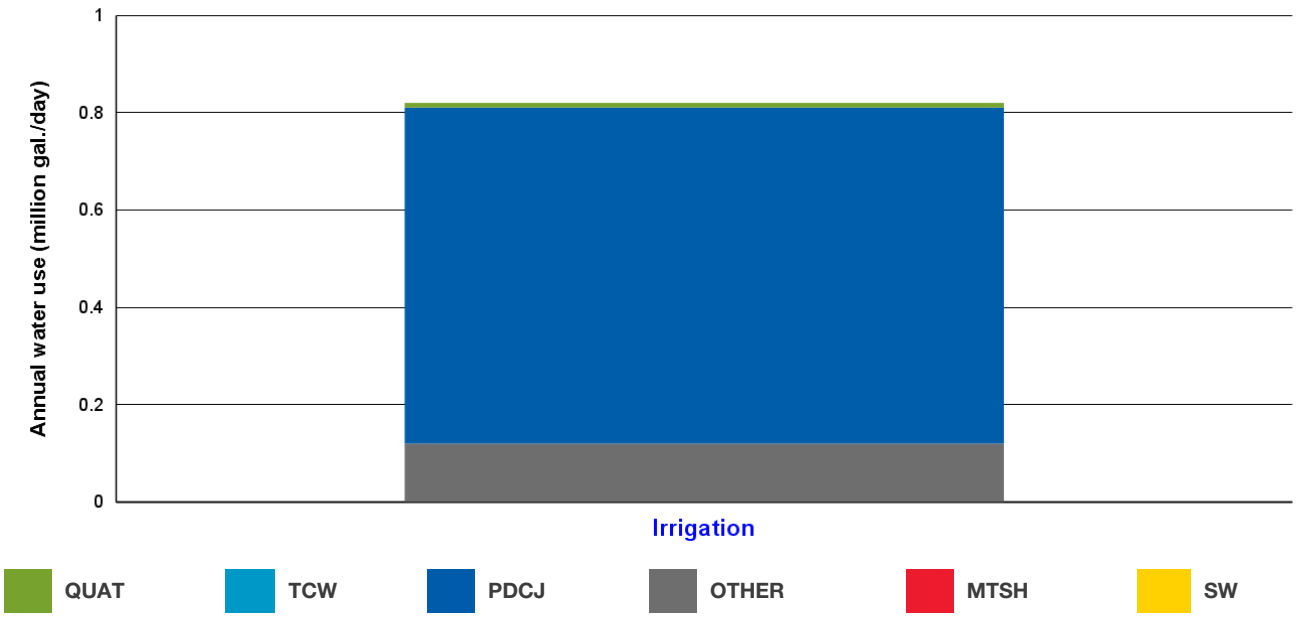
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	16	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	3	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Shakopee Water Supply Profile

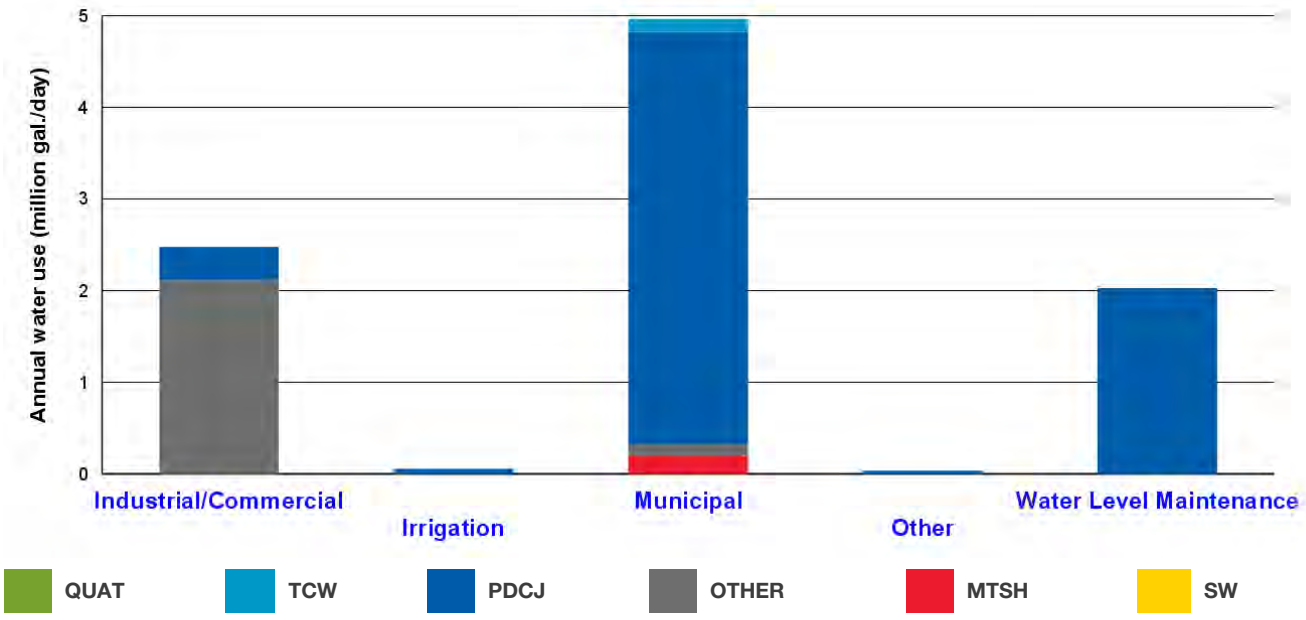
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	14	28	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	2	0	
Other	2	6	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

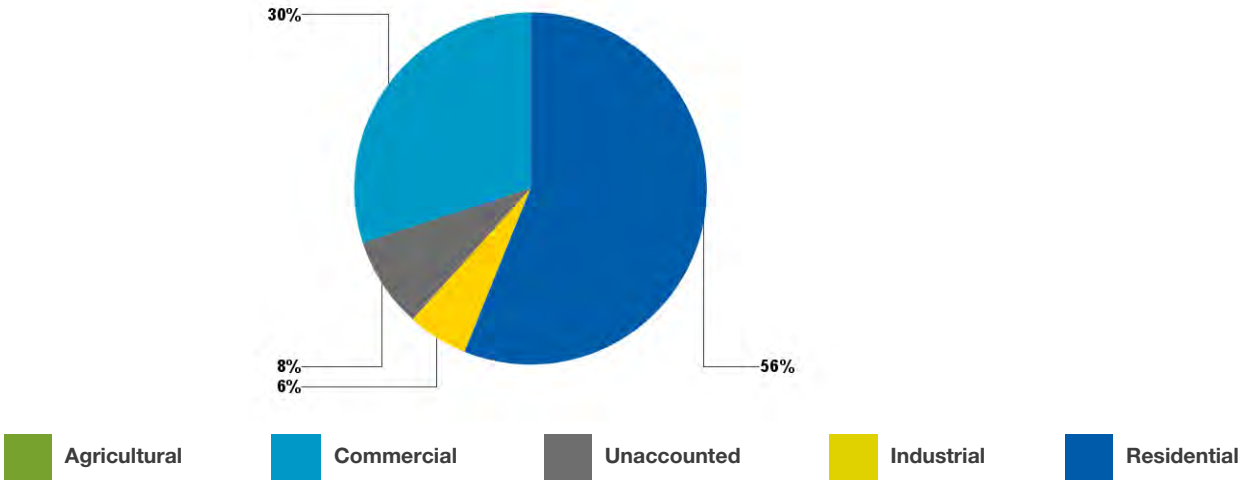
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

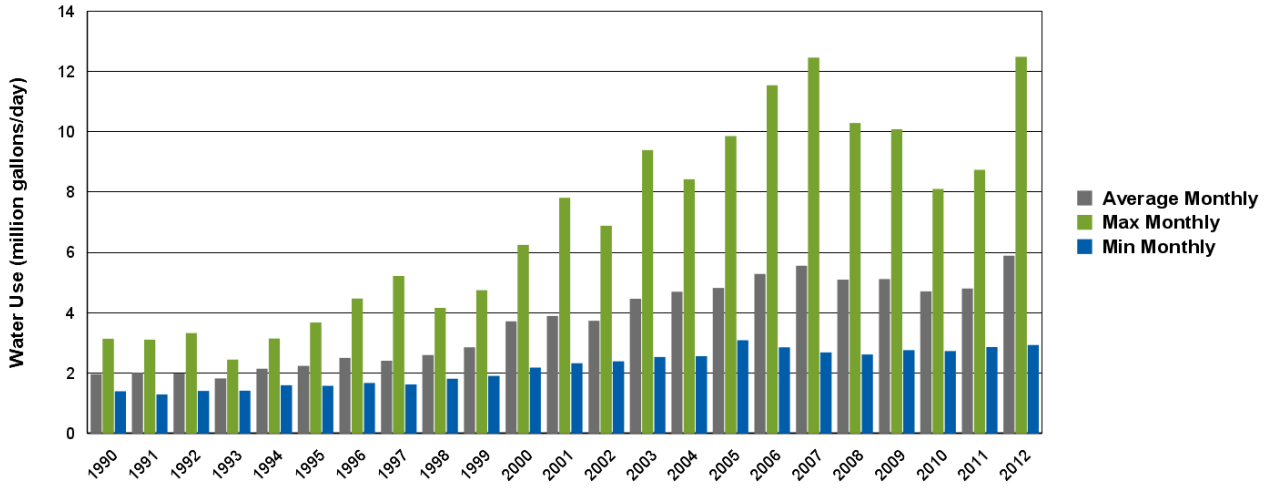
Municipal water treatment: Fluoride (Z), Disinfection, Iron/Manganese Sequestration

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 1,957



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	38,800	46,300	54,400
Total Population	41,800	49,300	57,400
Projected Average Daily Water Use (Million Gal/Day)	4.9	5.9	6.9
Total Per Capita Water Use (Gal/Person/Day)	126.29	127.43	126.84
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	152	127	108

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

South St. Paul Water Supply Profile

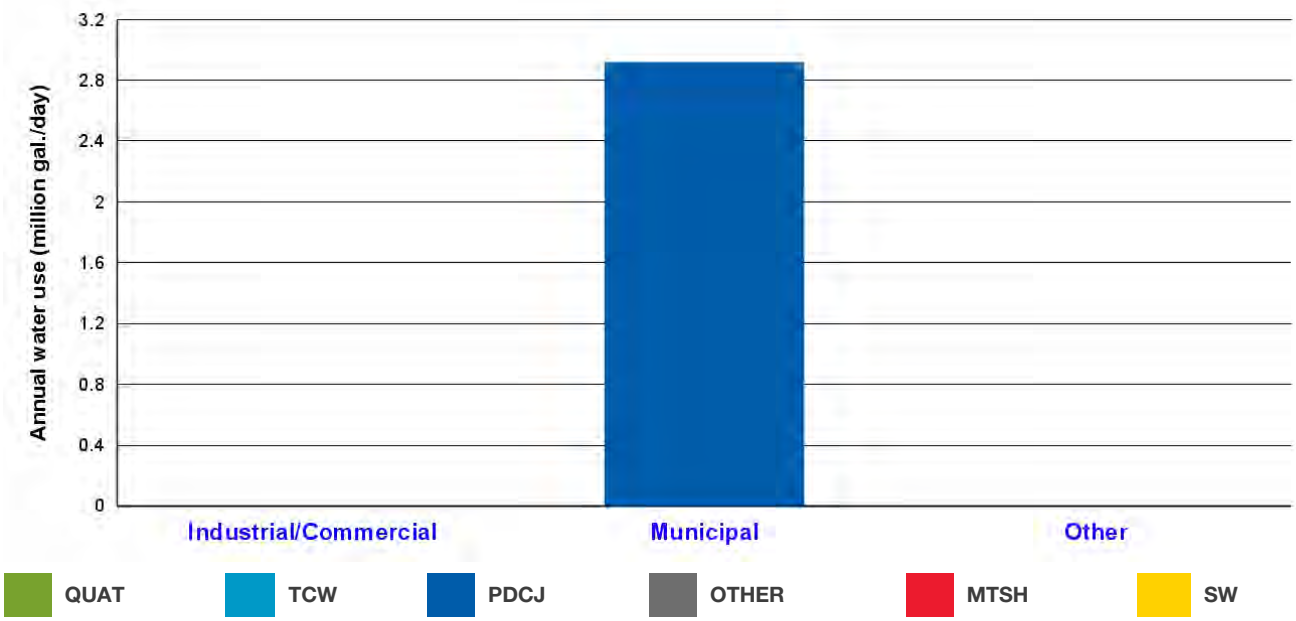
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	6	2	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	5	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

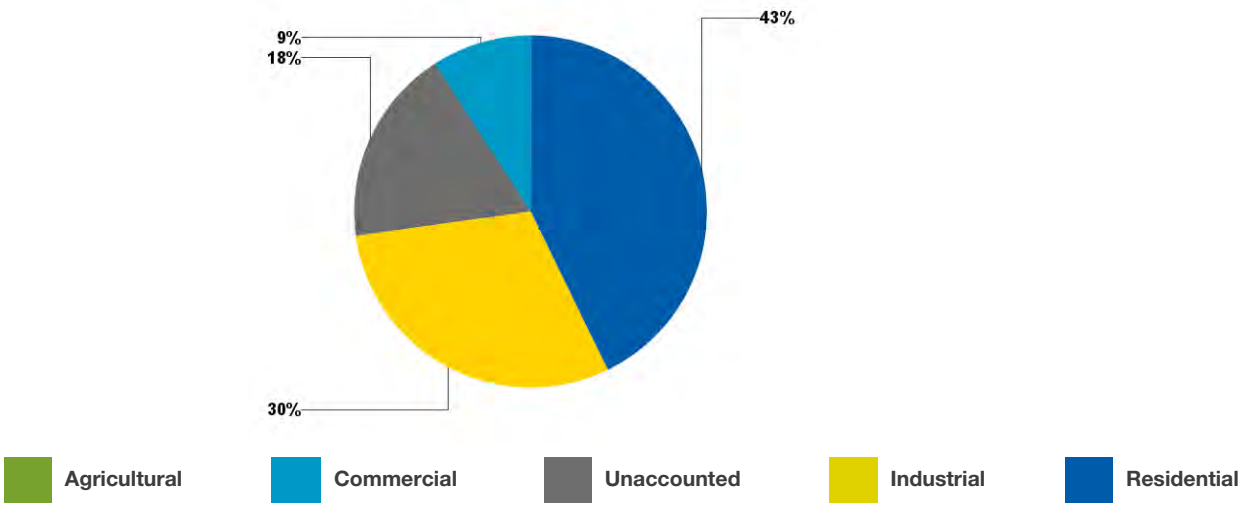
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

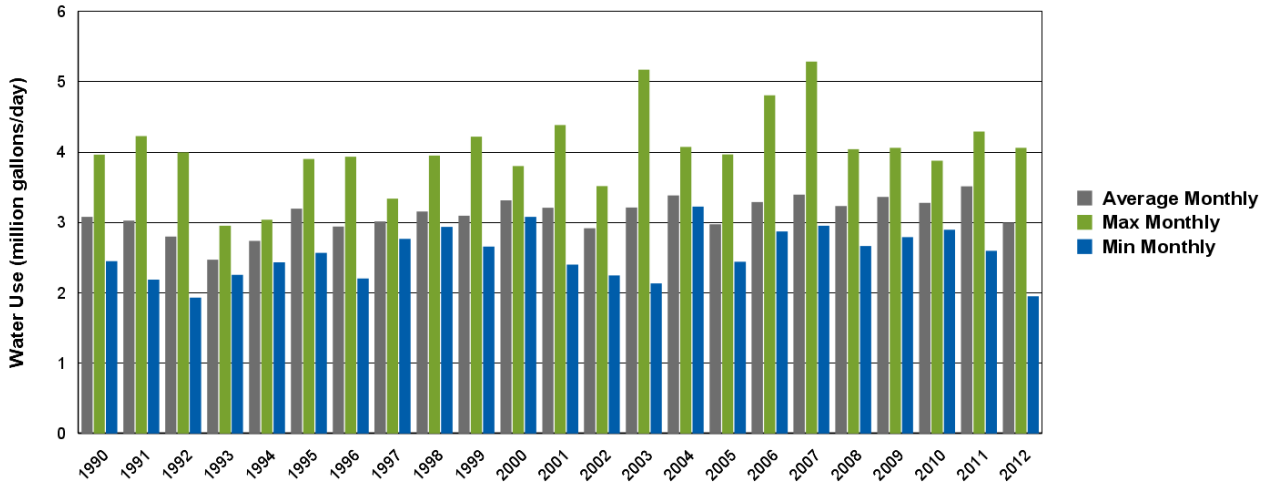
Municipal water treatment: Fluoride (Z)

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 907



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	21,282	21,982	22,482
Total Population	21,300	22,000	22,500
Projected Average Daily Water Use (Million Gal/Day)	3.4	3.6	3.6
Total Per Capita Water Use (Gal/Person/Day)	159.76	163.77	160.13
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	141	136	133

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Spring Lake Twp. Water Supply Profile

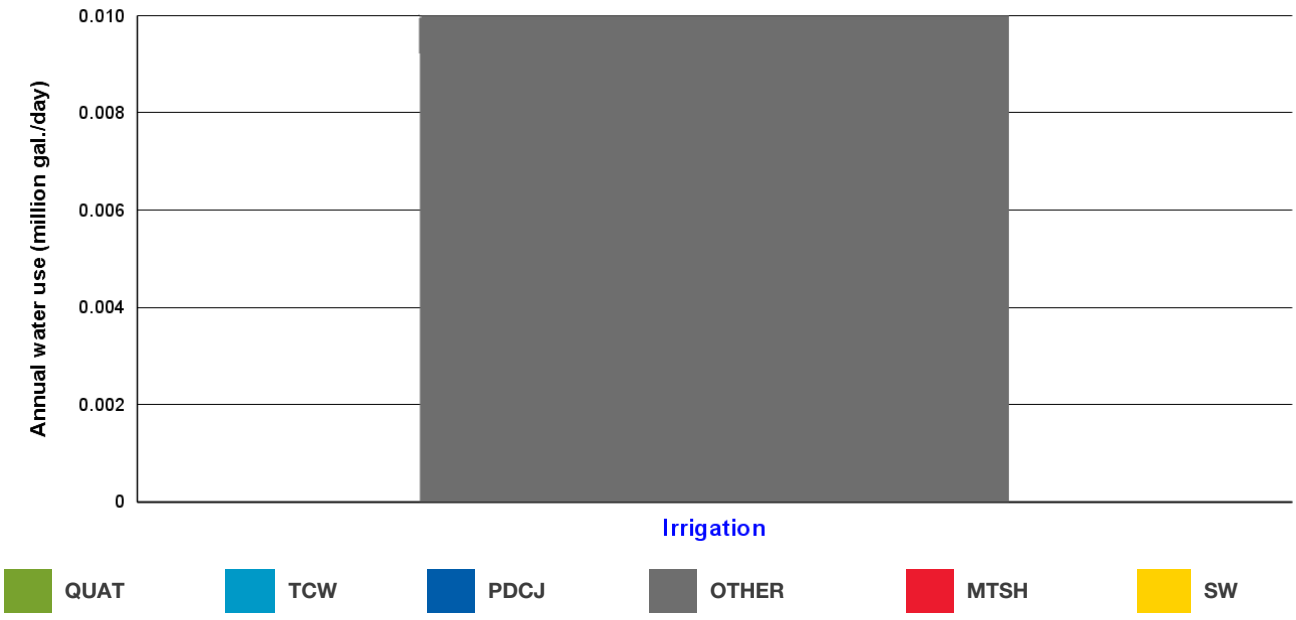
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Sunfish Lake Water Supply Profile

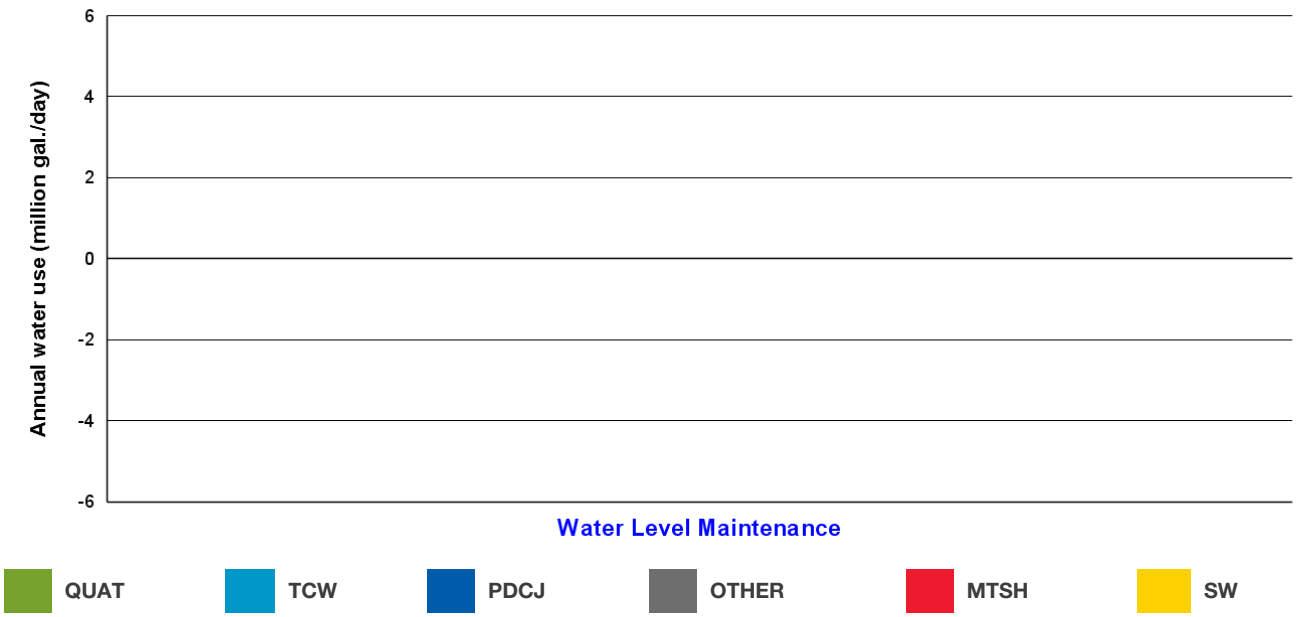
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

  – Compliance with Safe Drinking Water Act standards

  – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

  – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Vermillion Twp. Water Supply Profile

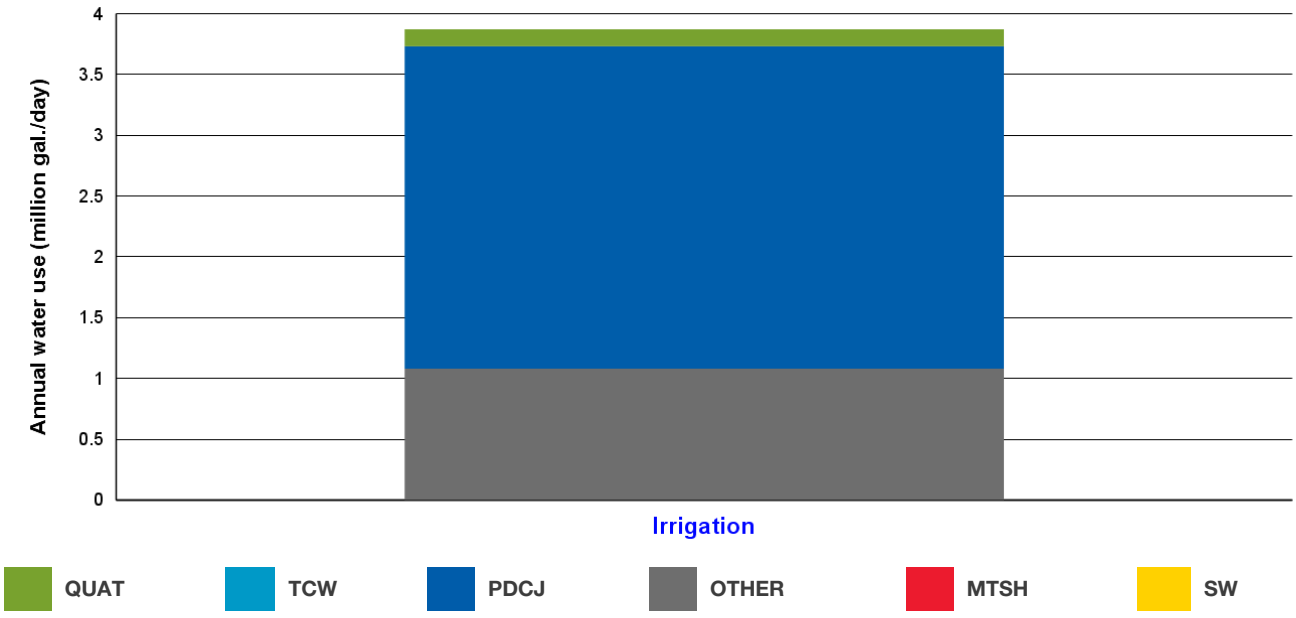
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	46	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	18	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines

are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Vermillion Water Supply Profile

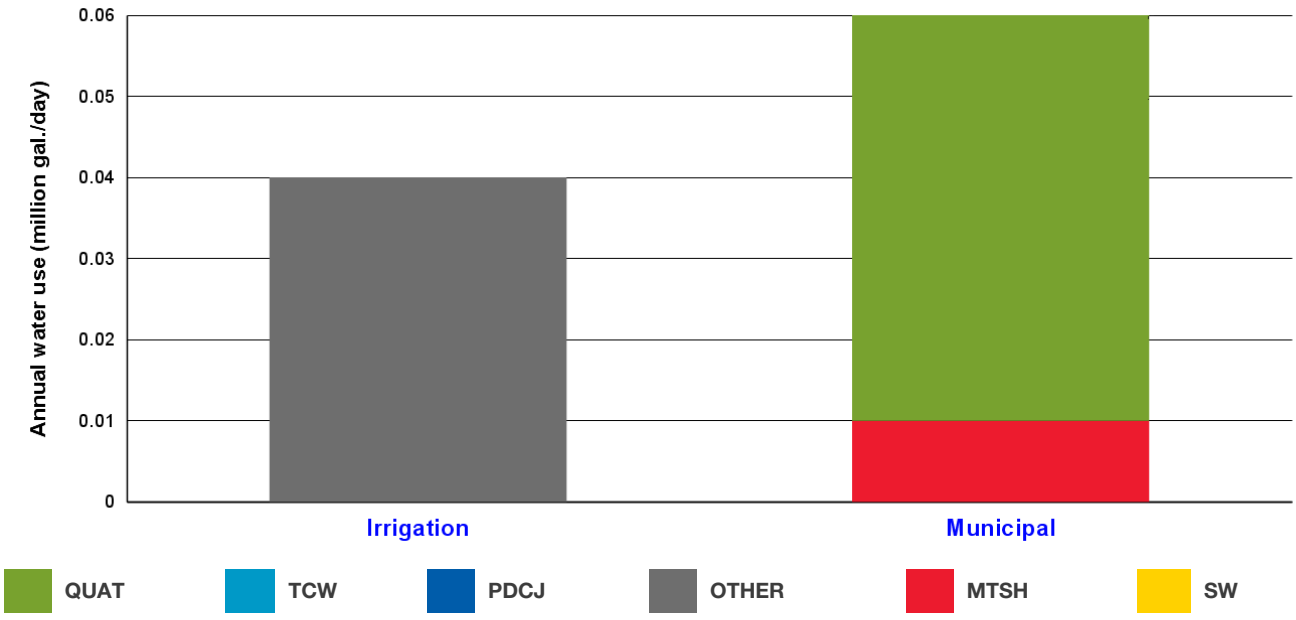
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

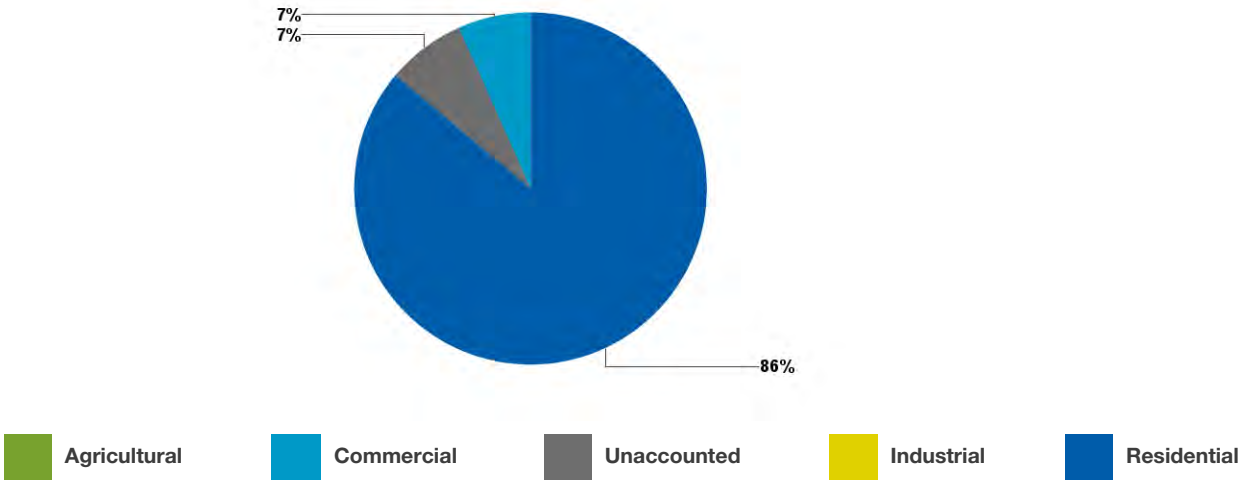
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

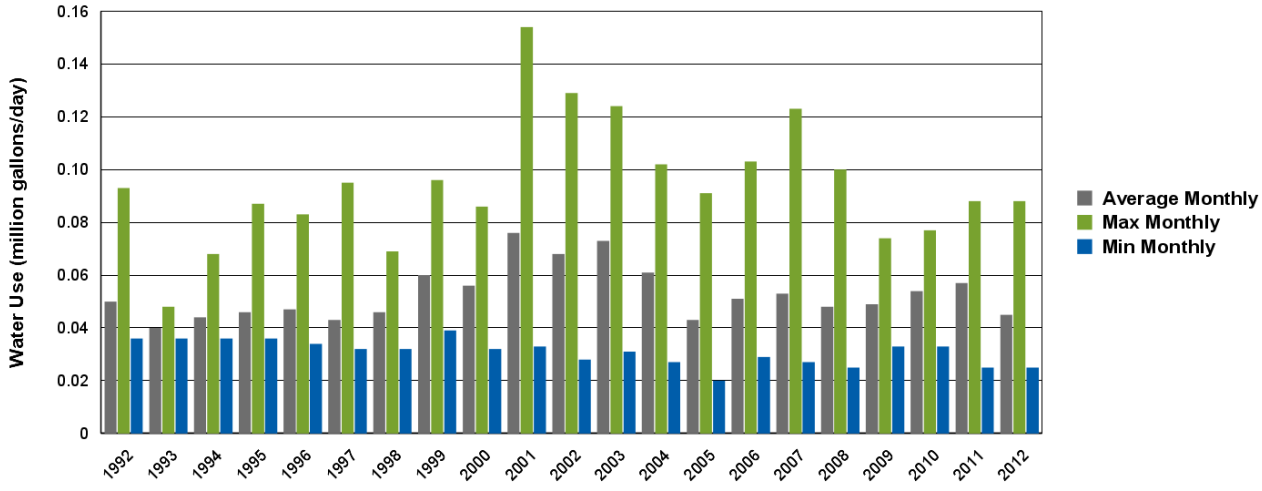
Municipal water treatment: Disinfection, Fluoride (Z)

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 14



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	420	420	410
Total Population	420	420	410
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	238.10	238.10	243.90
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	106	106	109

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be

developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Waterford Twp. Water Supply Profile

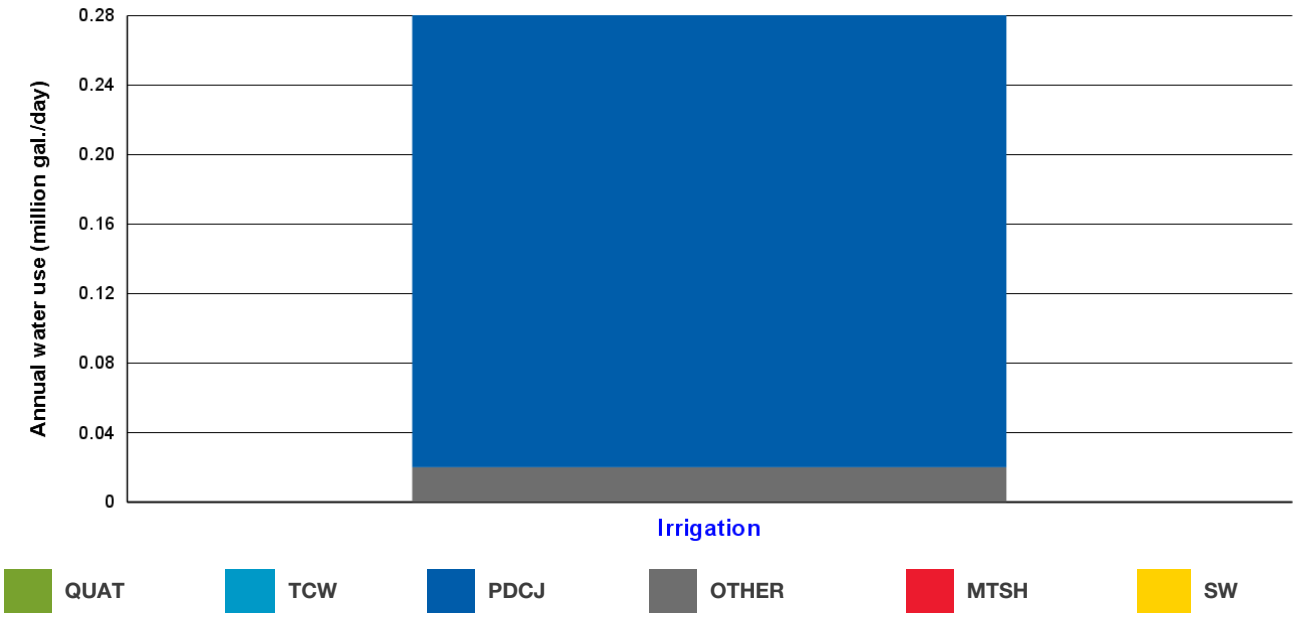
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	8	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where

significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

West St. Paul Water Supply Profile

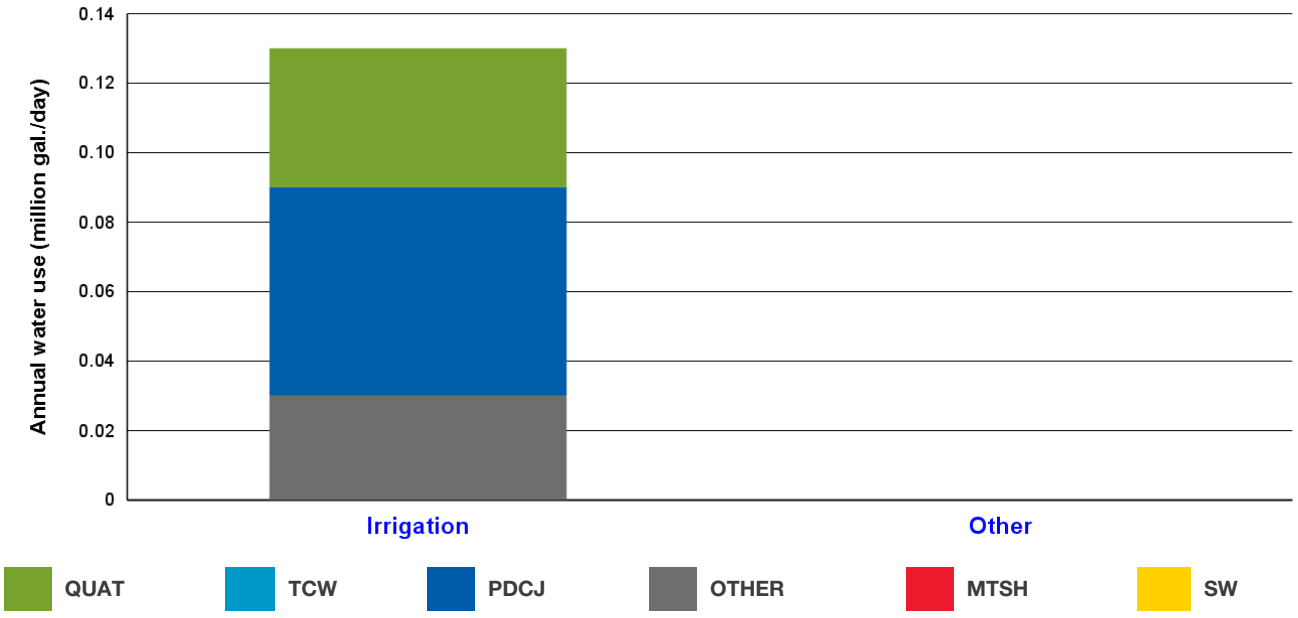
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by St. Paul.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	3	6
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	1	7

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule

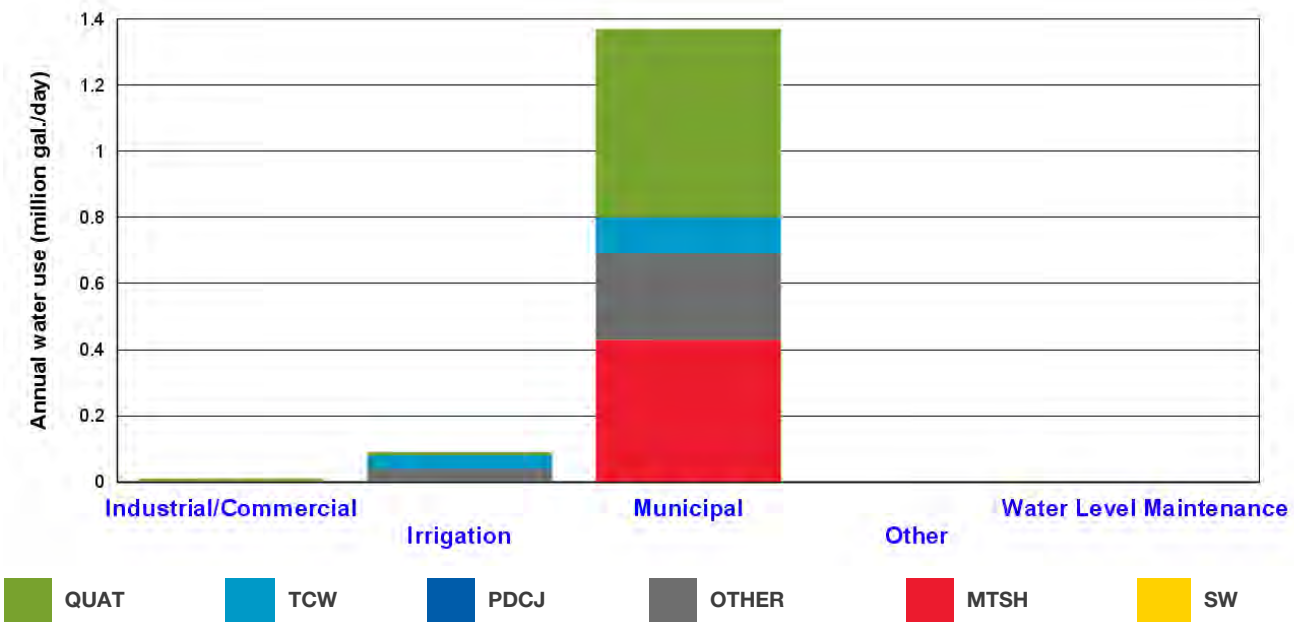
for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Southwest Scott County Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	14,800	17,300	24,000
Total Population	14,800	17,300	24,000
Projected Average Daily Water Use (Million Gal/Day)	0.8	0.9	1.2
Total Per Capita Water Use (Gal/Person/Day)	96	96	96
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	79	68	48

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system

  - A spring has been mapped in or nearby the community

- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Belle Plaine Twp. Water Supply Profile

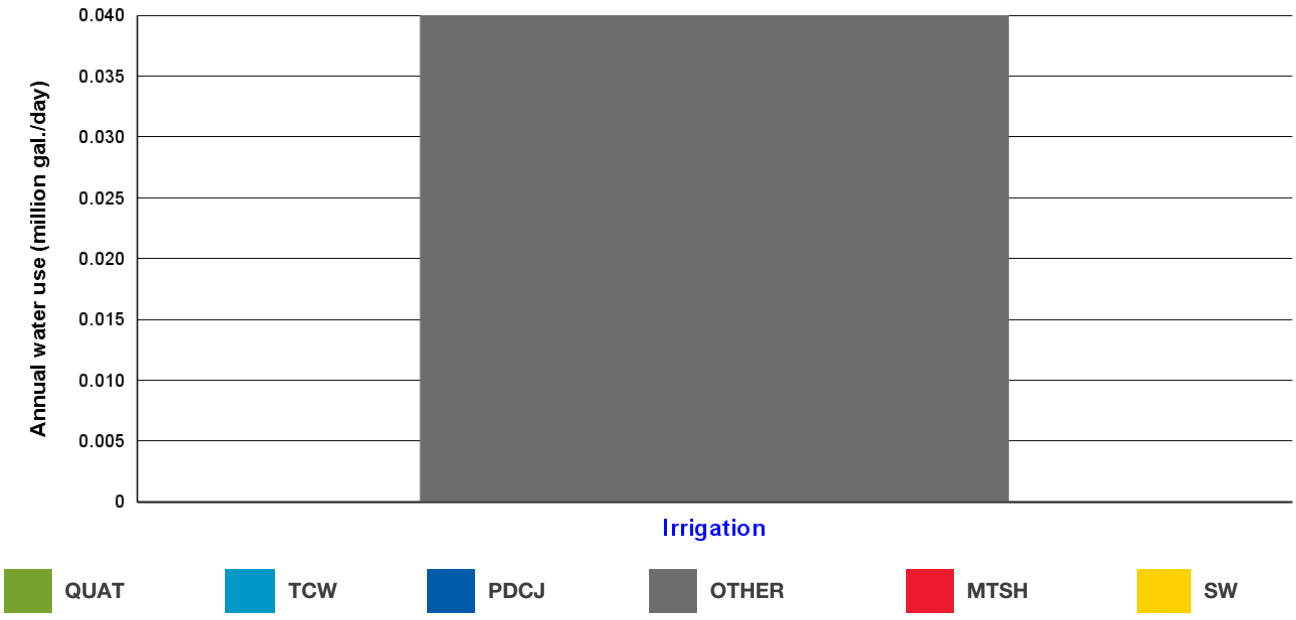
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Belle Plaine Water Supply Profile

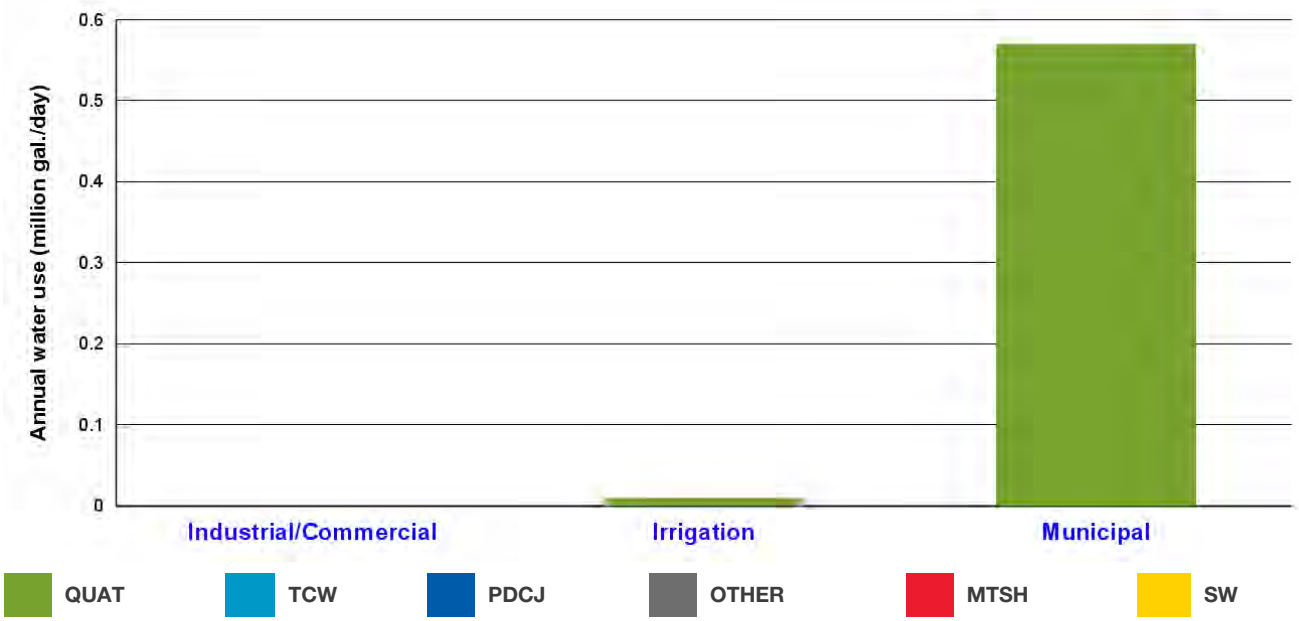
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	4	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

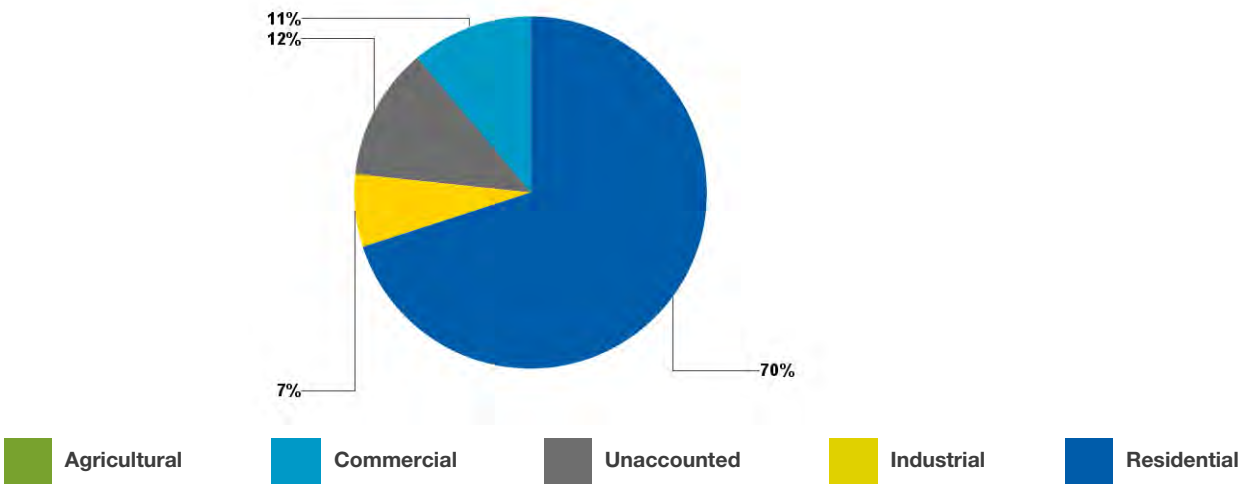
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

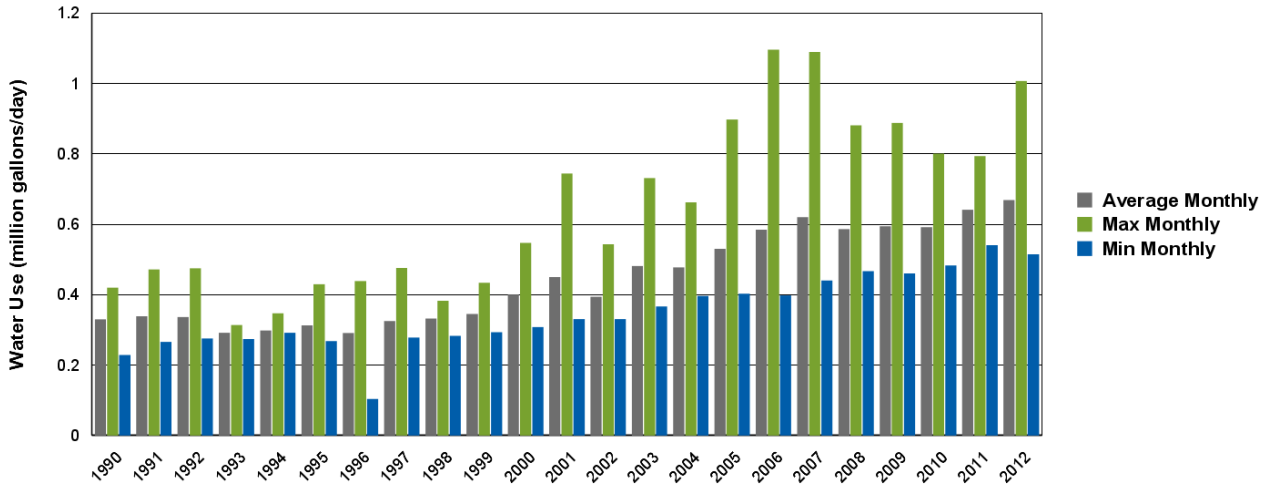
Municipal water treatment: Iron/Manganese Removal, Fluoride (Z), Iron/Manganese Sequestration, Taste/Odor control, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 214



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	7,700	9,600	13,300
Total Population	7,700	9,600	13,300
Projected Average Daily Water Use (Million Gal/Day)	0.8	1.0	1.3
Total Per Capita Water Use (Gal/Person/Day)	103.90	104.17	97.74
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	87	70	50

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Blakeley Twp. Water Supply Profile

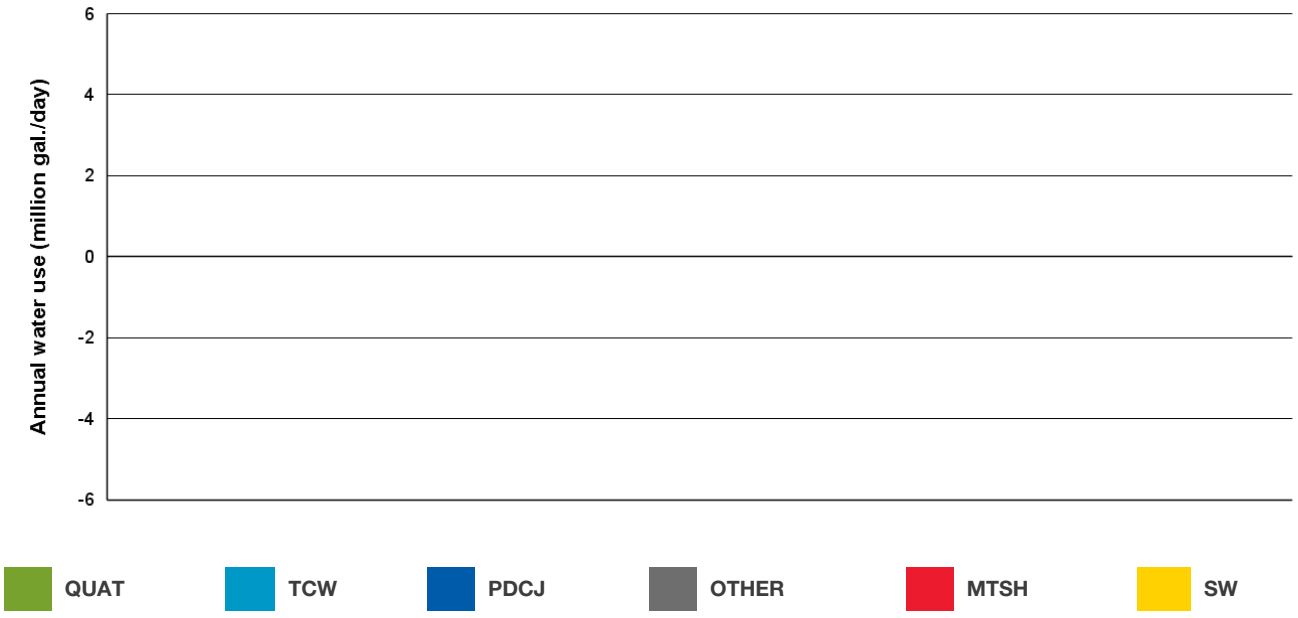
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Helena Twp. Water Supply Profile

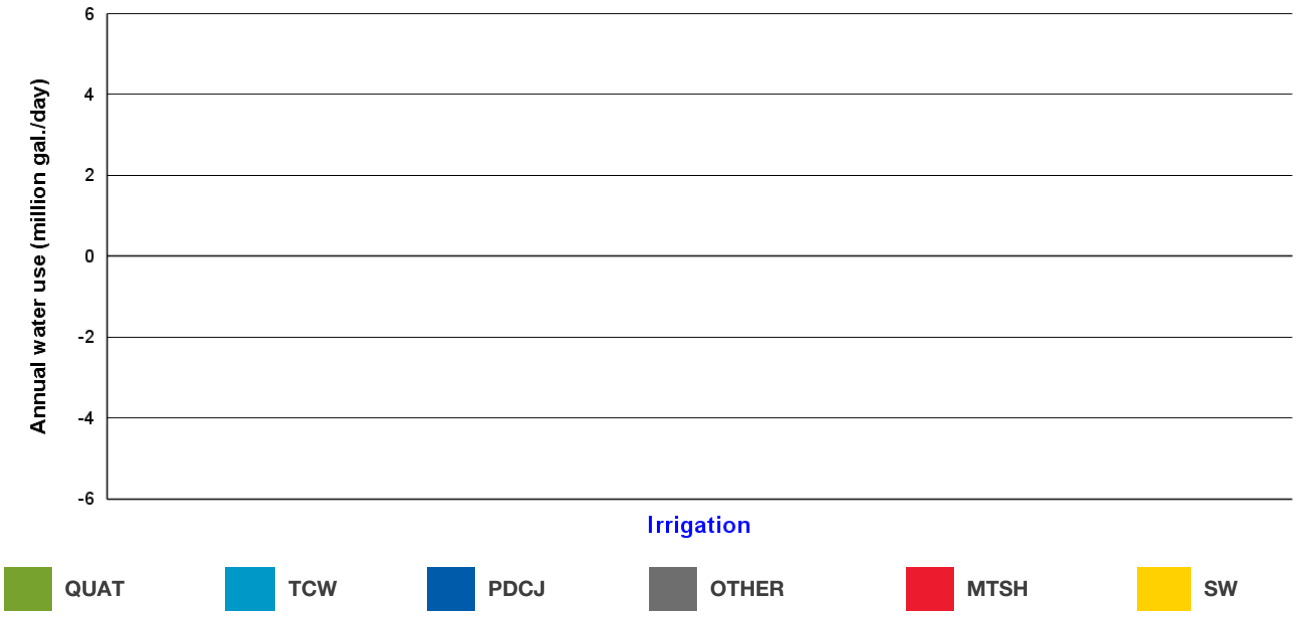
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources

5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/ water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

– Compliance with Safe Drinking Water Act standards

– Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

– Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Jordan Water Supply Profile

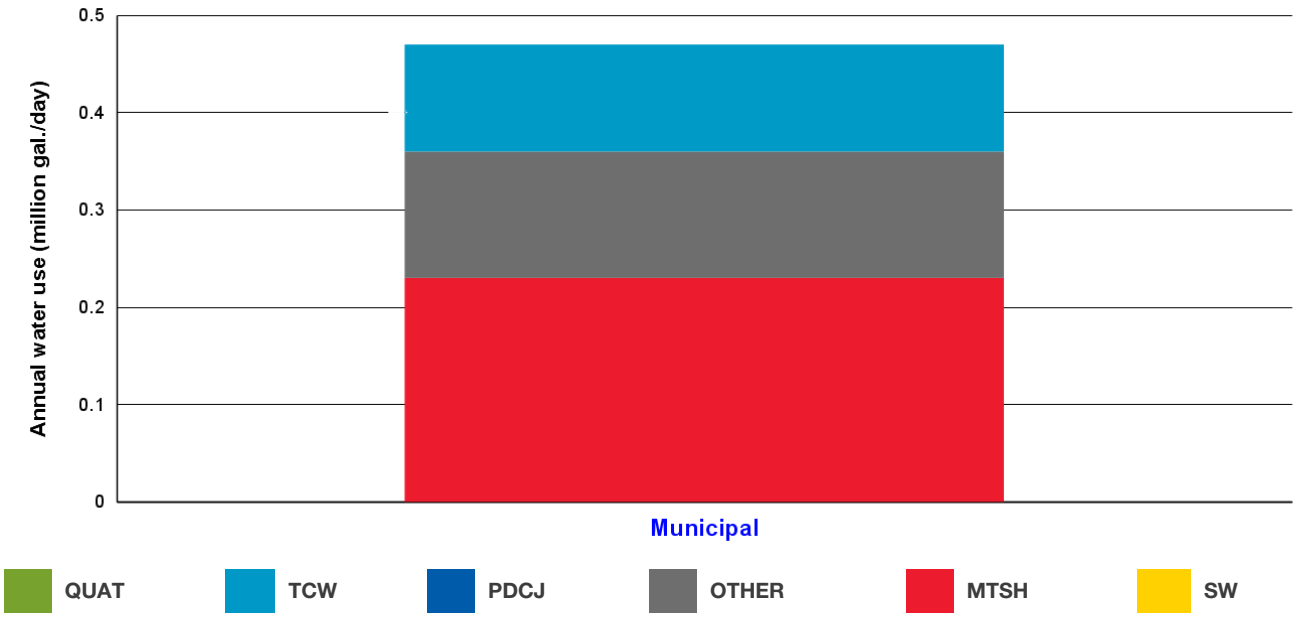
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	3	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	2	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

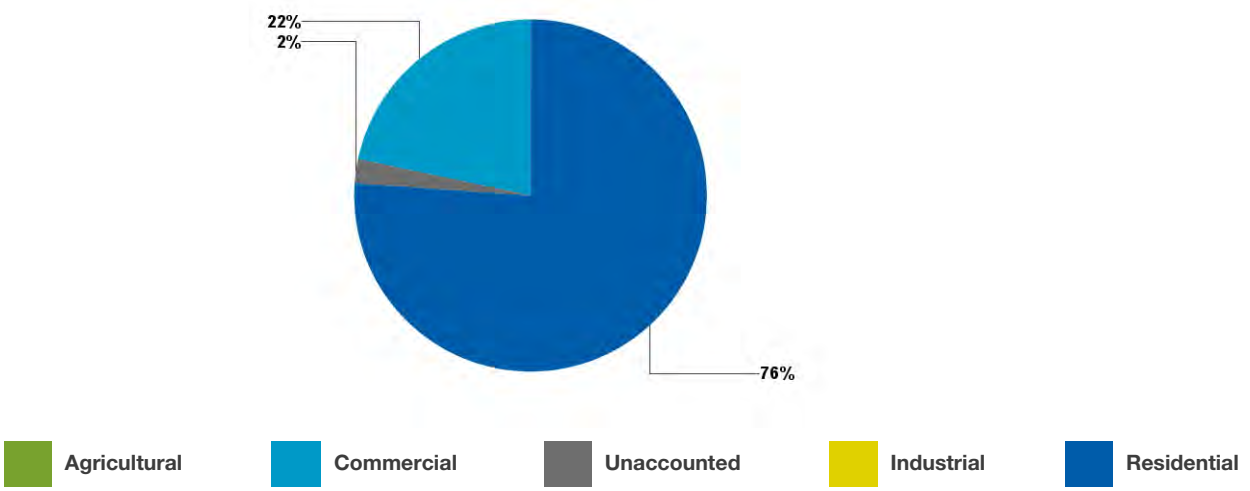
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

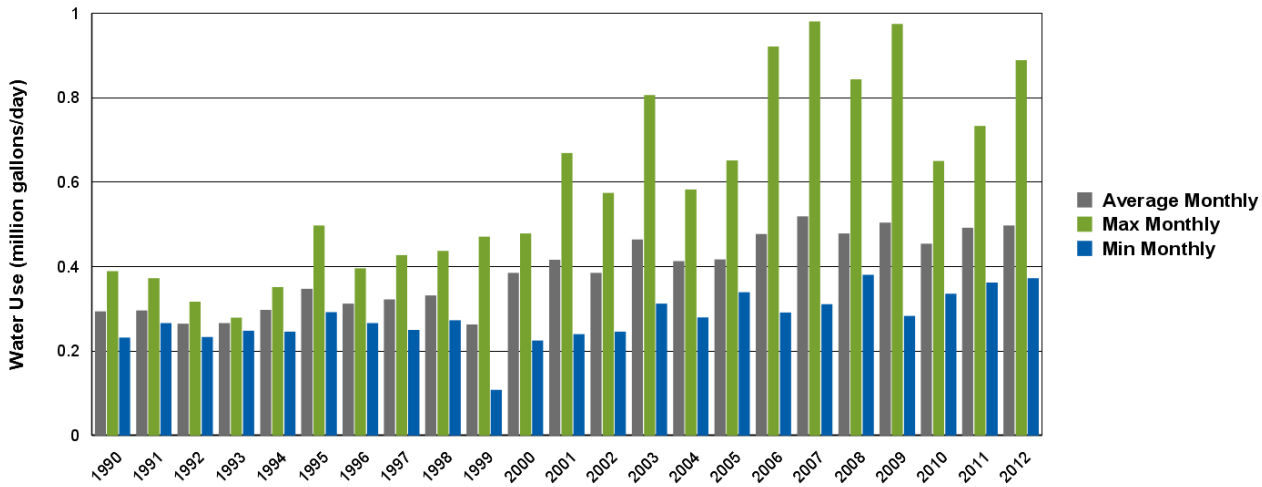
Municipal water treatment: Iron/Manganese Removal, Disinfection, Radionuclides removal, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 176



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	7,100	7,700	10,700
Total Population	7,100	7,700	10,700
Projected Average Daily Water Use (Million Gal/Day)	0.7	0.7	1.0
Total Per Capita Water Use (Gal/Person/Day)	98.59	90.91	93.46
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	70	65	46

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

New Prague Water Supply Profile

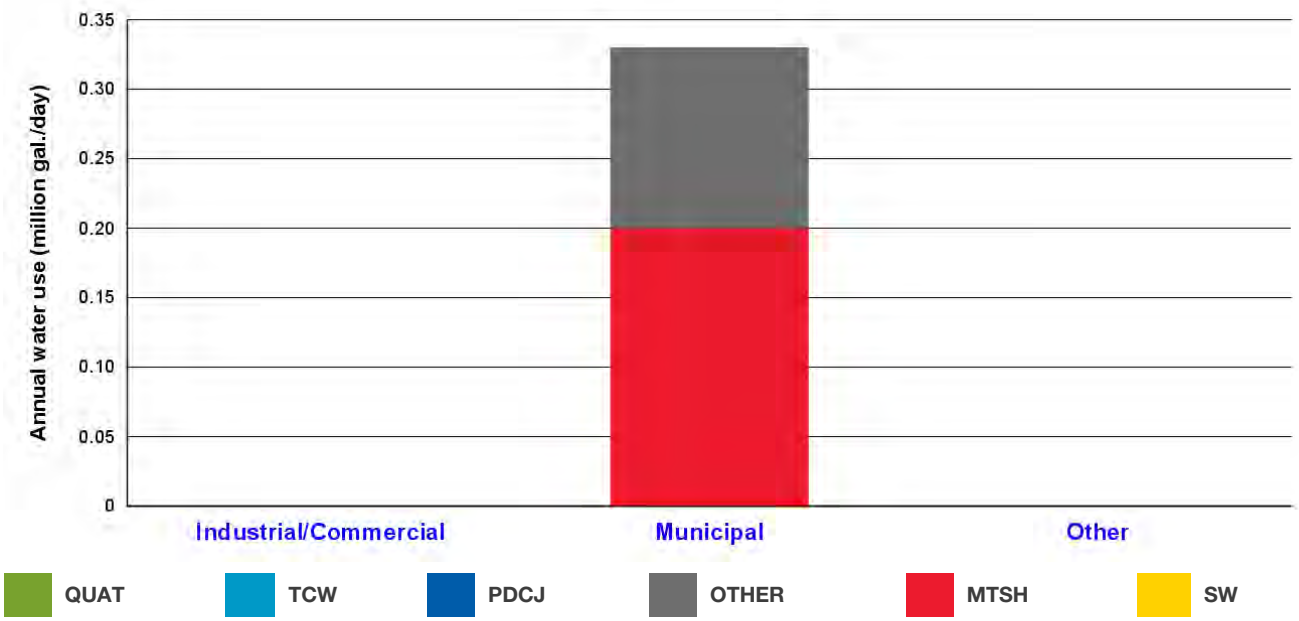
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	1	
Other	1	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Sand Creek Twp. Water Supply Profile

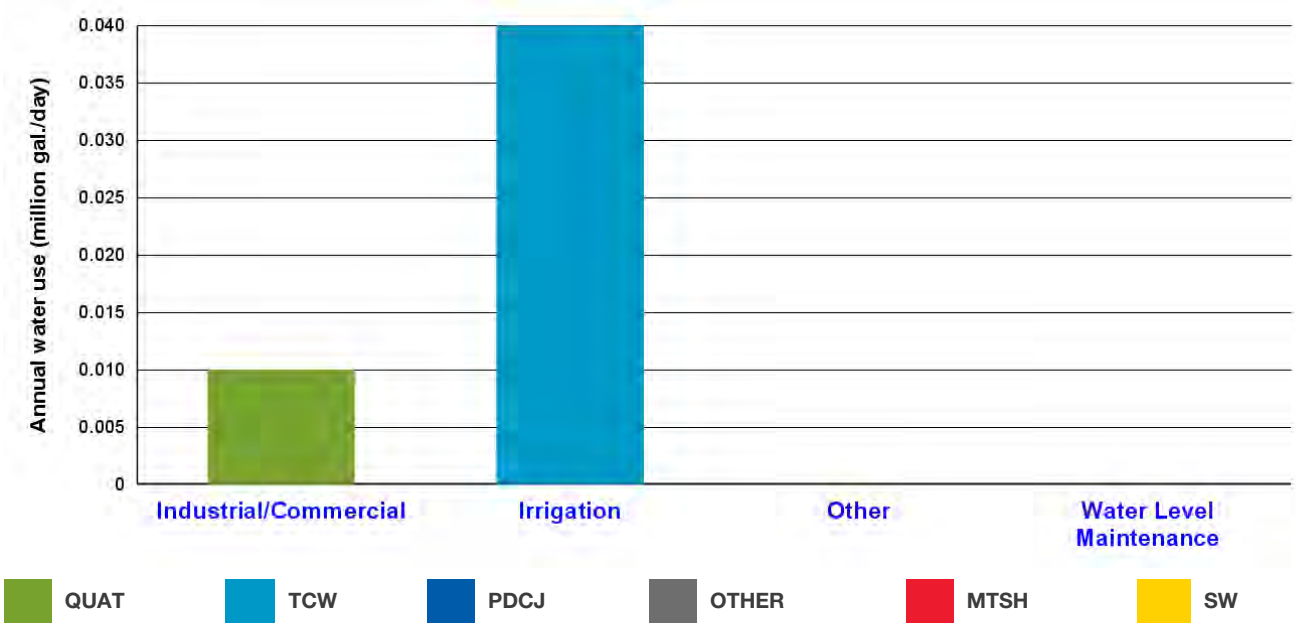
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	4	
Other	0	4	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Lawrence Twp. Water Supply Profile

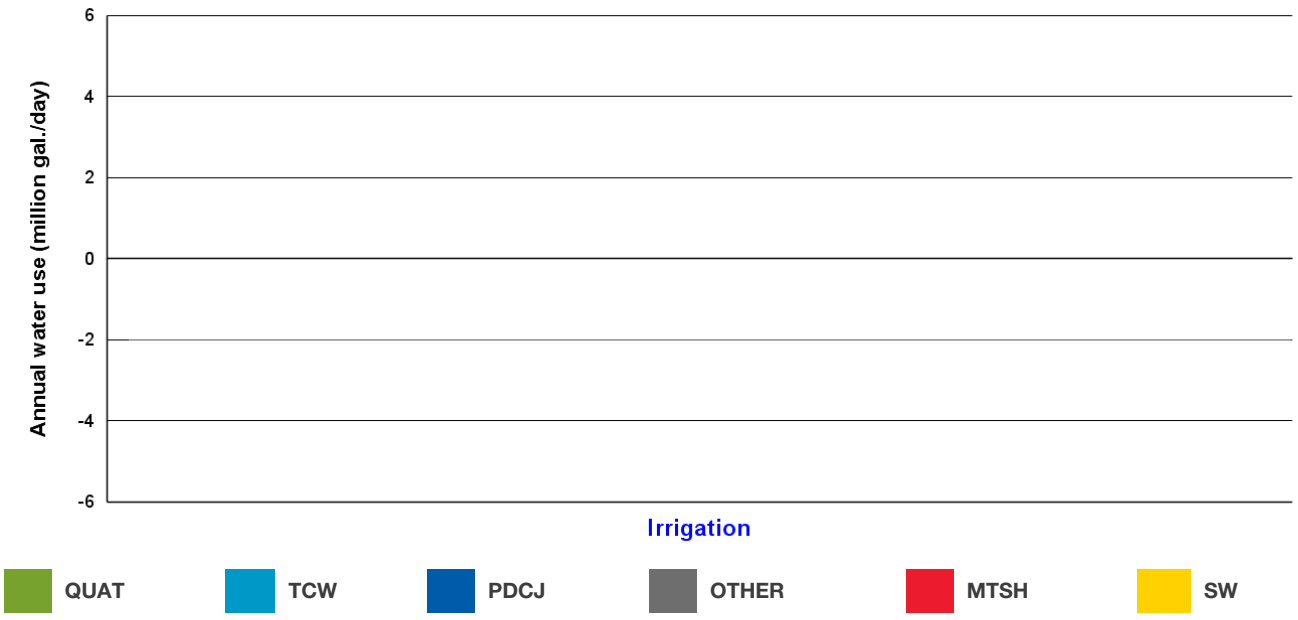
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

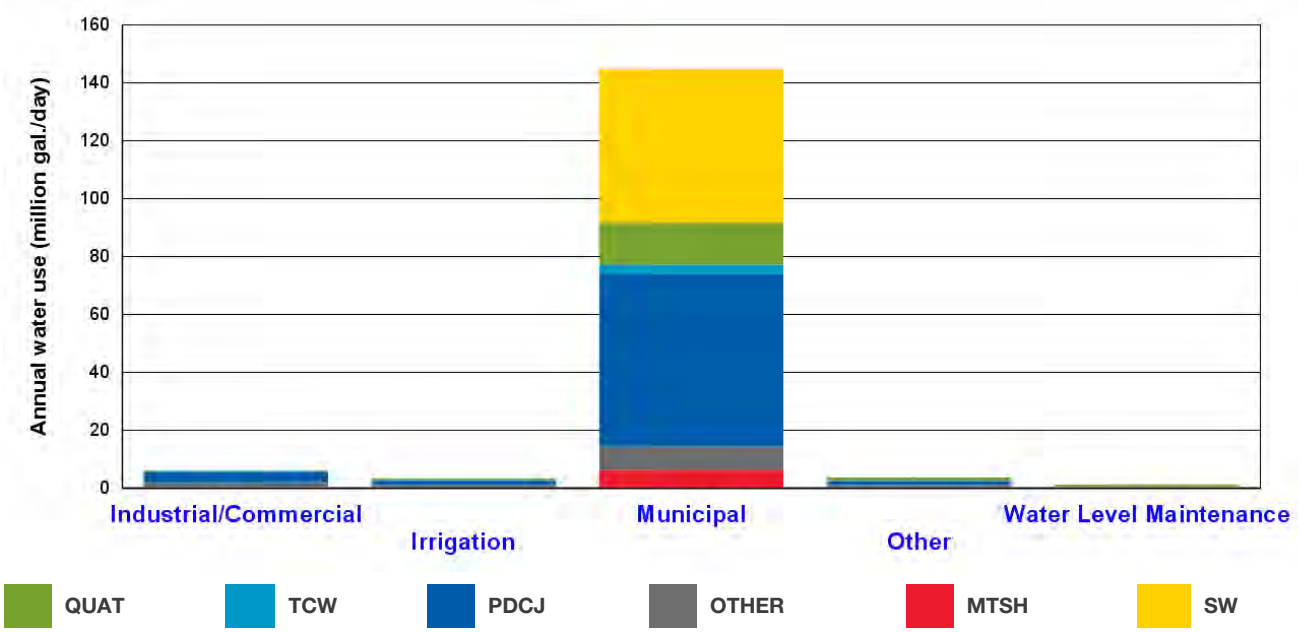
suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

West Central Metro Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	1,337,306	1,436,996	1,529,734
Total Population	1,359,870	1,459,800	1,552,580
Projected Average Daily Water Use (Million Gal/Day)	4.7	5.1	5.4
Total Per Capita Water Use (Gal/Person/Day)	130	130	130
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	119	108	99

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Bloomington Water Supply Profile

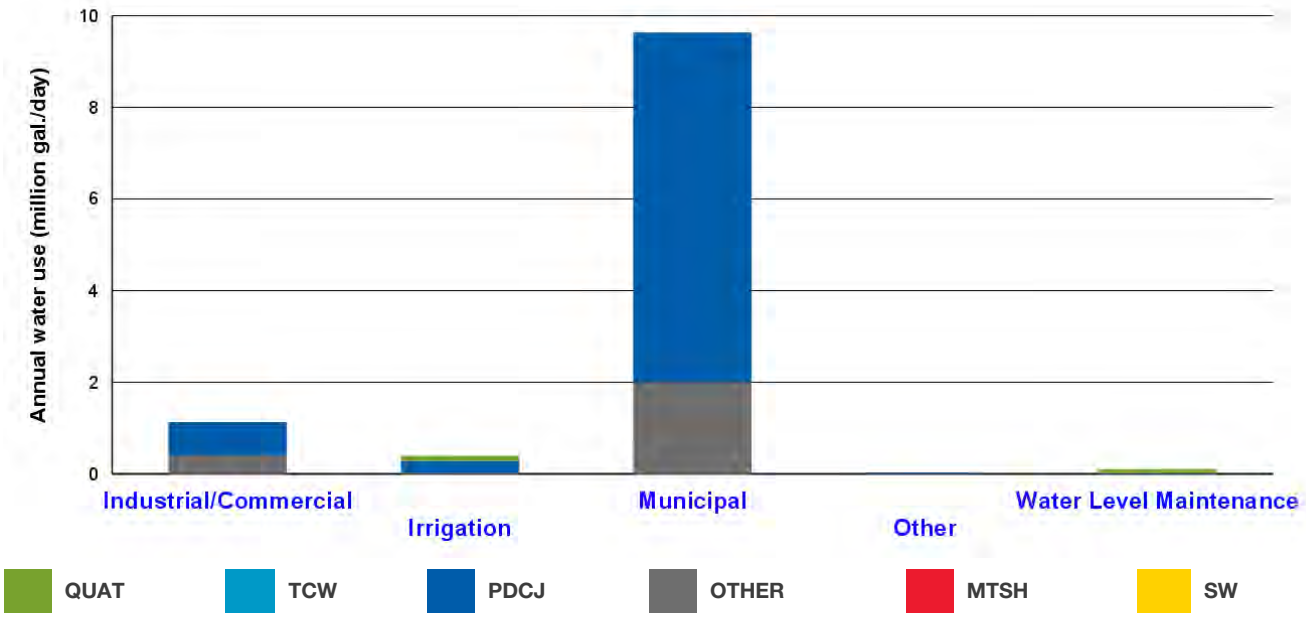
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	4	24	0
Quaternary (QUAT)	0	7	
Tunnel City-Wonewoc (TCW)	0	0	
Other	2	16	
Surface Water	0	4	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

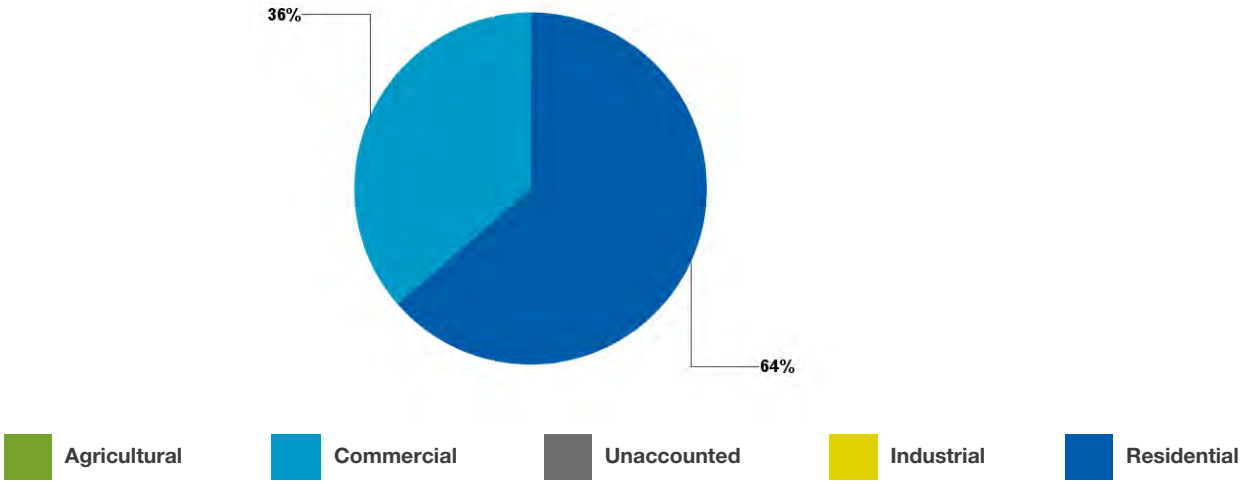
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

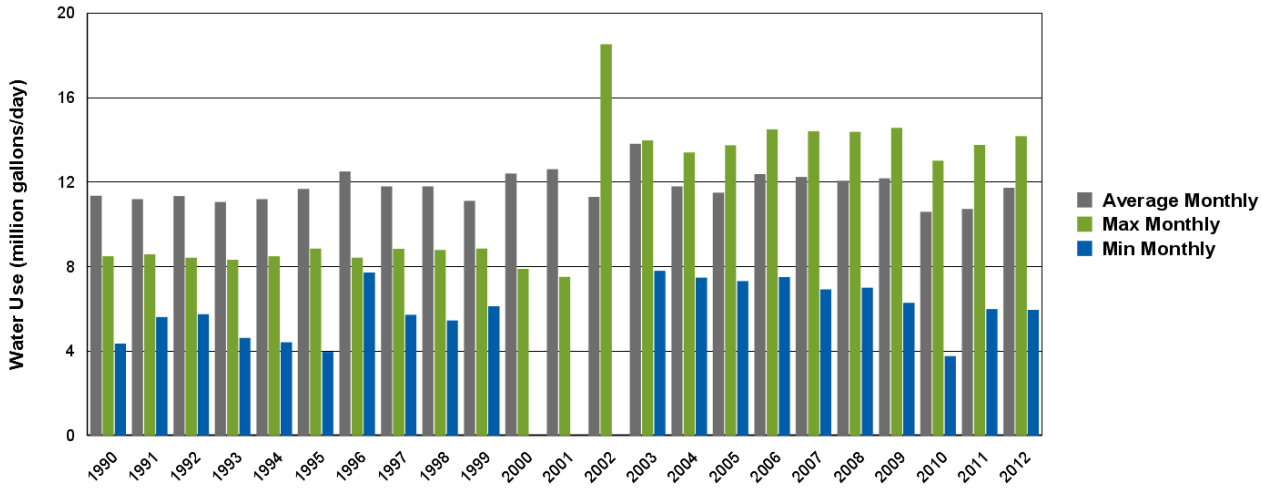
Municipal water treatment: Softening, Fluoride (Z), Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 4,282



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	87,300	91,200	95,400
Total Population	87,300	91,200	95,400
Projected Average Daily Water Use (Million Gal/Day)	12.2	12.7	13.3
Total Per Capita Water Use (Gal/Person/Day)	139.75	139.25	139.41
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	134	129	123

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Brooklyn Center Water Supply Profile

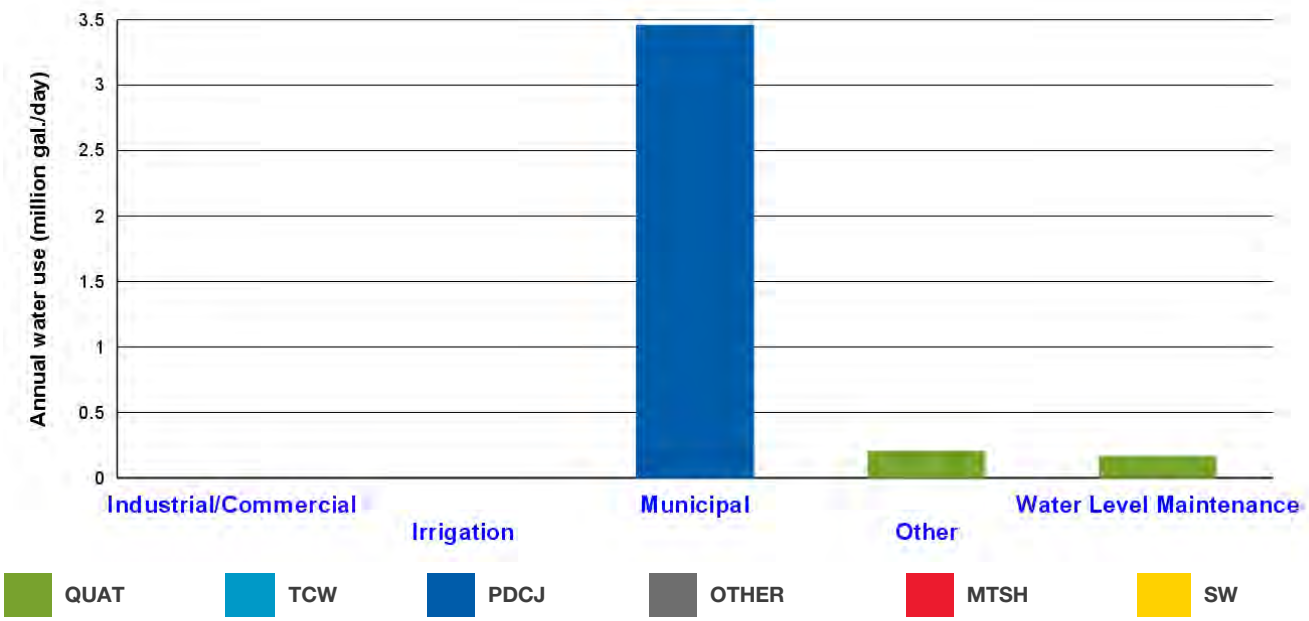
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	10	4	0
Quaternary (QUAT)	0	22	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	1	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

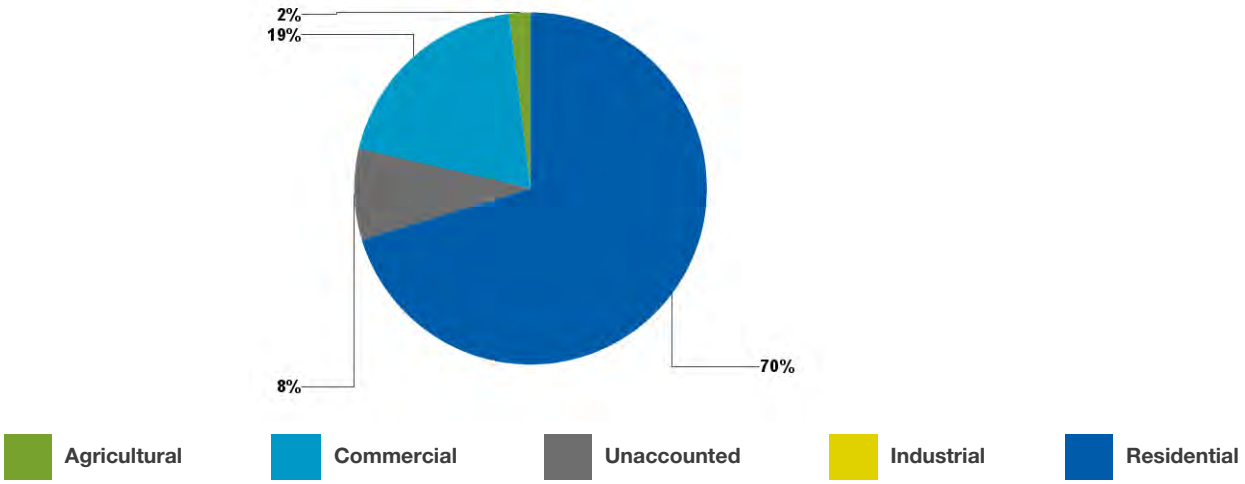
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

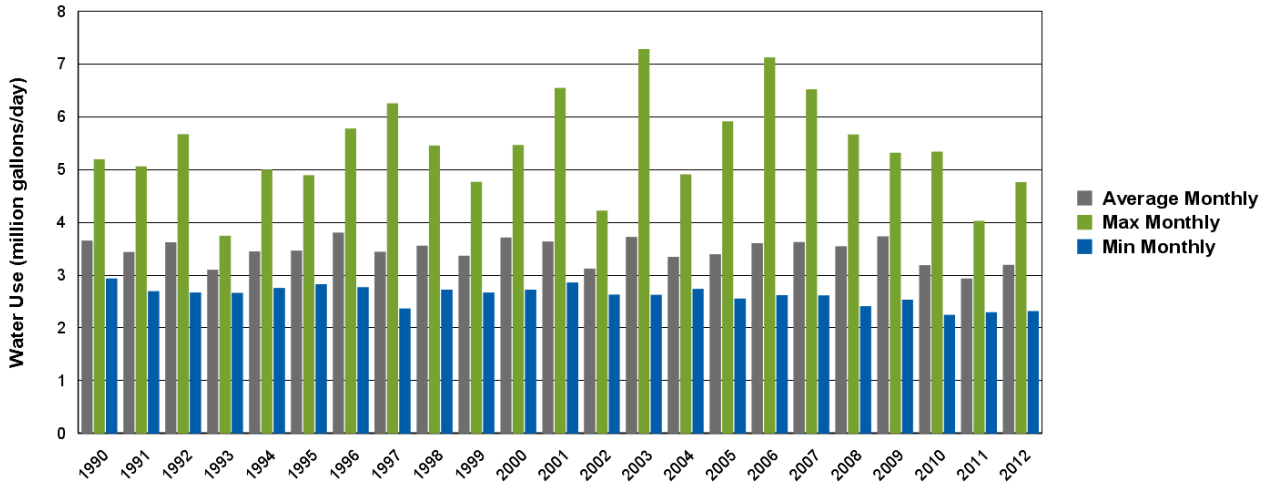
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 1,067



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	31,000	32,900	34,700
Total Population	31,000	32,900	34,700
Projected Average Daily Water Use (Million Gal/Day)	3.6	3.8	4.0
Total Per Capita Water Use (Gal/Person/Day)	116.13	115.50	115.27
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	103	97	92

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Brooklyn Park Water Supply Profile

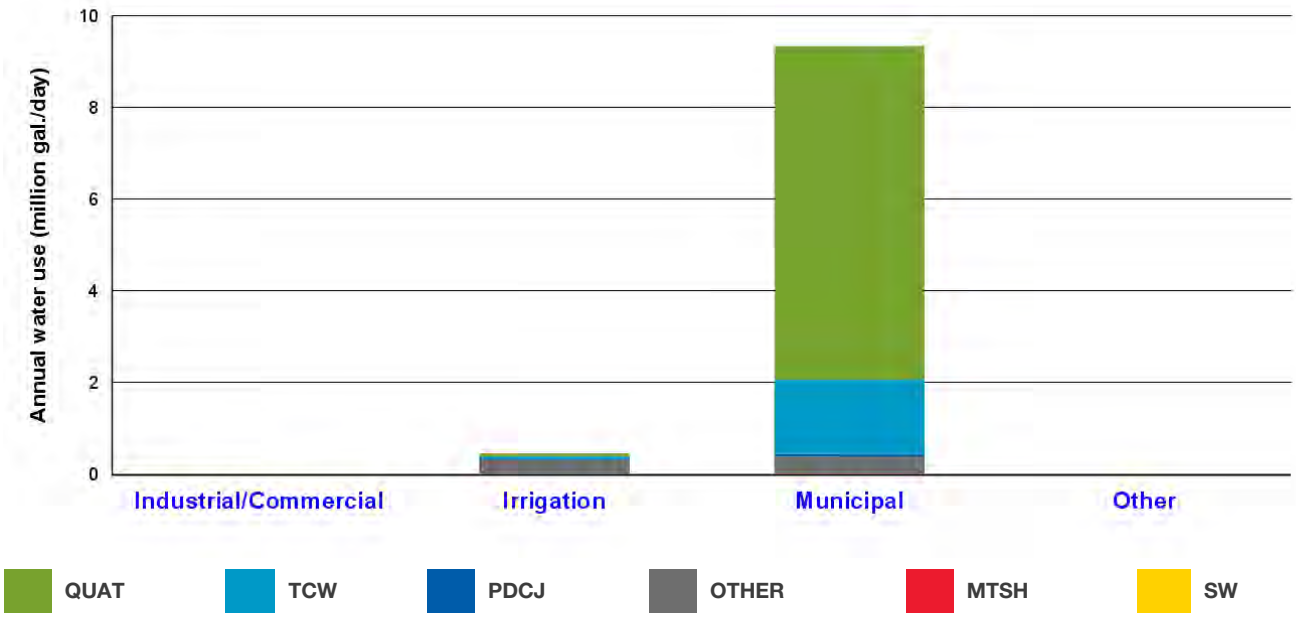
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	4	3	0
Quaternary (QUAT)	8	9	
Tunnel City-Wonewoc (TCW)	4	3	
Other	4	18	
Surface Water	4	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

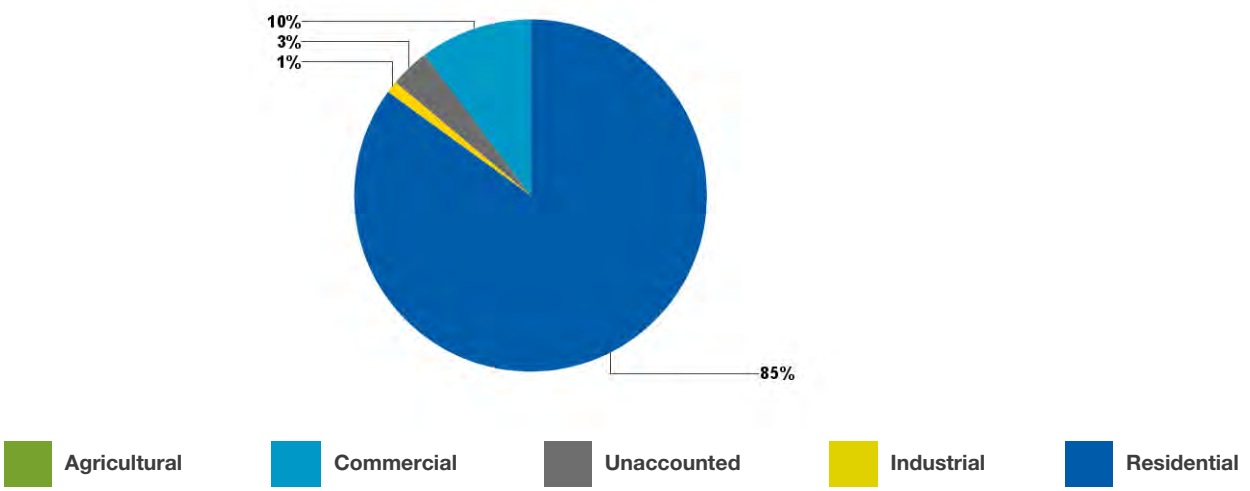
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

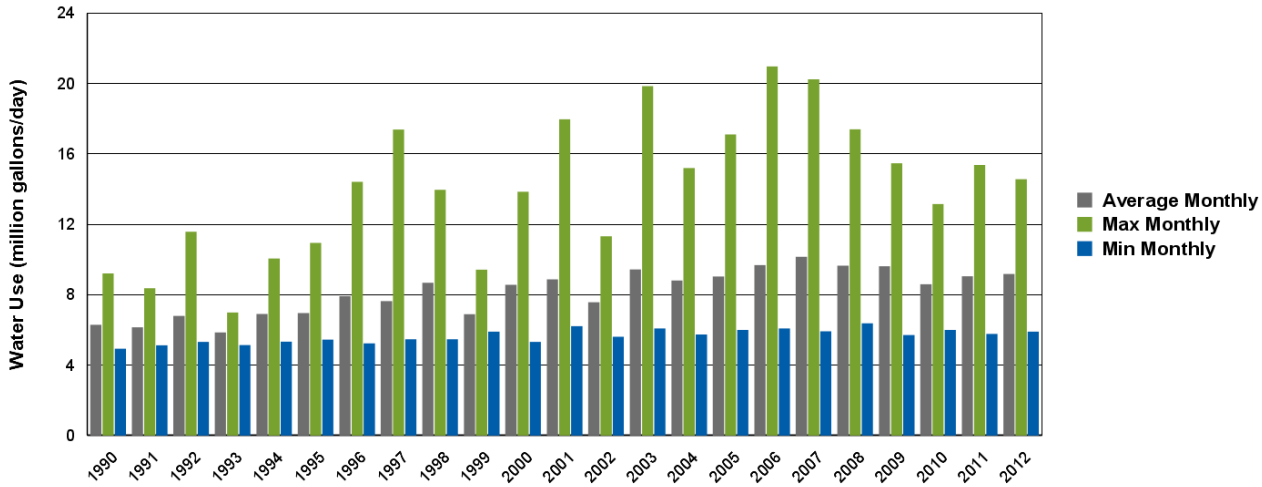
Municipal water treatment: Fluoride (Z), Iron/Manganese Sequestration, Disinfection, Iron removal, Manganese removal, Other, Corrosion control - Lead/Copper

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 3,245



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	83,600	91,000	95,000
Total Population	84,100	91,500	95,500
Projected Average Daily Water Use (Million Gal/Day)	10.7	11.6	12.1
Total Per Capita Water Use (Gal/Person/Day)	127.99	127.47	127.37
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	110	101	97

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Carver Water Supply Profile

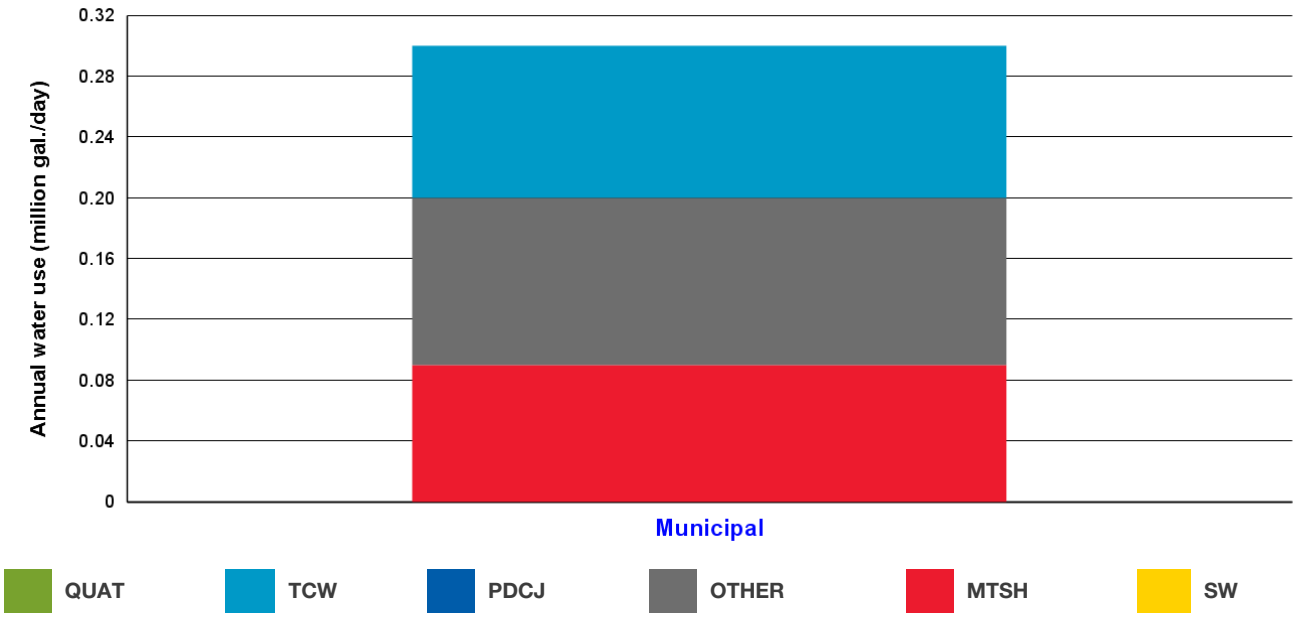
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	2	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

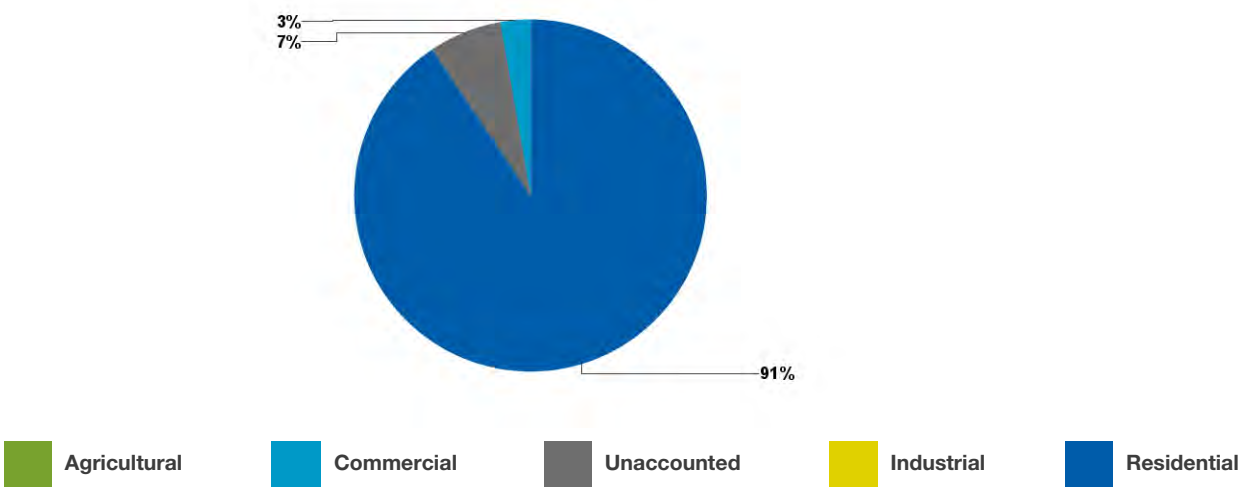
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

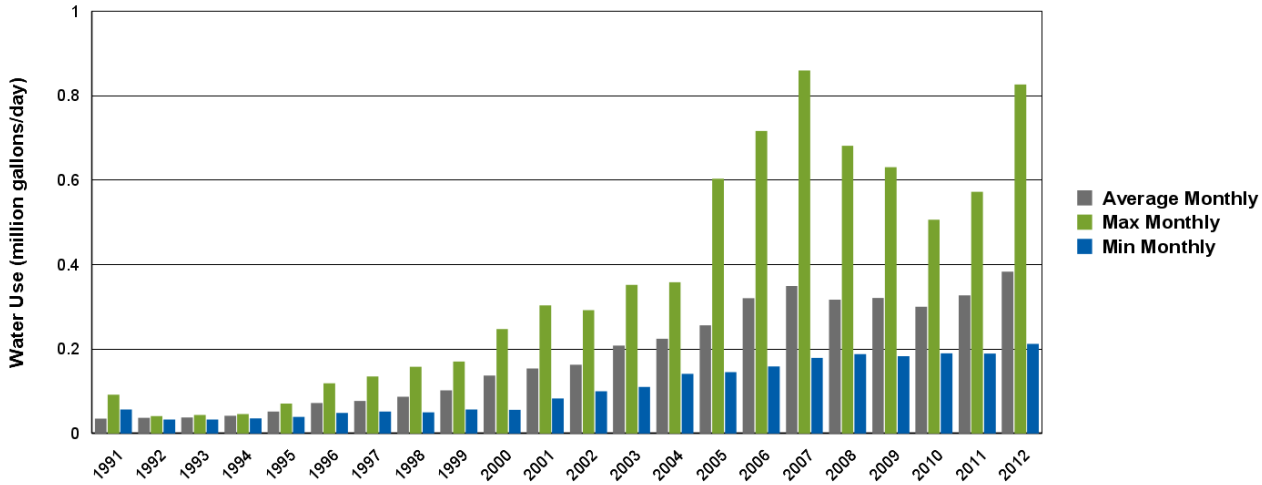
Municipal water treatment: Iron/Manganese Removal, Iron/Manganese Sequestration, Disinfection, Other, Fluoride (Z), Corrosion control - Lead/Copper

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 130



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	5,809	9,709	14,909
Total Population	5,900	9,800	15,000
Projected Average Daily Water Use (Million Gal/Day)	0.6	1.0	1.5
Total Per Capita Water Use (Gal/Person/Day)	103.29	103.00	100.61
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	66	39	26

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Champlin Water Supply Profile

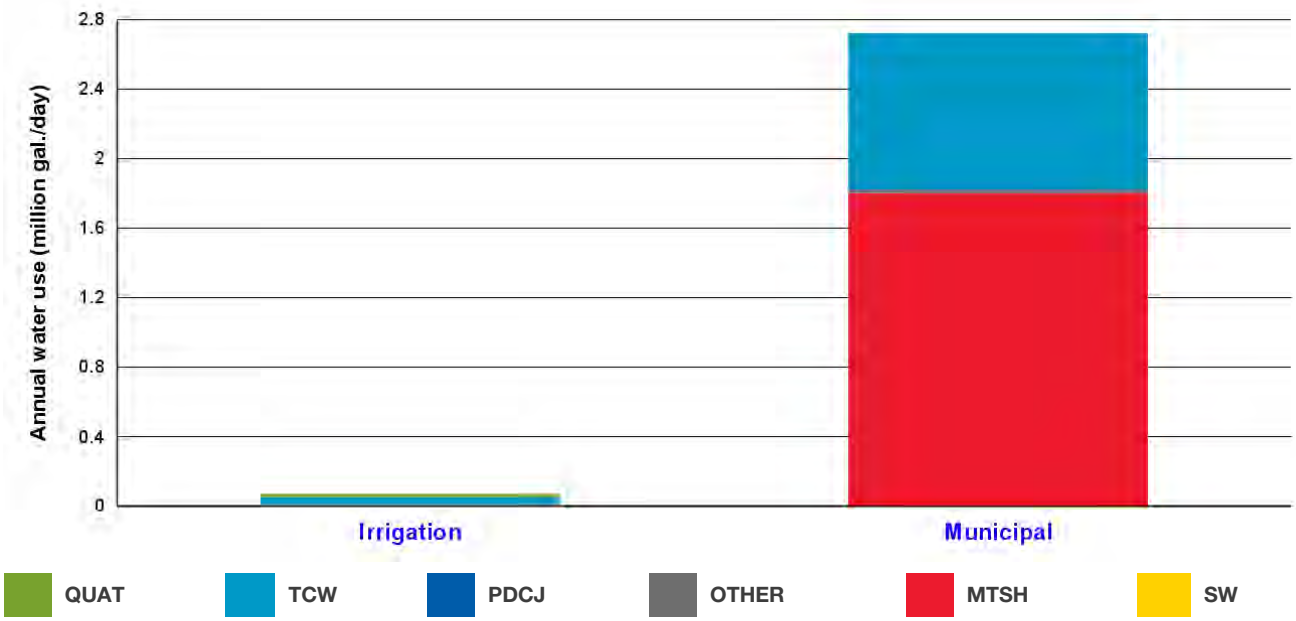
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	3	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	2	1	
Other	3	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

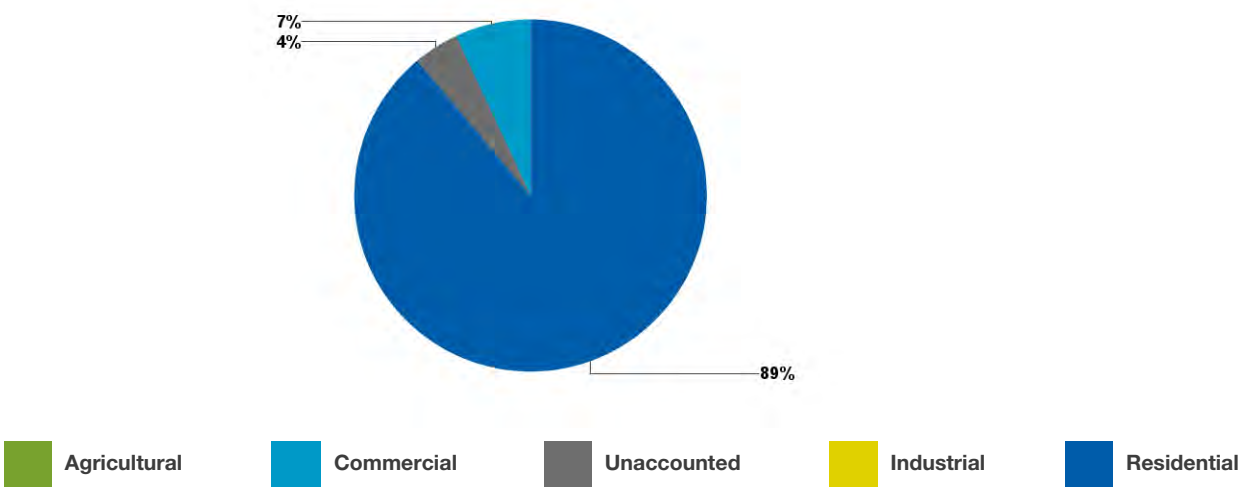
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

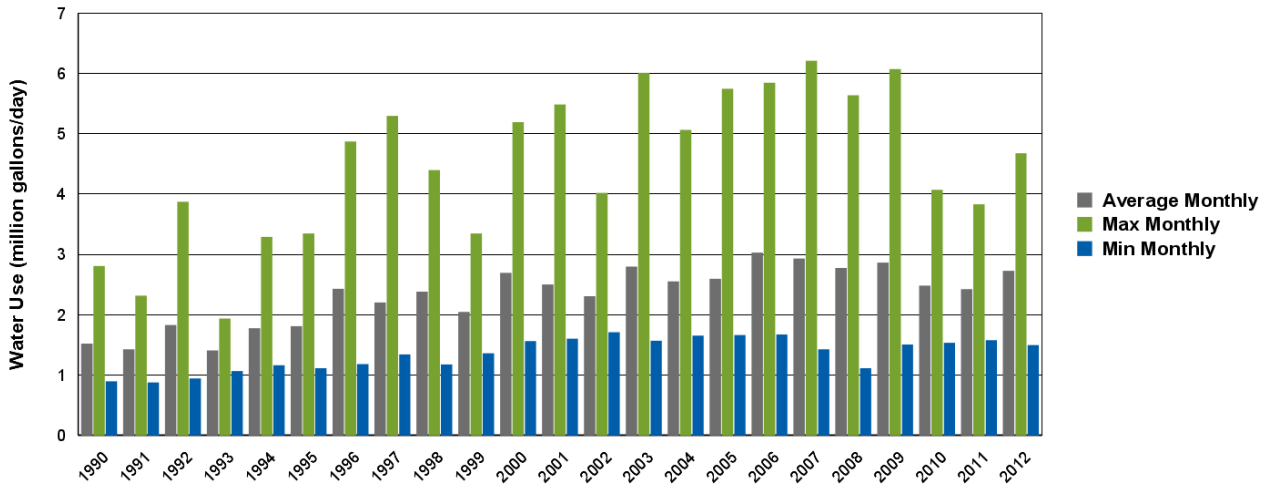
Municipal water treatment: Fluoride (Z), Radionuclides removal, Manganese removal, Disinfection, Corrosion control - Lead/Copper, Iron/Manganese Sequestration, Iron removal

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 955



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	23,900	24,200	25,500
Total Population	23,900	24,200	25,500
Projected Average Daily Water Use (Million Gal/Day)	2.8	2.9	3.0
Total Per Capita Water Use (Gal/Person/Day)	117.15	119.83	117.65
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	114	113	107

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Chanhassen Water Supply Profile

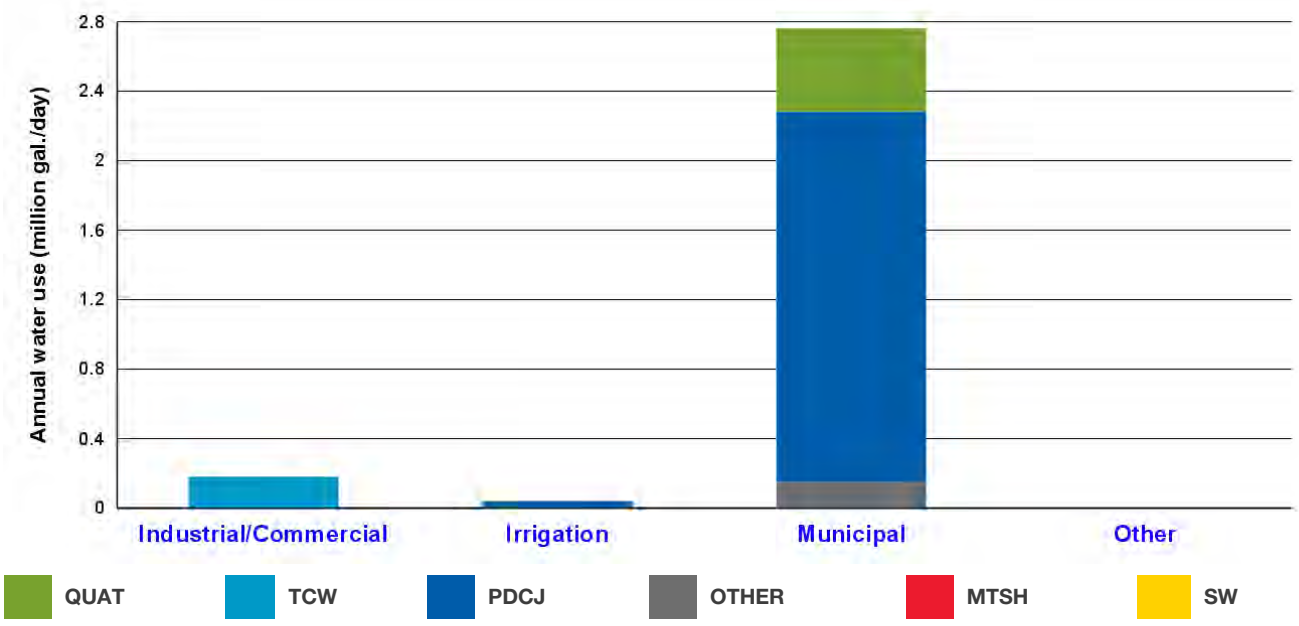
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	10	2	0
Quaternary (QUAT)	3	0	
Tunnel City-Wonewoc (TCW)	0	2	
Other	1	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

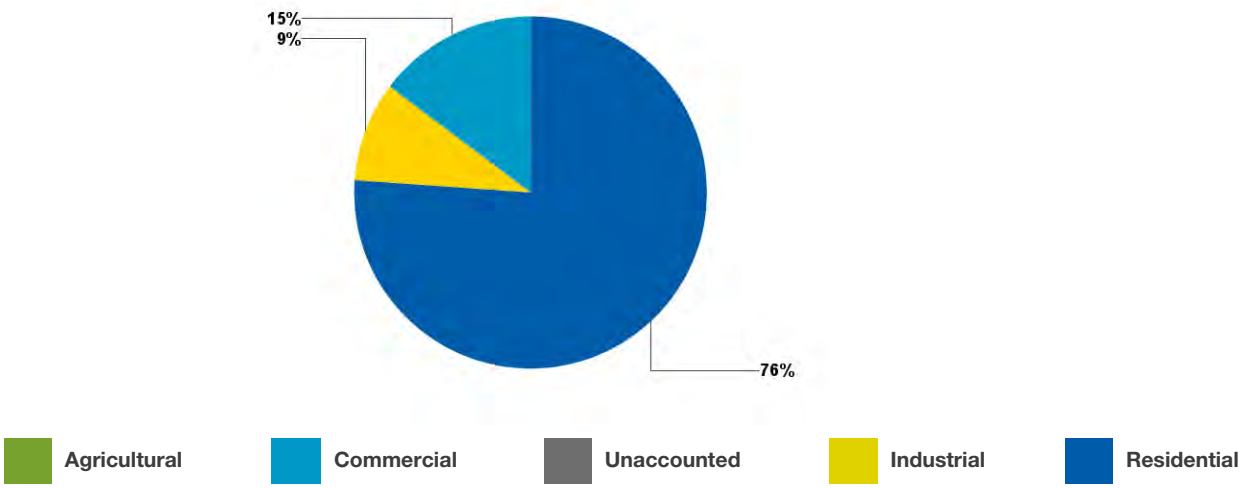
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

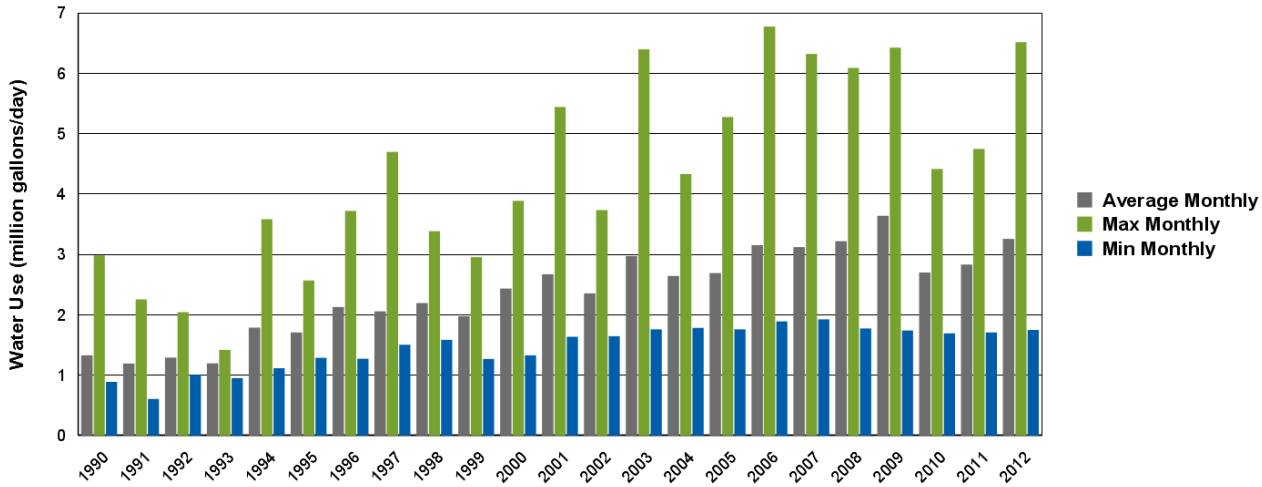
Municipal water treatment: Disinfection, Corrosion control - Lead/Copper, Fluoride (Z), Iron removal, Other

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 1,180



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	23,584	28,284	34,684
Total Population	25,100	29,800	36,200
Projected Average Daily Water Use (Million Gal/Day)	3.4	4.1	5.0
Total Per Capita Water Use (Gal/Person/Day)	144.17	144.96	144.16
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	138	115	94

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

    – Compliance with Safe Drinking Water Act standards

    – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

    – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Chaska Water Supply Profile

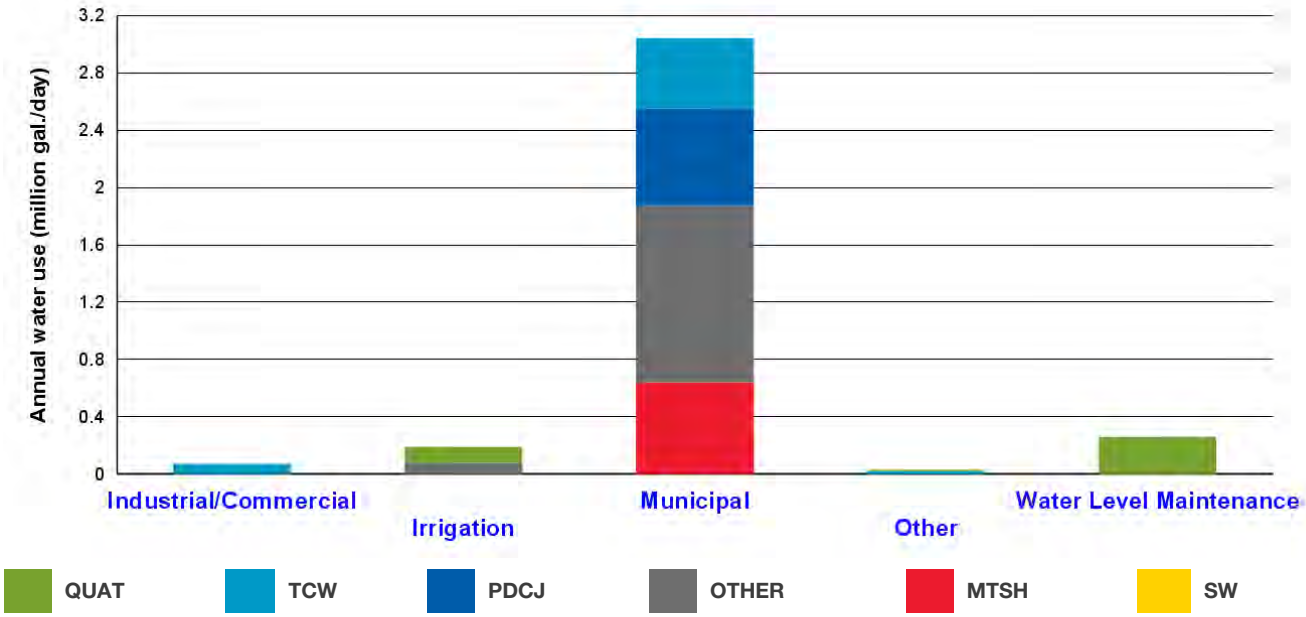
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	2	0	0
Quaternary (QUAT)	2	9	
Tunnel City-Wonewoc (TCW)	1	2	
Other	2	2	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

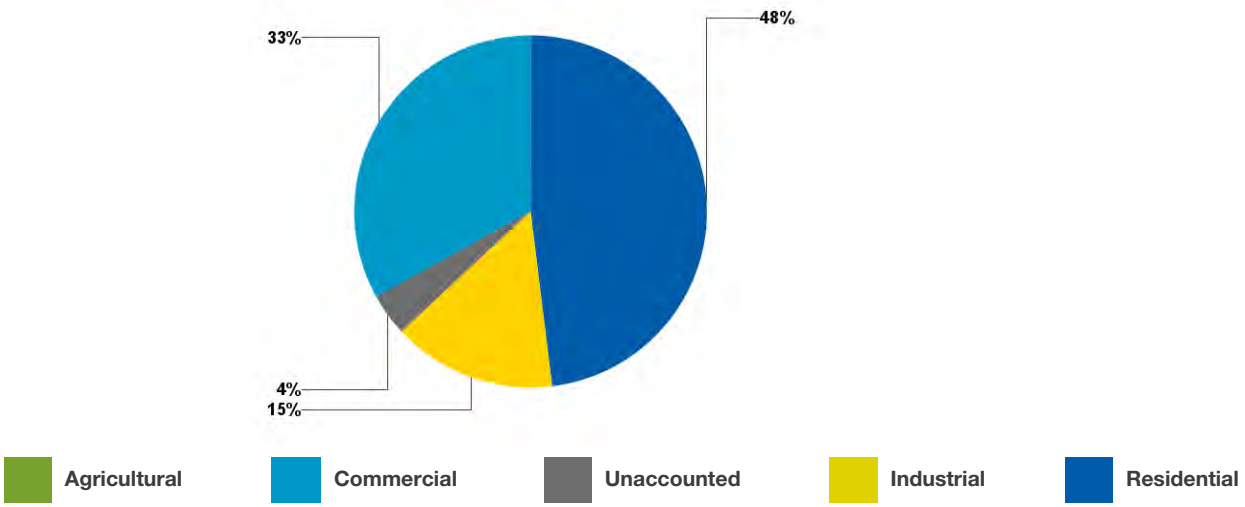
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

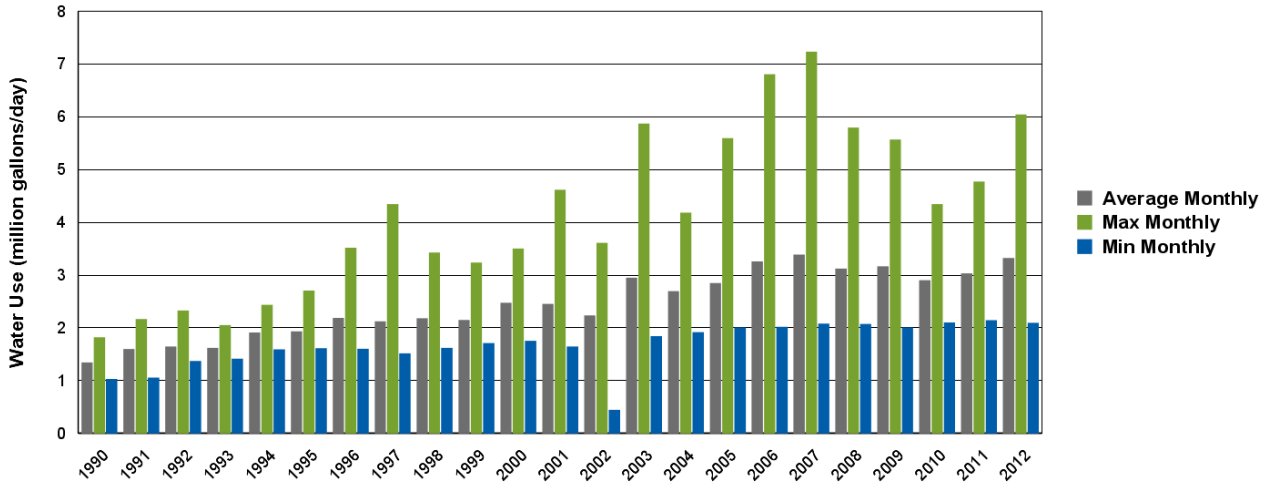
Municipal water treatment: Disinfection, Iron removal, Other, Fluoride (Z), Iron/Manganese Removal

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 1,158



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	25,453	29,653	34,153
Total Population	26,200	30,400	34,900
Projected Average Daily Water Use (Million Gal/Day)	3.7	4.3	4.9
Total Per Capita Water Use (Gal/Person/Day)	145.37	145.01	143.47
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	131	112	97

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public

water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

    – Compliance with Safe Drinking Water Act standards

    – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

    – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Crystal Water Supply Profile

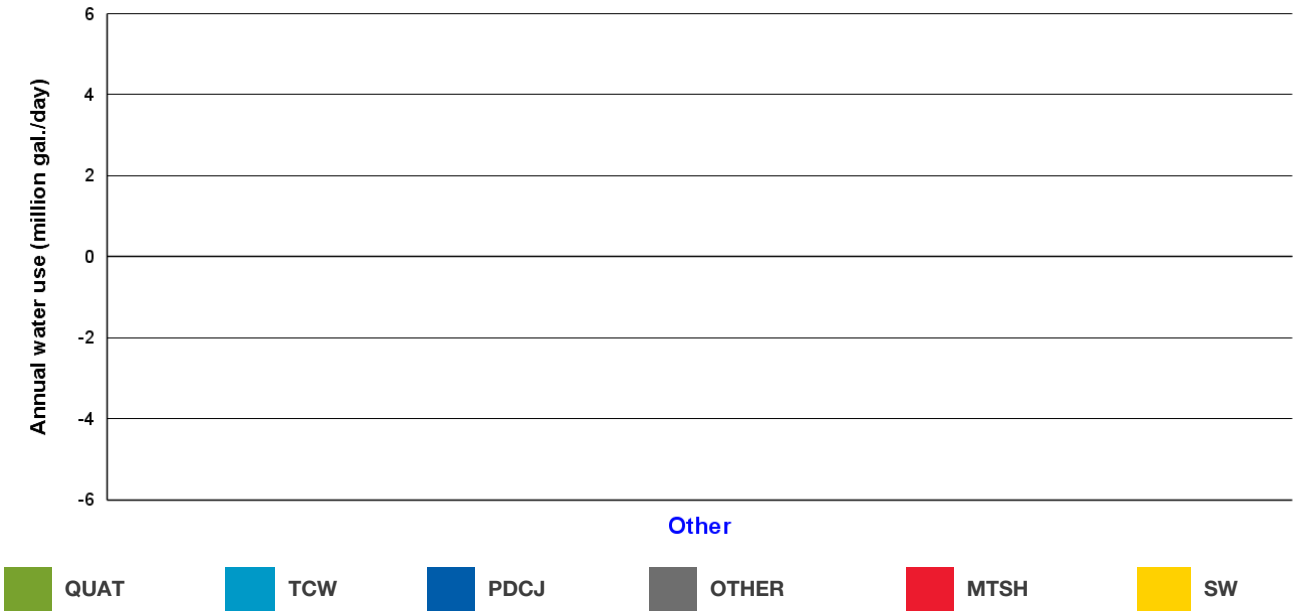
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by the Joint Water Commission.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Dahlgren Twp. Water Supply Profile

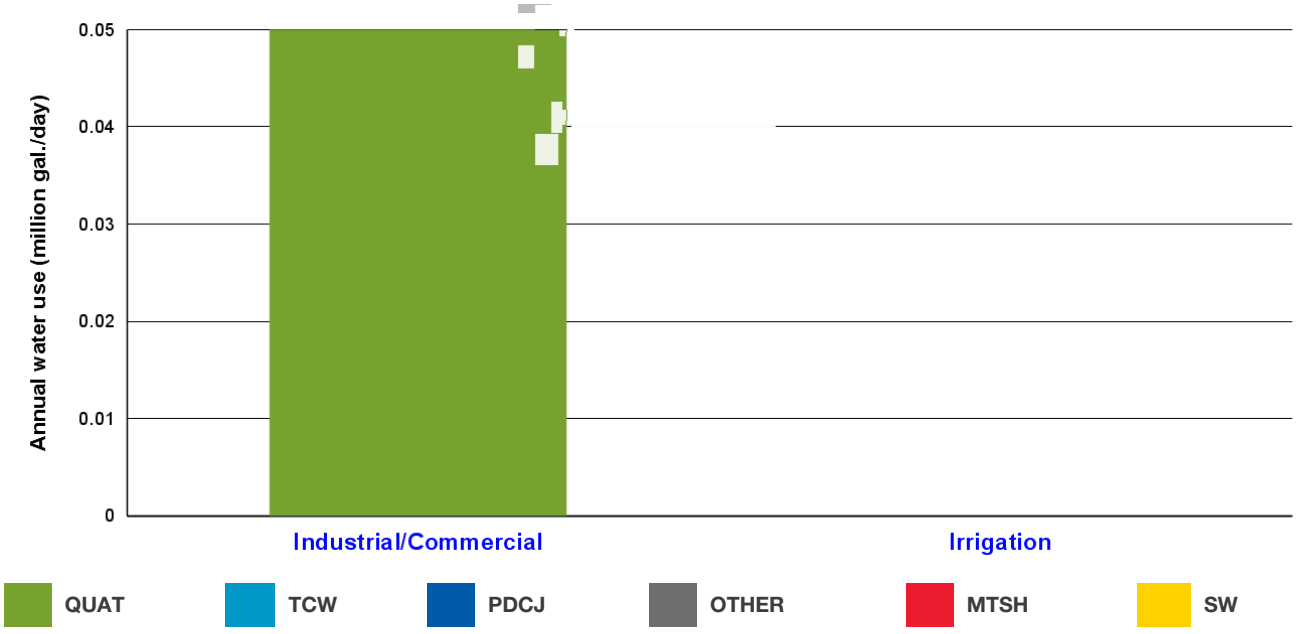
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	0	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Deephaven Water Supply Profile

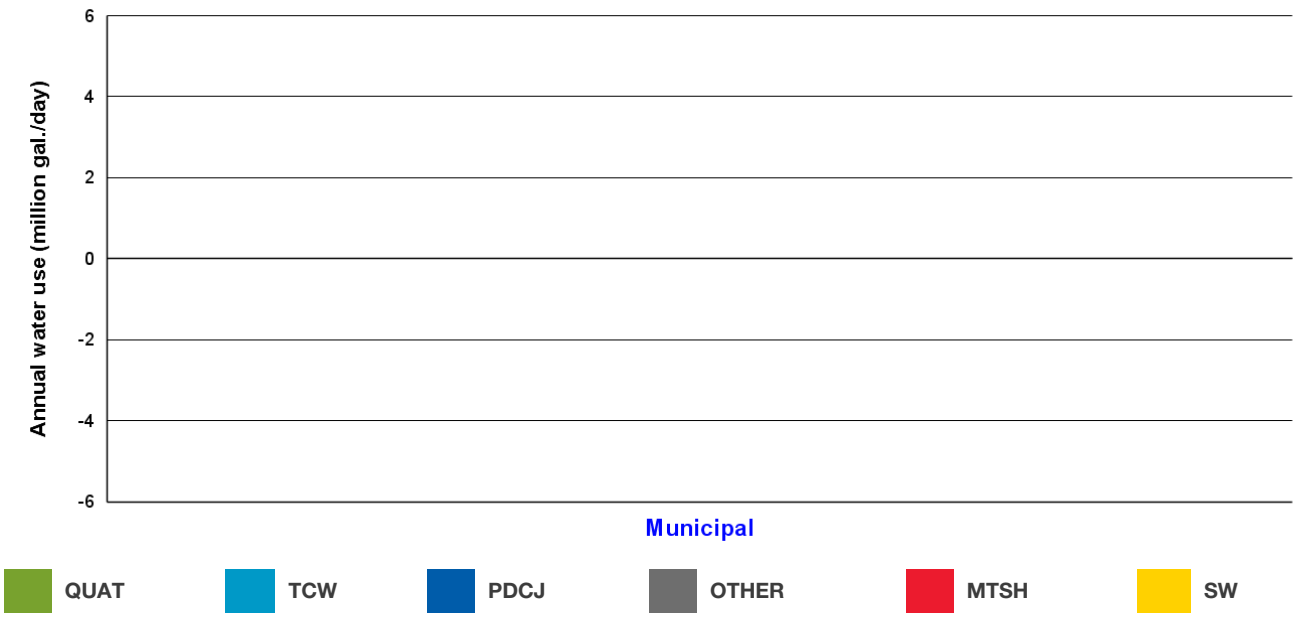
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Minnetonka.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	22
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
•Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
•Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
•Other conditions, as identified by federal and state organizations: ◦ Compliance with Safe Drinking Water Act standards ◦ Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources ◦ Issues identified in Minnesota Department of Health Source Water Assessments
Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Eden Prairie Water Supply Profile

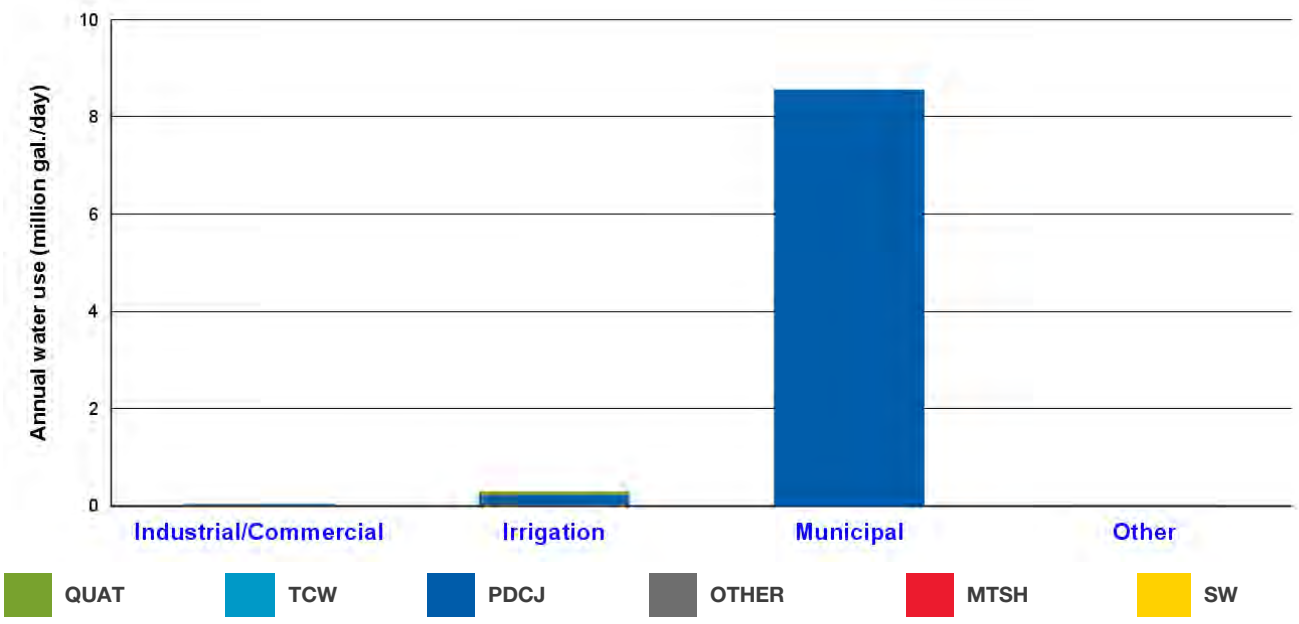
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	16	24	0
Quaternary (QUAT)	0	9	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	5	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

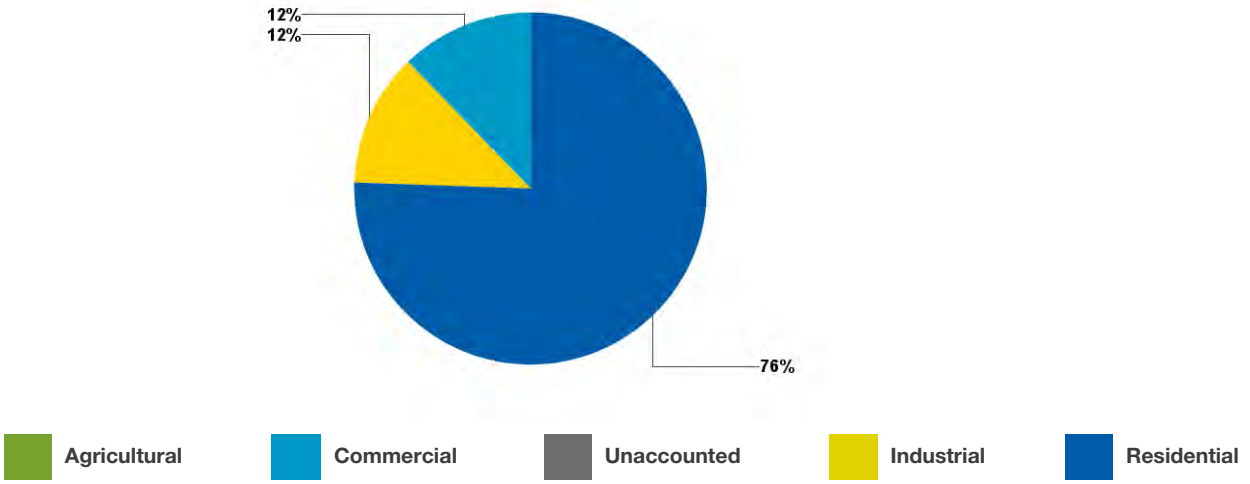
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

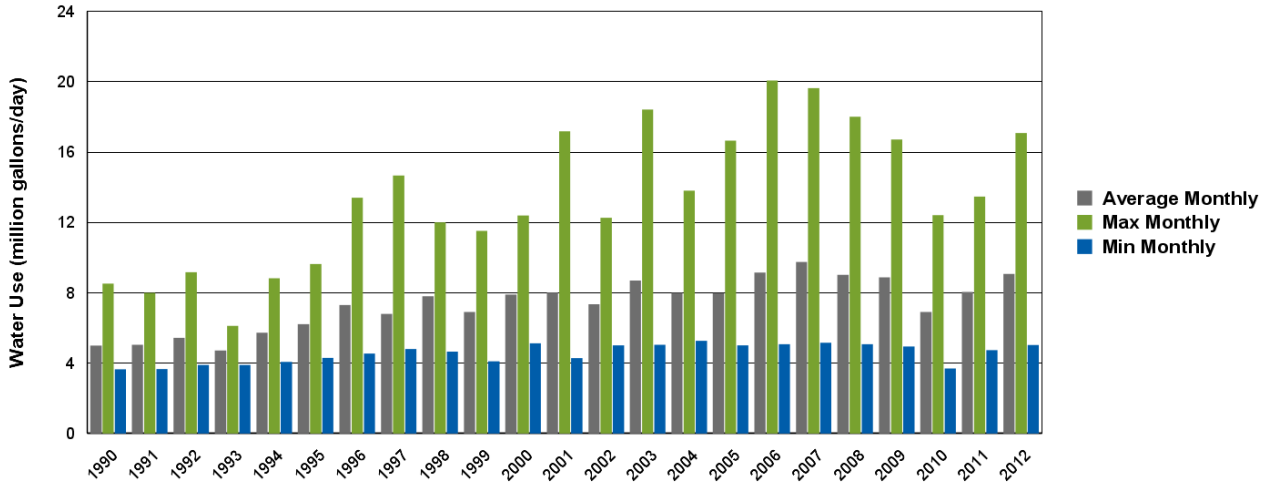
Municipal water treatment: Fluoride (Z), Disinfection, Iron/Manganese Sequestration, Softening

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 5,948



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	71,800	80,200	84,800
Total Population	71,800	80,200	84,800
Projected Average Daily Water Use (Million Gal/Day)	10.1	11.3	11.9
Total Per Capita Water Use (Gal/Person/Day)	140.67	140.90	140.33
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	126	113	107

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Edina Water Supply Profile

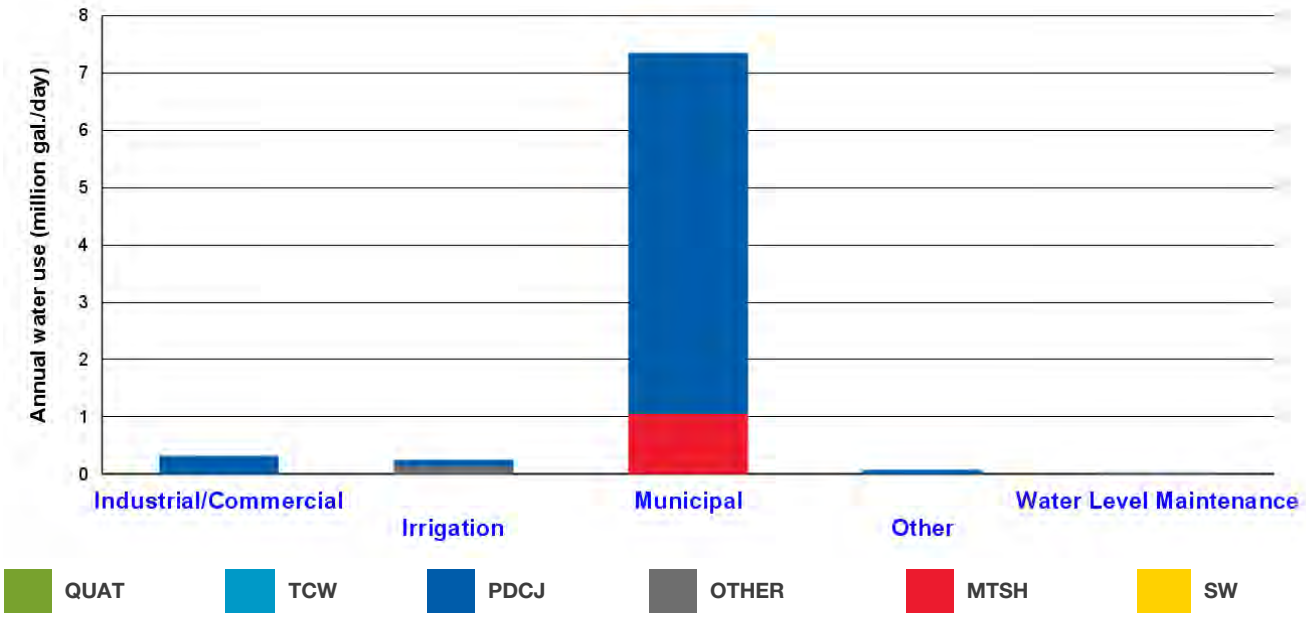
Overview of water system and use in the community:

The community owns and operates their own water supply system, with Minneapolis Water Works as a water source for the Morningside neighborhood.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	3	0	
Prairie du Chien-Jordan (PDCJ)	16	21	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	8	
Surface Water	0	3	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

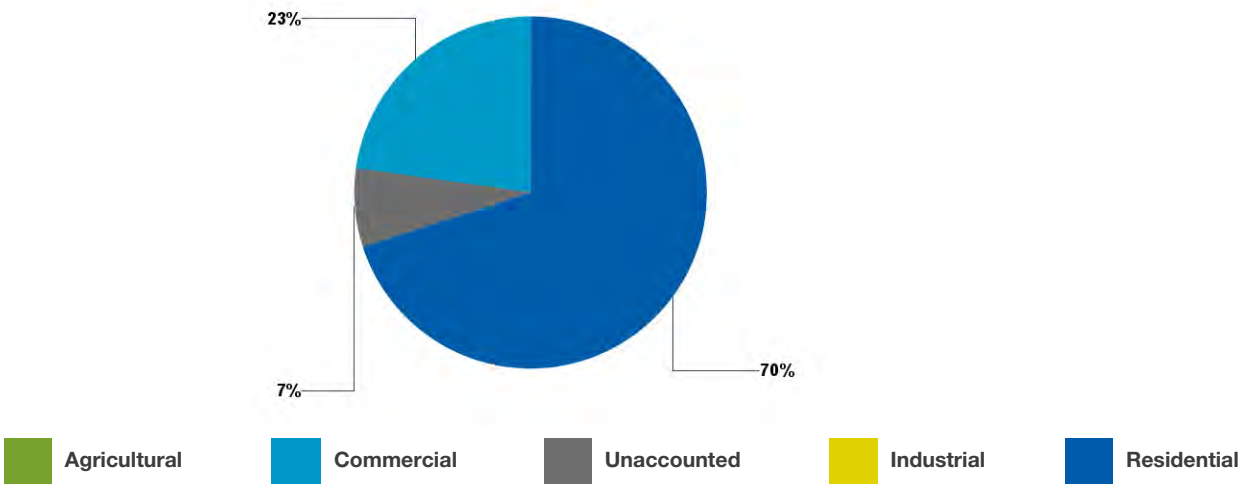
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

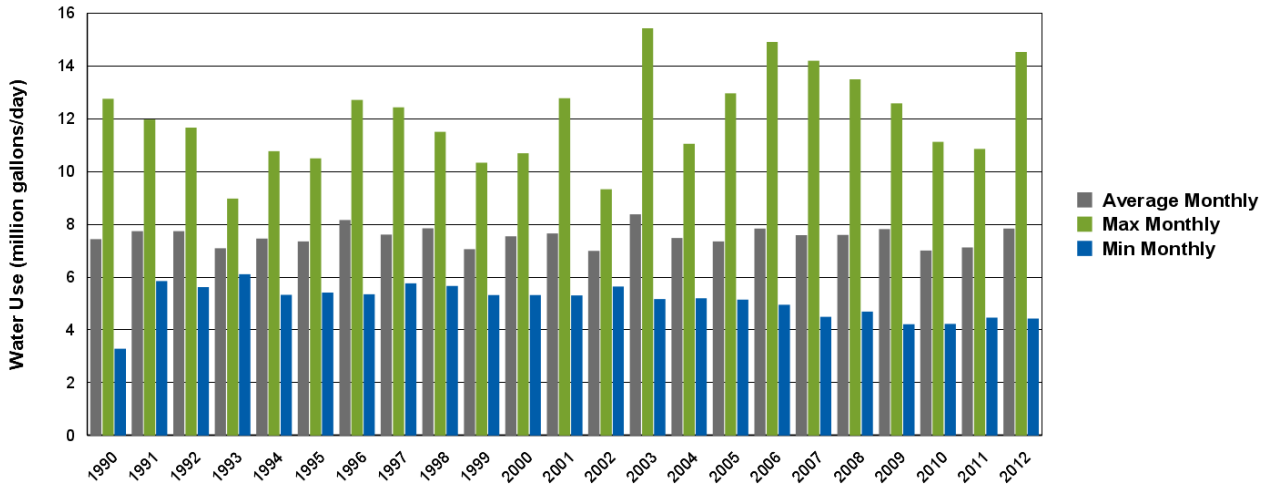
Municipal water treatment: Radionuclides removal, Other, Organics removal, Manganese removal, Iron removal, Corrosion control - Lead/Copper, Fluoride (Z), Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 2,662



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	49,800	51,800	53,300
Total Population	49,800	51,800	53,300
Projected Average Daily Water Use (Million Gal/Day)	7.9	8.2	8.5
Total Per Capita Water Use (Gal/Person/Day)	158.63	158.30	159.47
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	157	151	147

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Excelsior Water Supply Profile

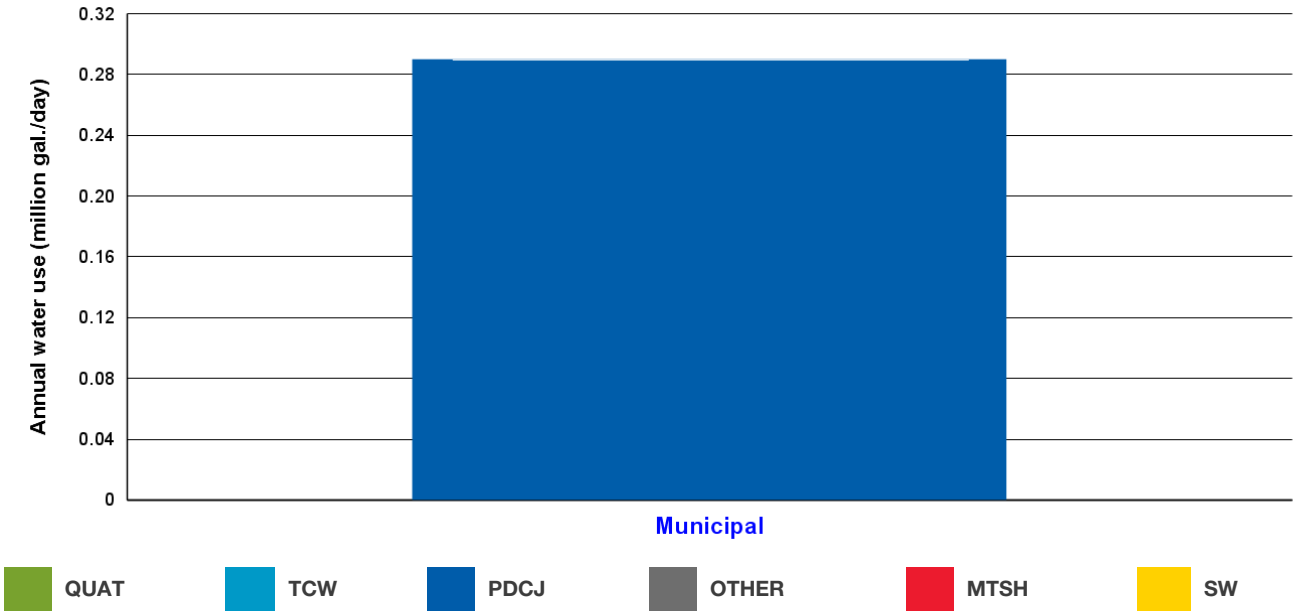
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	3	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

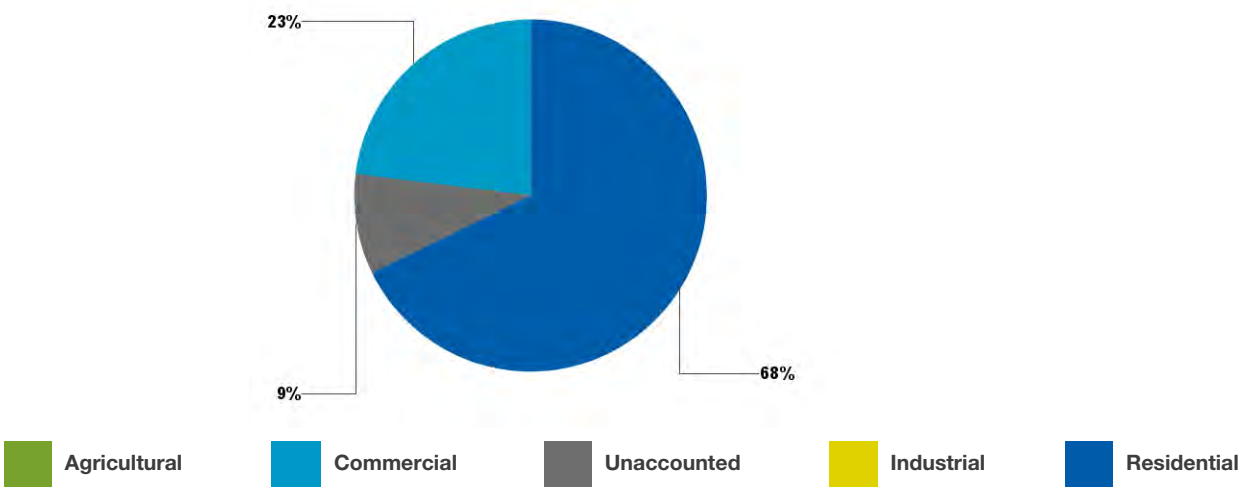
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

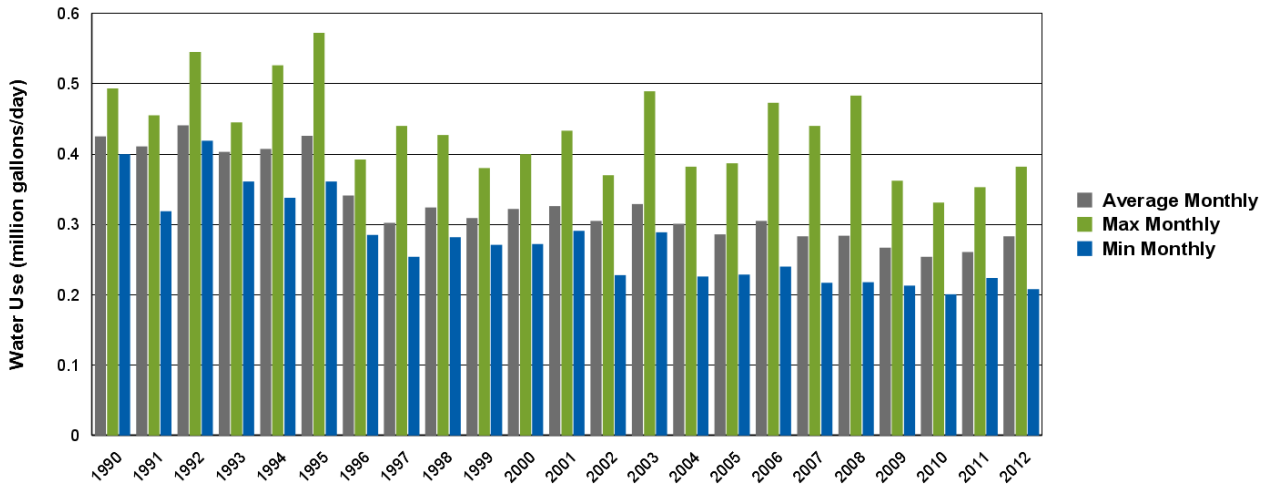
Municipal water treatment: Iron/Manganese Removal, Iron removal, Softening, Fluoride (Z), Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 93



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,330	2,390	2,600
Total Population	2,330	2,390	2,600
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.3	0.3
Total Per Capita Water Use (Gal/Person/Day)	128.76	125.52	115.38
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	121	118	109

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines

are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Fort Snelling (unorg.) Water Supply Profile

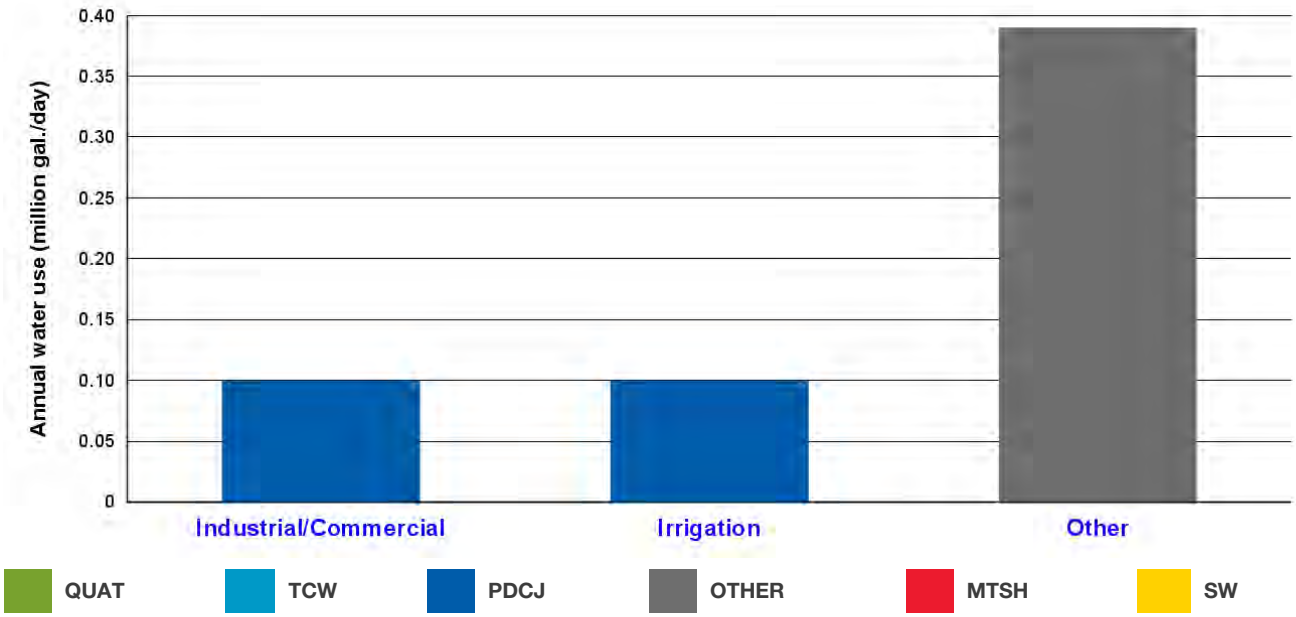
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Minneapolis.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	16	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	0	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Golden Valley Water Supply Profile

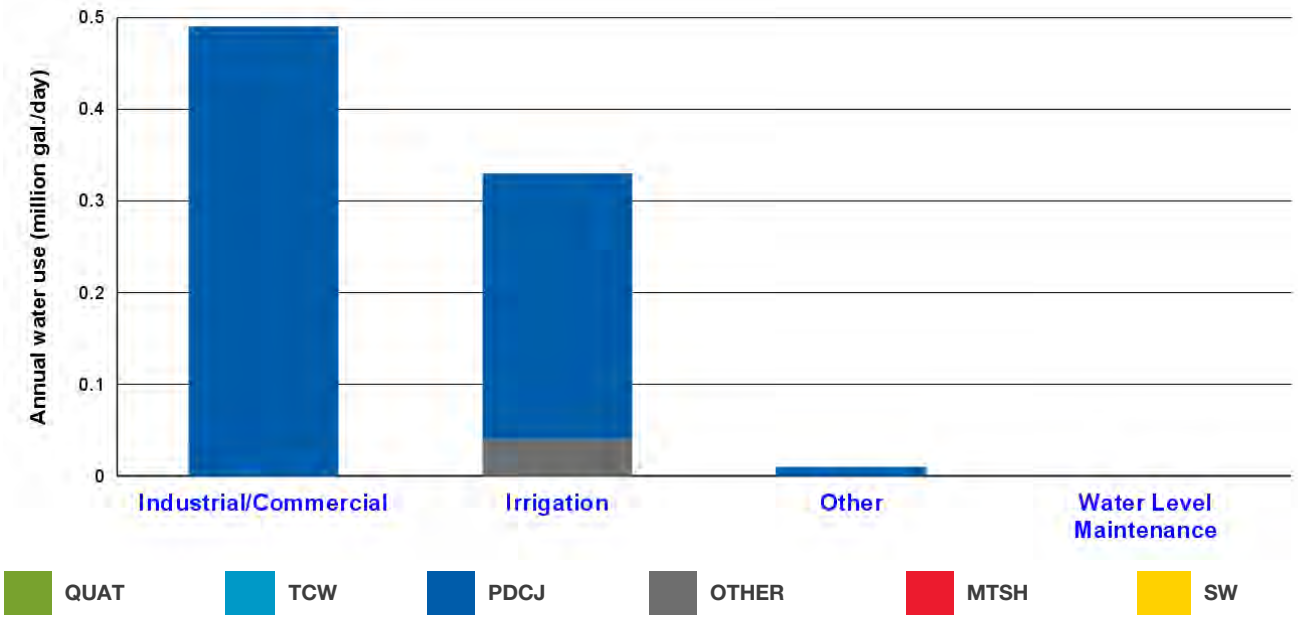
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Joint Water Commission.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	32	0
Quaternary (QUAT)	0	5	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	6	
Surface Water	0	0	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Greenwood Water Supply Profile

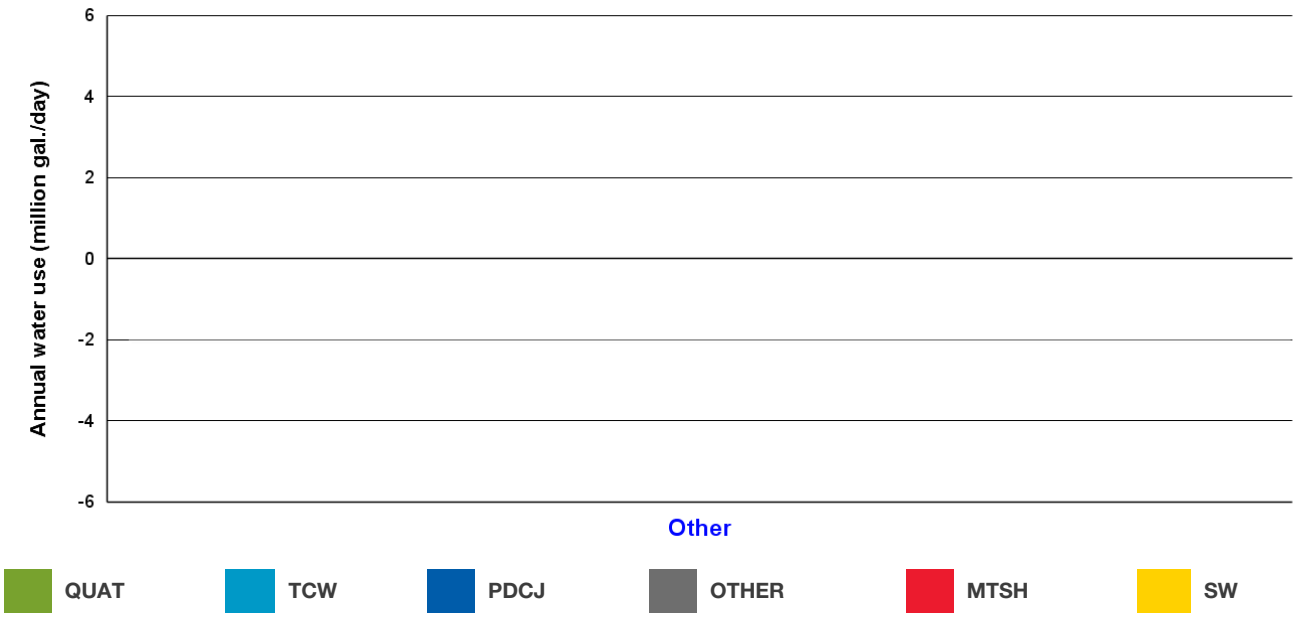
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Excelsior.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	3
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hopkins Water Supply Profile

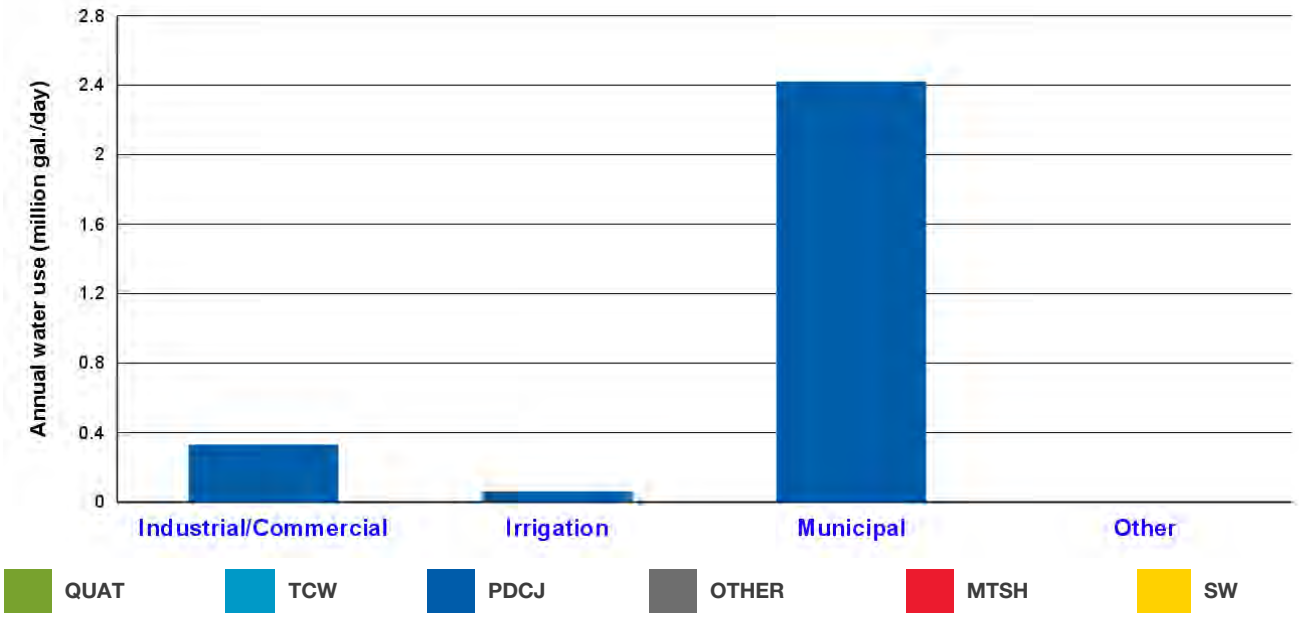
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	3	3	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	3	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

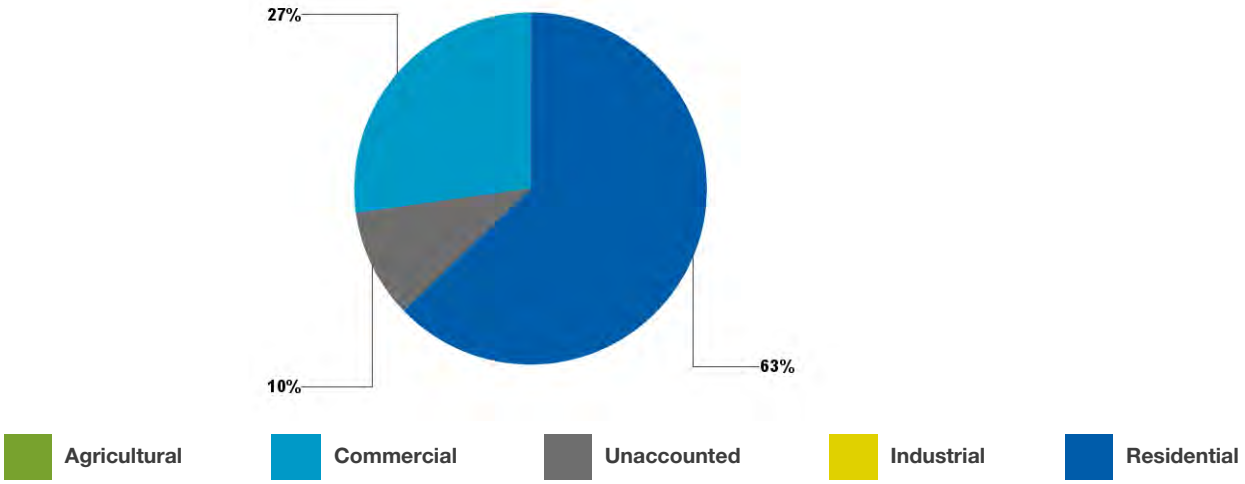
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

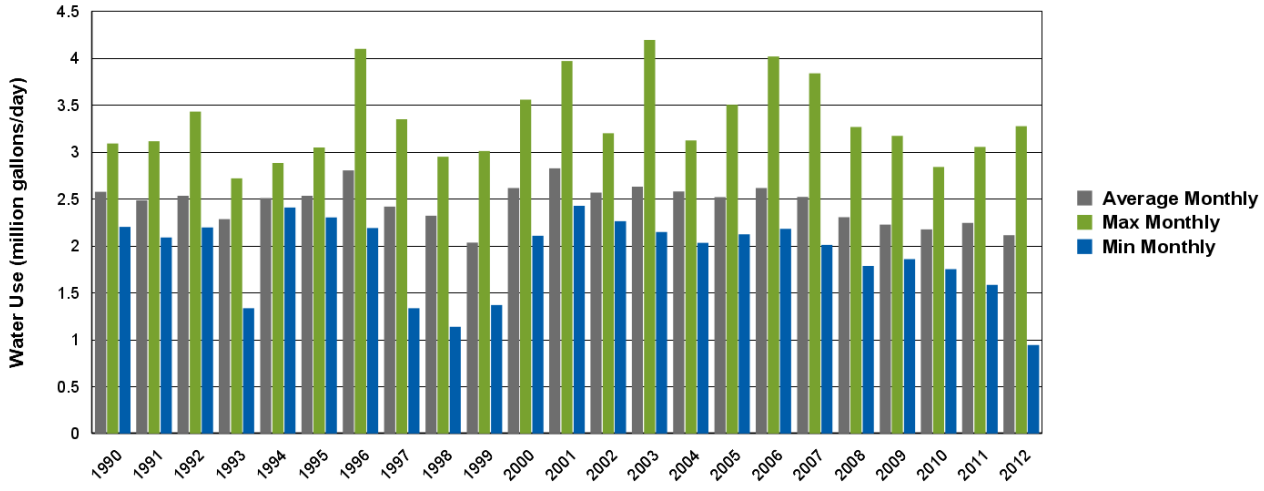
Municipal water treatment: Disinfection, Iron removal, Fluoride (Z), Corrosion control - Lead/Copper

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 690



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	19,700	20,800	21,600
Total Population	19,700	20,800	21,600
Projected Average Daily Water Use (Million Gal/Day)	2.7	2.9	3.0
Total Per Capita Water Use (Gal/Person/Day)	137.06	139.42	138.89
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	107	102	98

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Laketown Twp. Water Supply Profile

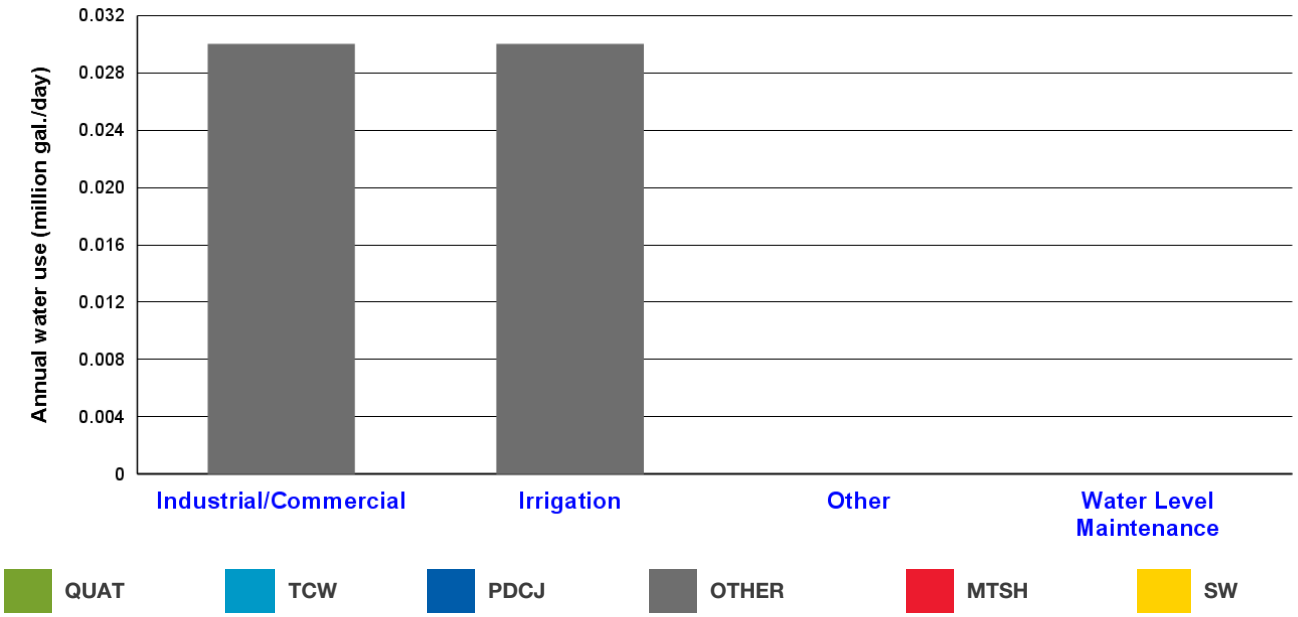
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	3	
Other	0	7	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Long Lake Water Supply Profile

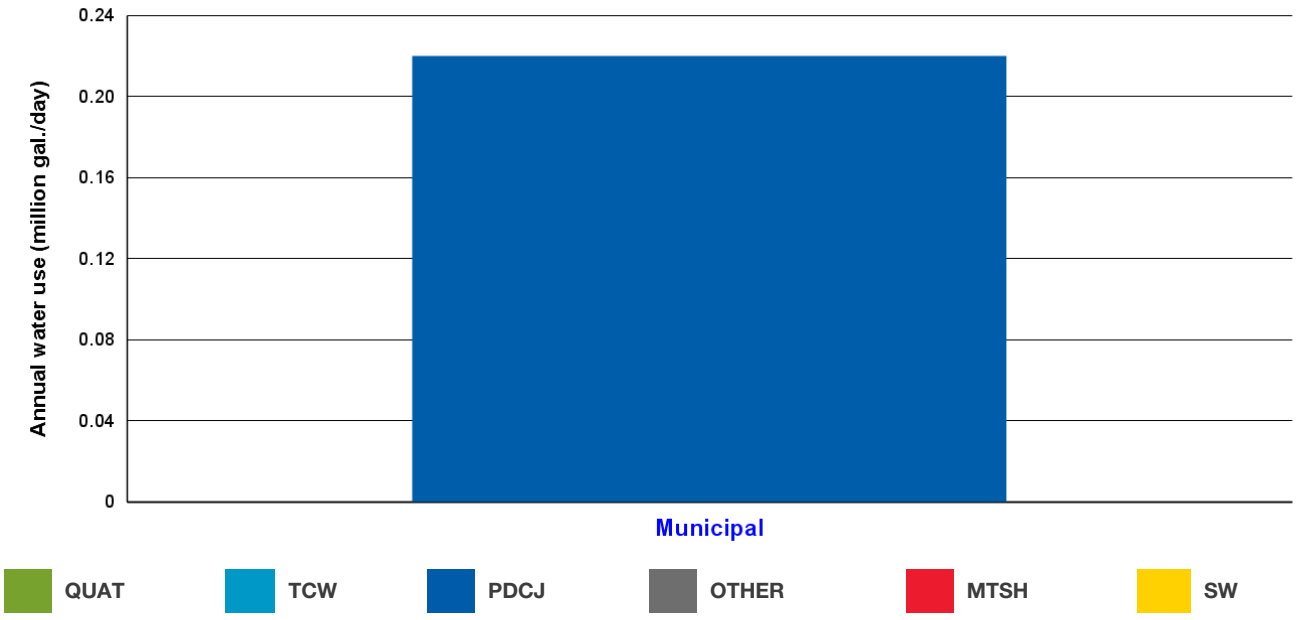
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	3	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

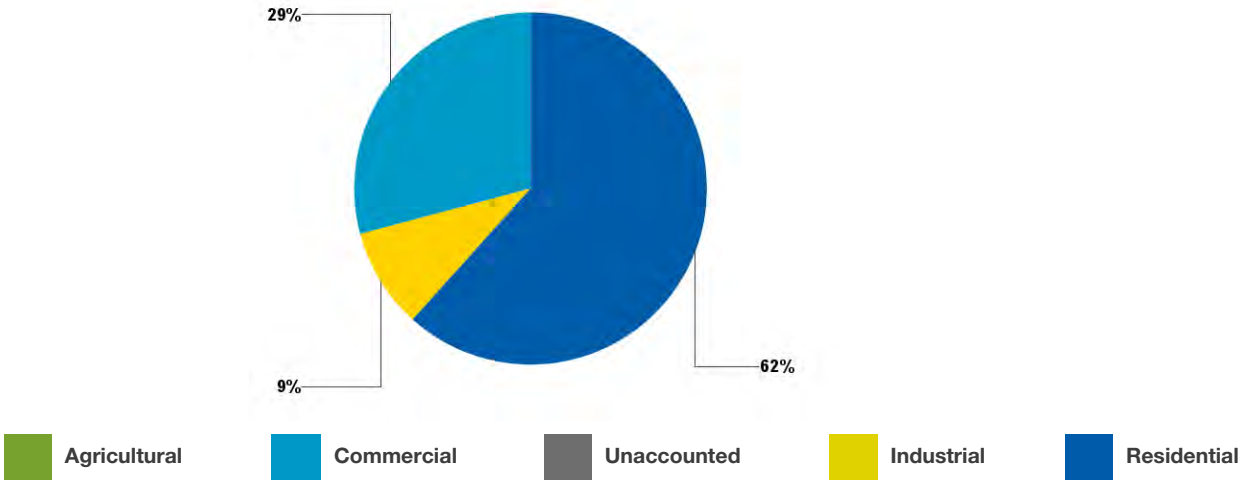
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

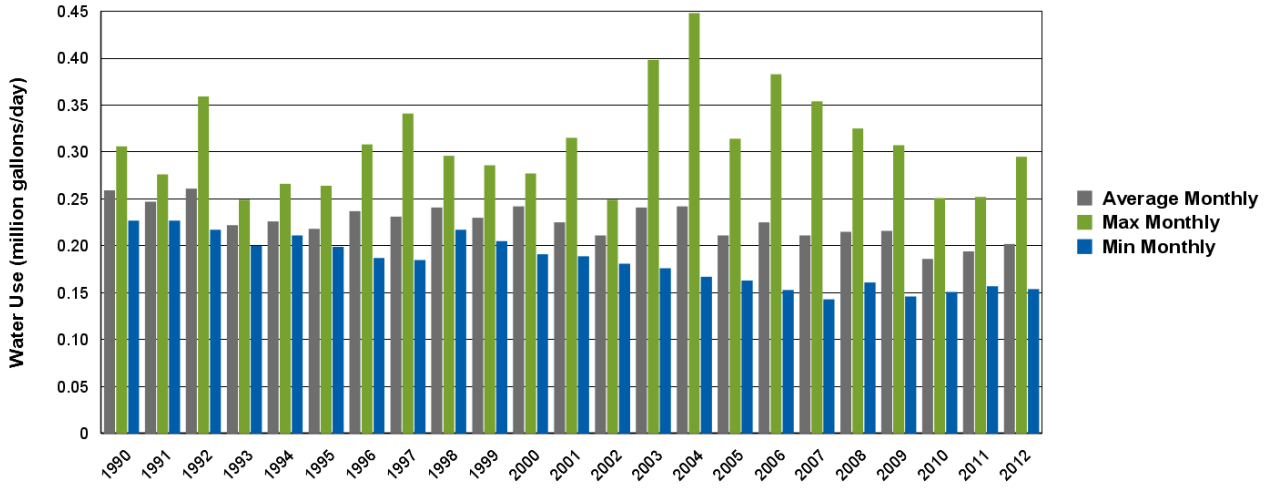
Municipal water treatment: Fluoride (Z), Disinfection, Iron/Manganese Sequestration

Rate structure: Unknown

2012 Permitted amount for municipal water supply (million gallons/year): 73



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	1,890	1,940	2,100
Total Population	1,890	1,940	2,100
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.2	0.3
Total Per Capita Water Use (Gal/Person/Day)	105.82	103.09	142.86
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	107	104	96

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Loretto Water Supply Profile

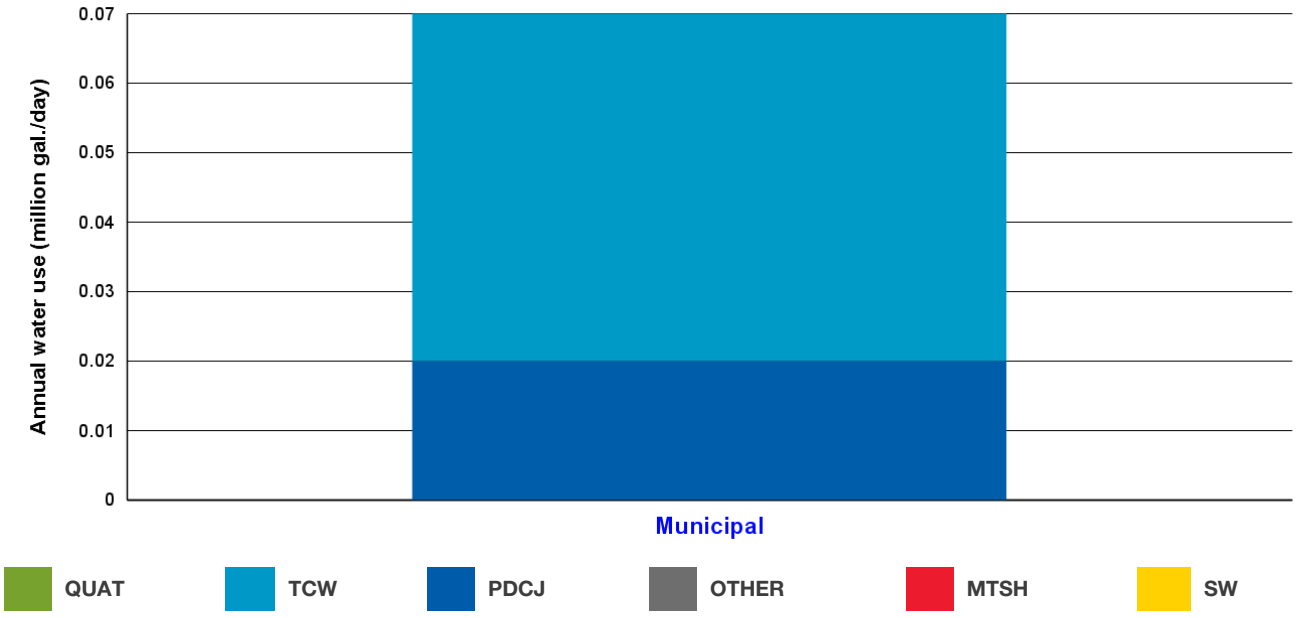
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	1	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

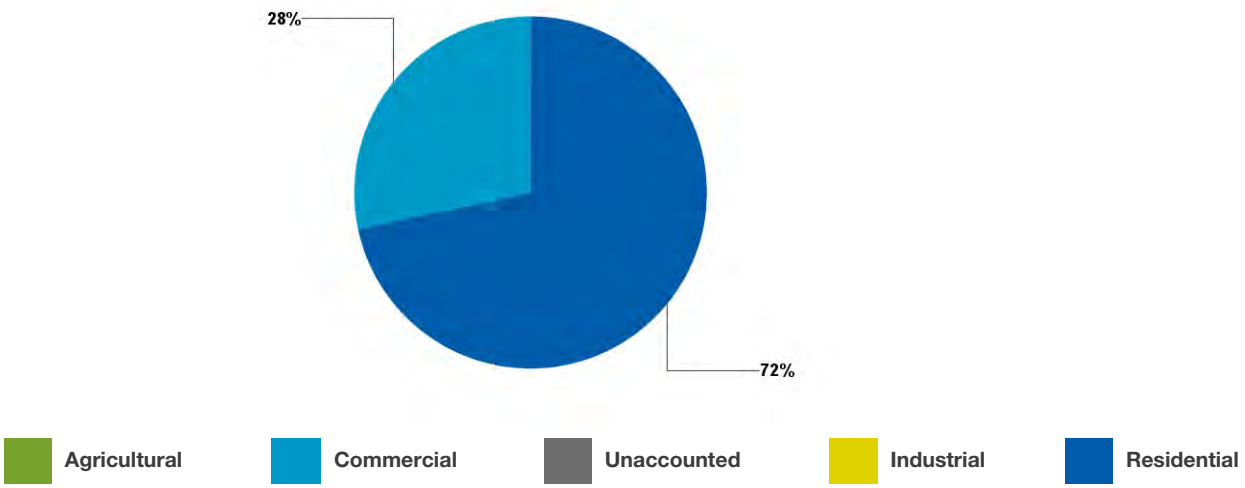
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

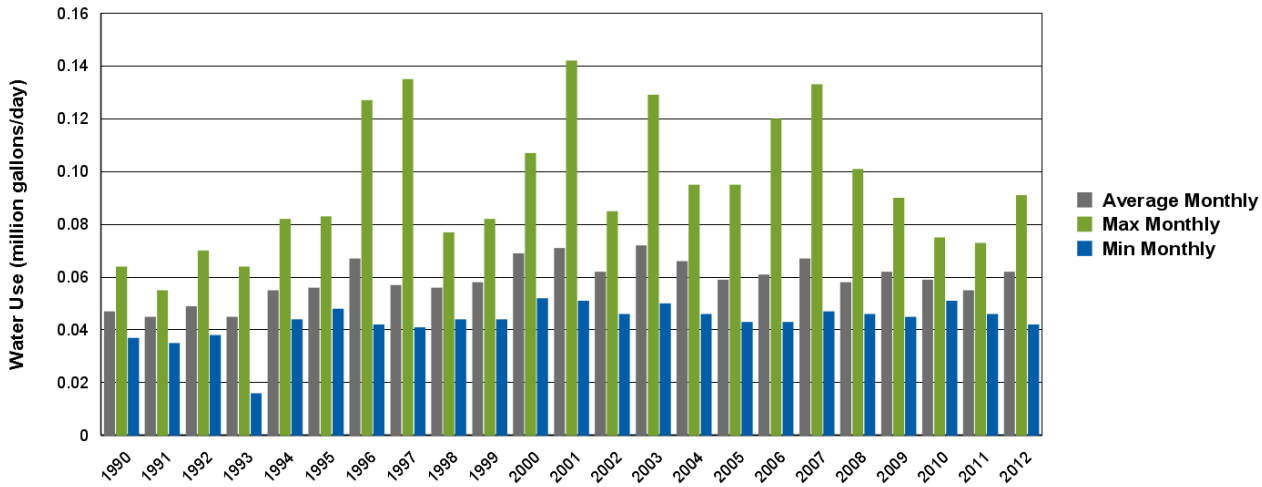
Municipal water treatment: Corrosion control - Lead/Copper, Fluoride (Z), Disinfection, Iron/Manganese Sequestration

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 22



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	660	670	670
Total Population	660	670	670
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	151.52	149.25	149.25
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	94	92	92

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Maple Grove Water Supply Profile

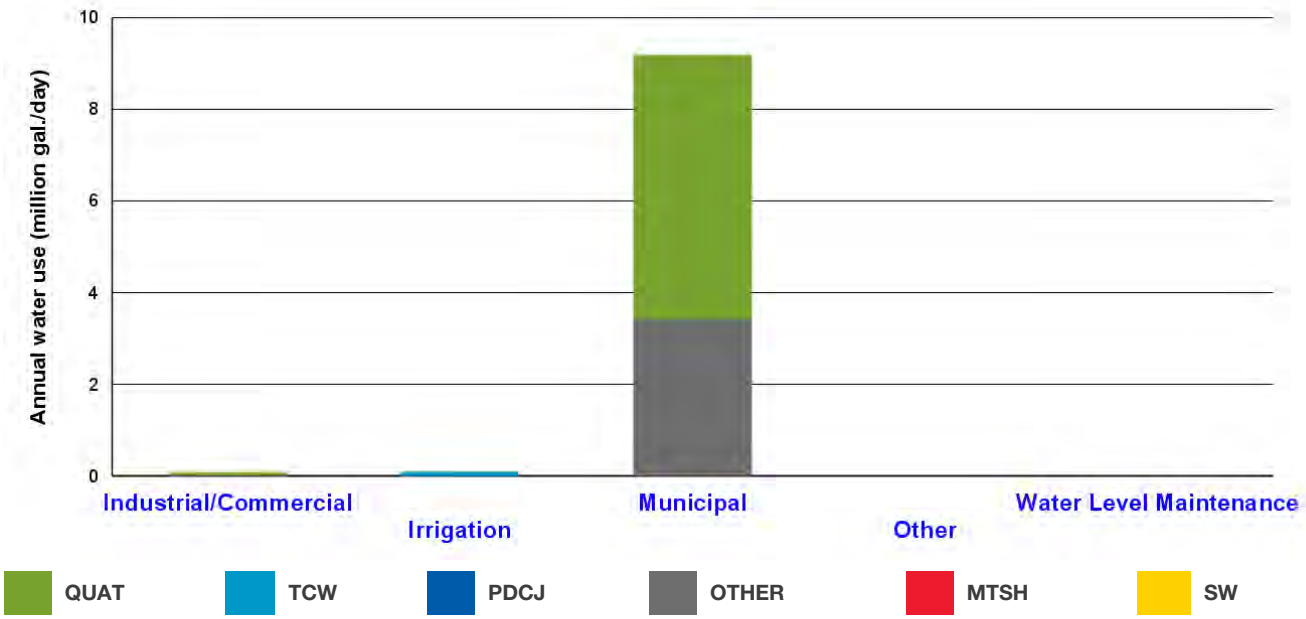
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	3	0
Quaternary (QUAT)	8	13	
Tunnel City-Wonewoc (TCW)	0	1	
Other	4	6	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

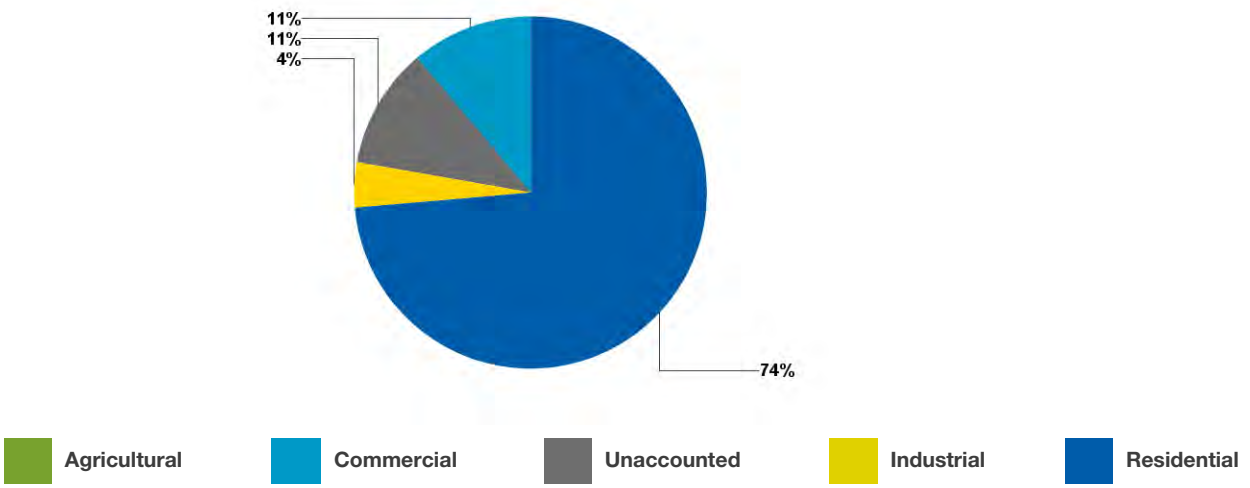
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

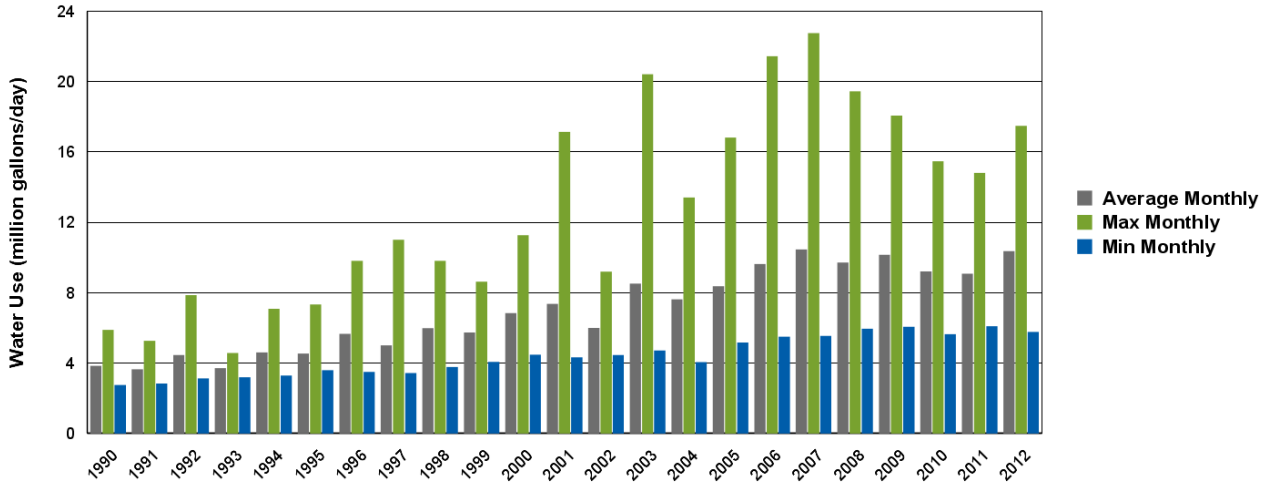
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Iron removal, Manganese removal, Fluoride (Z), Other

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 3,386



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	69,866	79,433	89,000
Total Population	69,300	76,000	84,800
Projected Average Daily Water Use (Million Gal/Day)	11.3	12.9	14.4
Total Per Capita Water Use (Gal/Person/Day)	161.74	162.40	161.80
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	148	130	116

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Medicine Lake Water Supply Profile

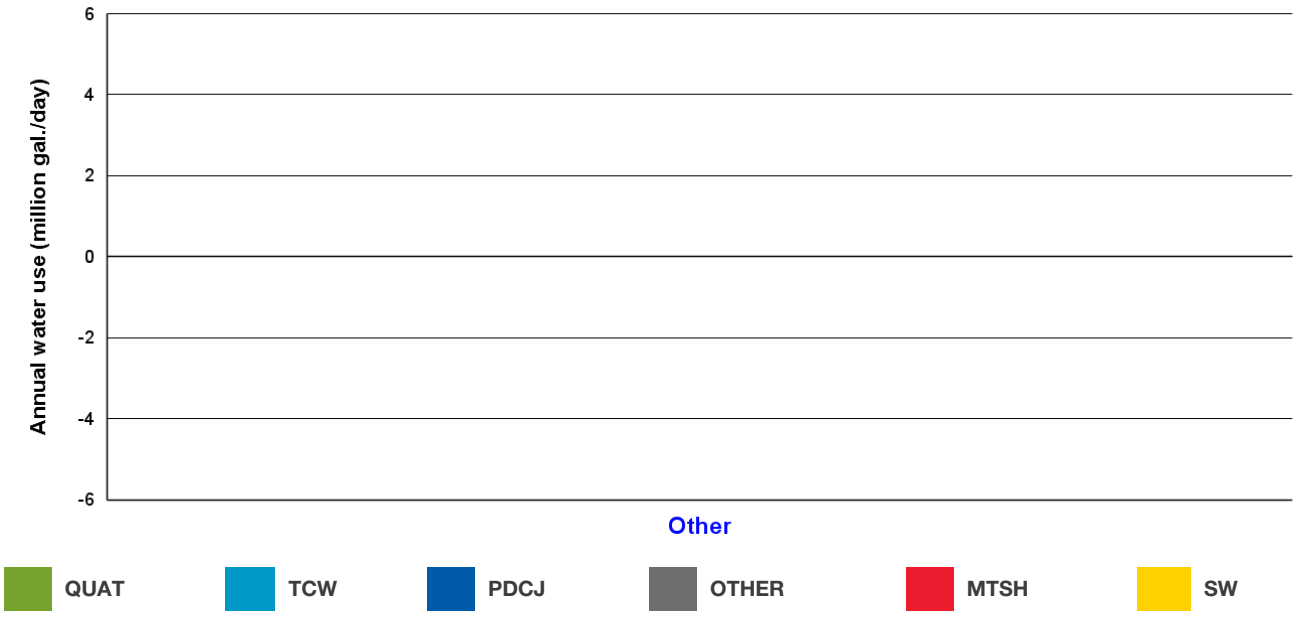
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Minneapolis Water Supply Profile

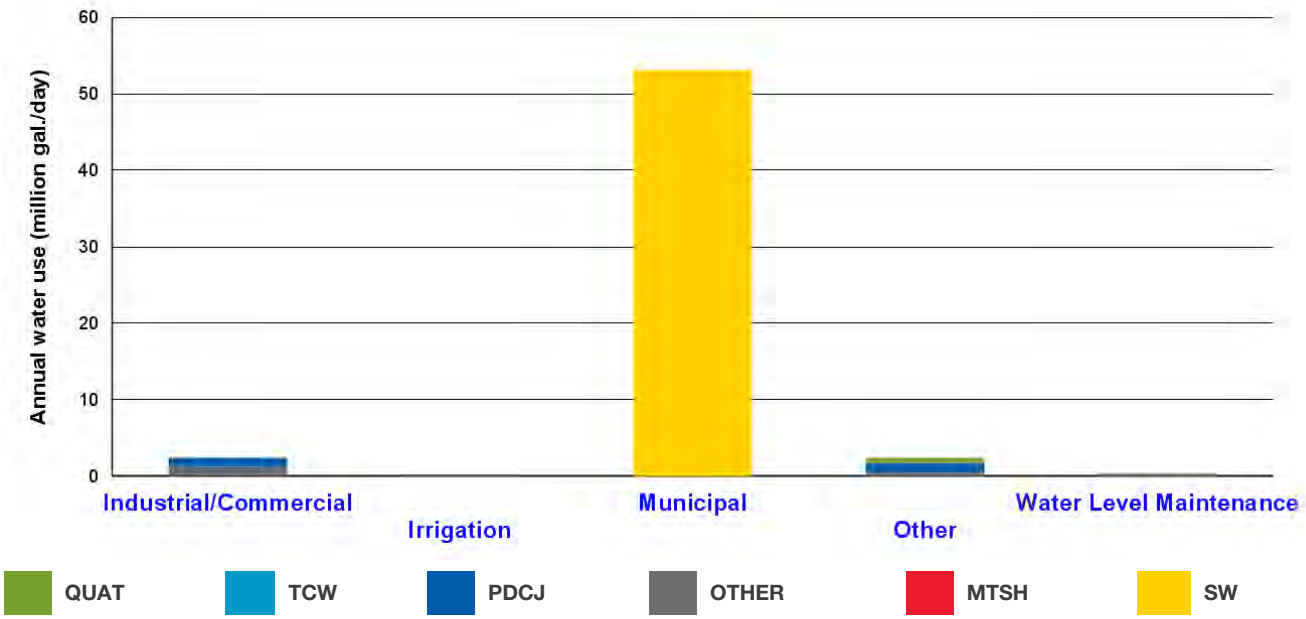
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	4	
Prairie du Chien-Jordan (PDCJ)	0	84	0
Quaternary (QUAT)	0	73	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	130	
Surface Water	0	6	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

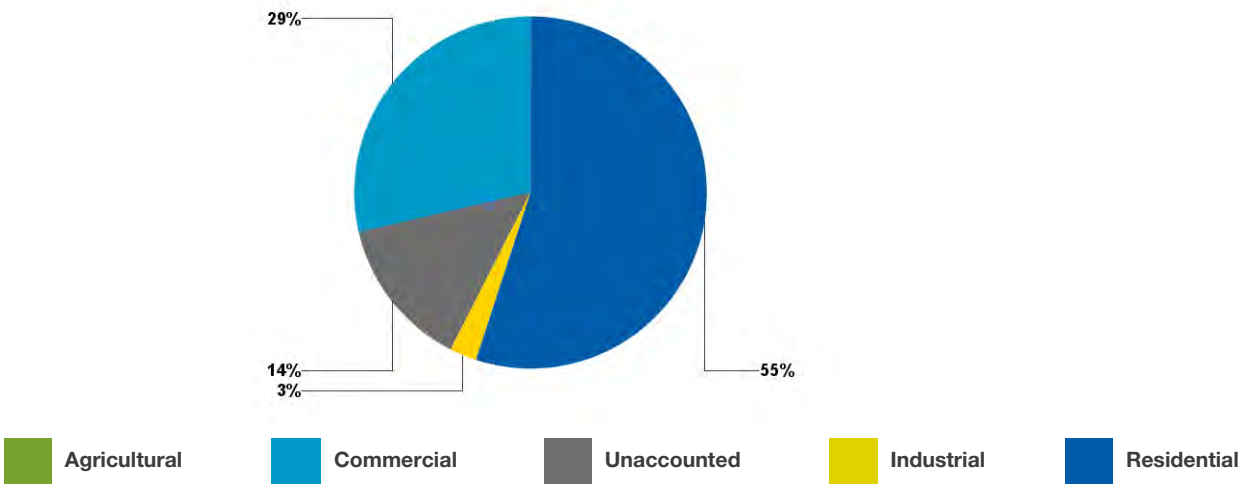
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

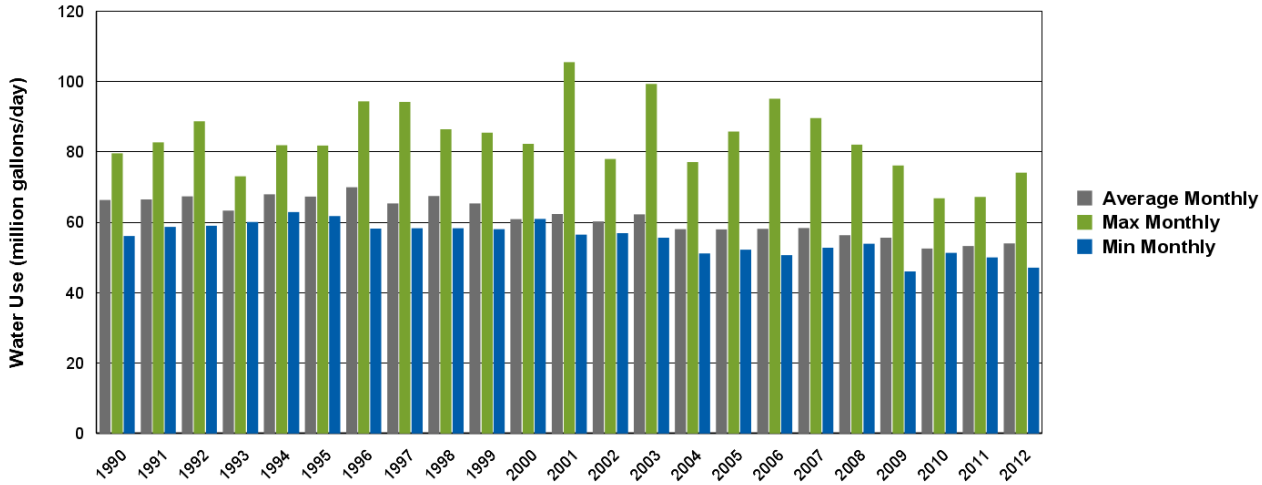
Municipal water treatment: Fluoride (Z), Corrosion control - Lead/Copper, Taste/Odor control, Softening, Particulate removal, Disinfection

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 17,752



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	424,700	449,500	466,400
Total Population	424,700	449,500	466,400
Projected Average Daily Water Use (Million Gal/Day)	42.0	44.5	46.2
Total Per Capita Water Use (Gal/Person/Day)	98.89	99.00	99.06
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	103	97	93

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Minnetonka Beach Water Supply Profile

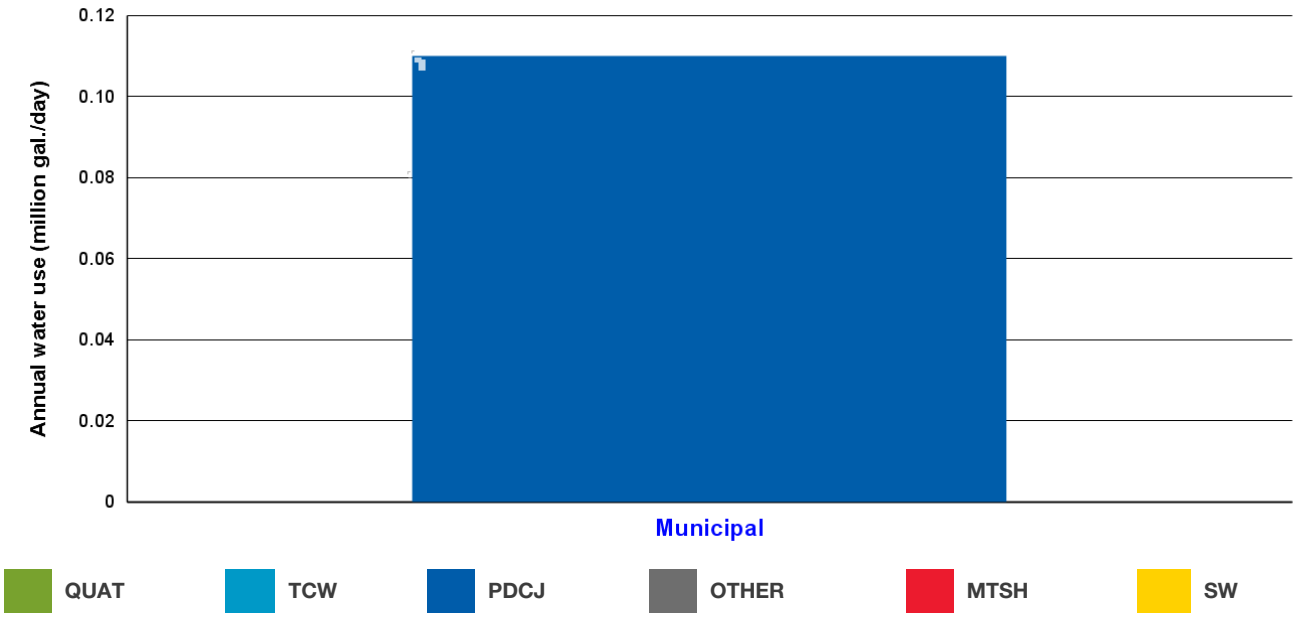
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

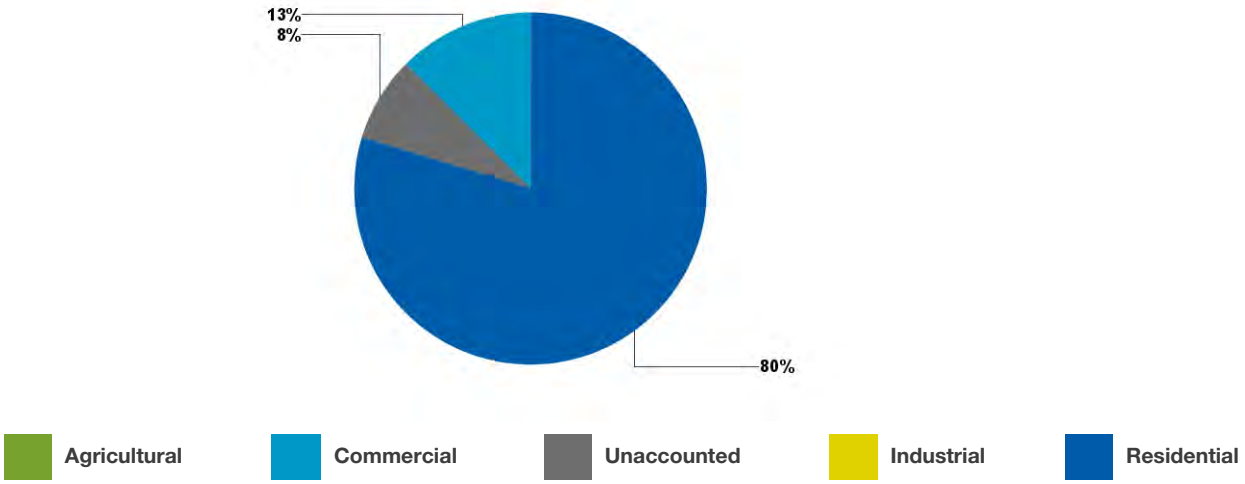
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

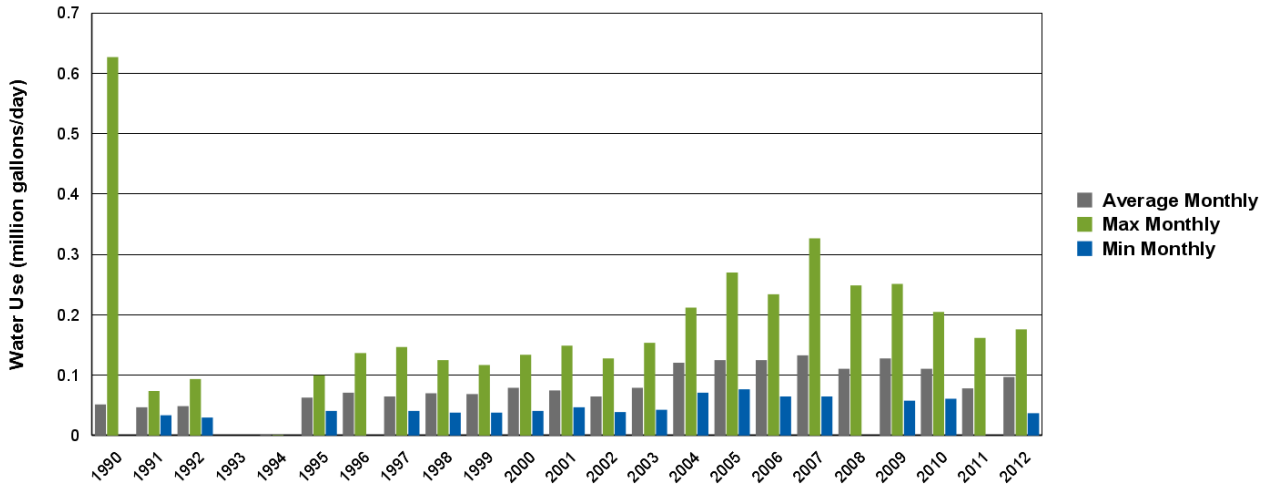
Municipal water treatment: Disinfection, Iron removal, Fluoride (Z)

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 32



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	528	568	568
Total Population	570	610	610
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	189.39	176.06	176.06
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	184	171	171

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule

for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Minnetonka Water Supply Profile

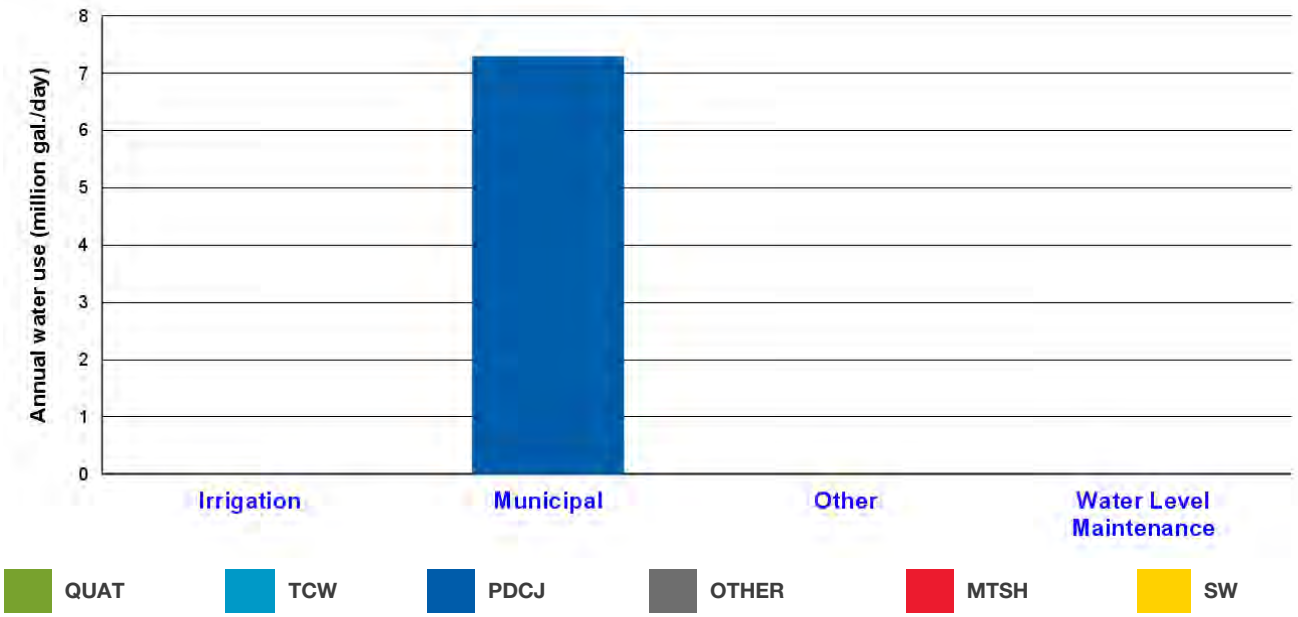
Overview of water system and use in the community:

The community owns and operates their own water supply system, as well as supplying water to additional communities. Wayzata supplies a small number of residents.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	20	2	2
Quaternary (QUAT)	0	16	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

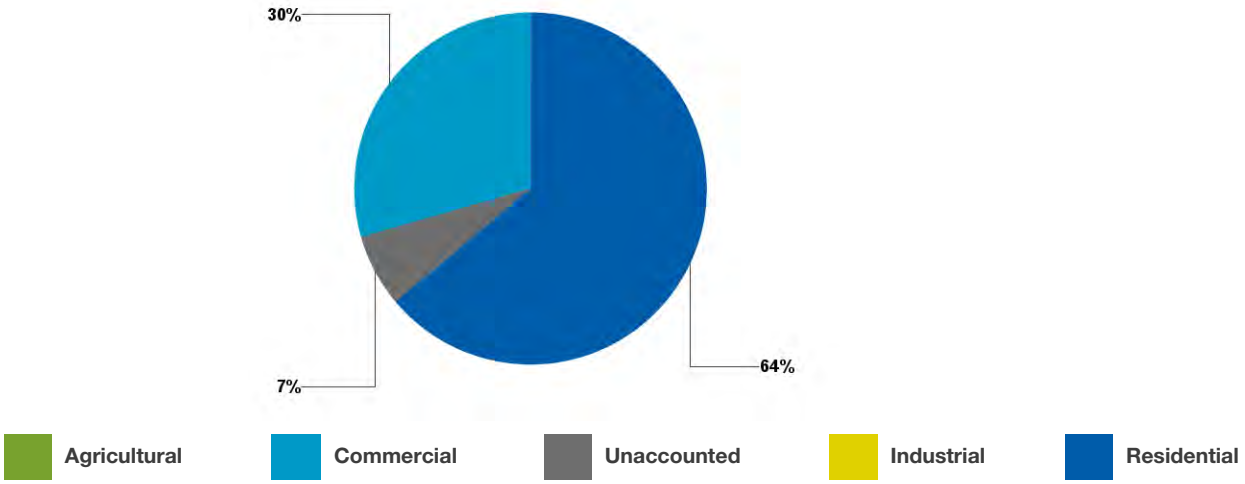
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

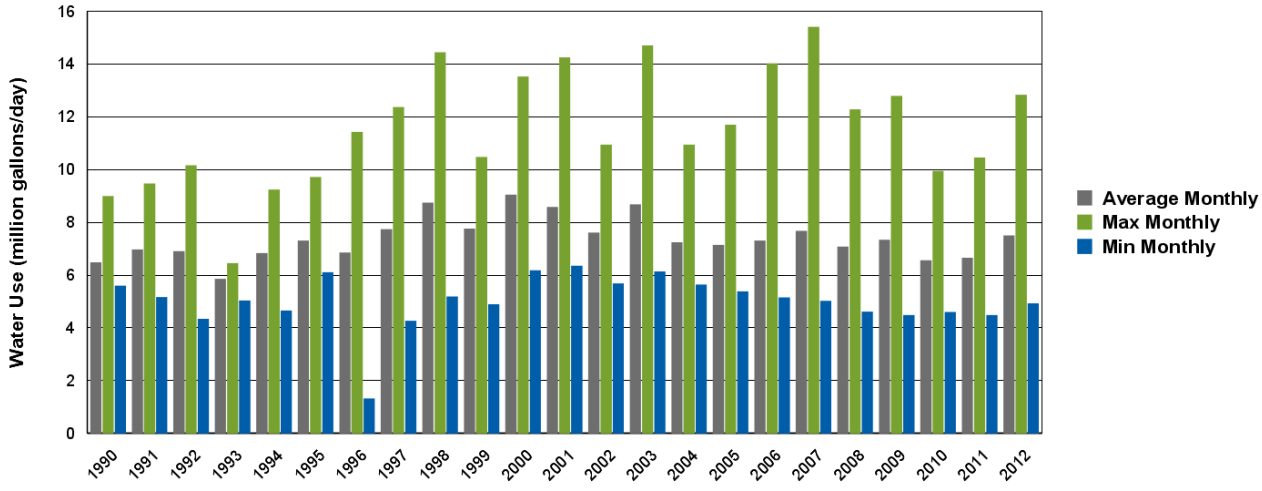
Municipal water treatment: Iron removal, Fluoride (Z), Corrosion control - Lead/Copper, Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 2,540



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	53,585	57,541	61,496
Total Population	55,900	60,600	63,000
Projected Average Daily Water Use (Million Gal/Day)	7.8	8.4	9.0
Total Per Capita Water Use (Gal/Person/Day)	145.56	145.98	146.35
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	140	130	122

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Minnetrista Water Supply Profile

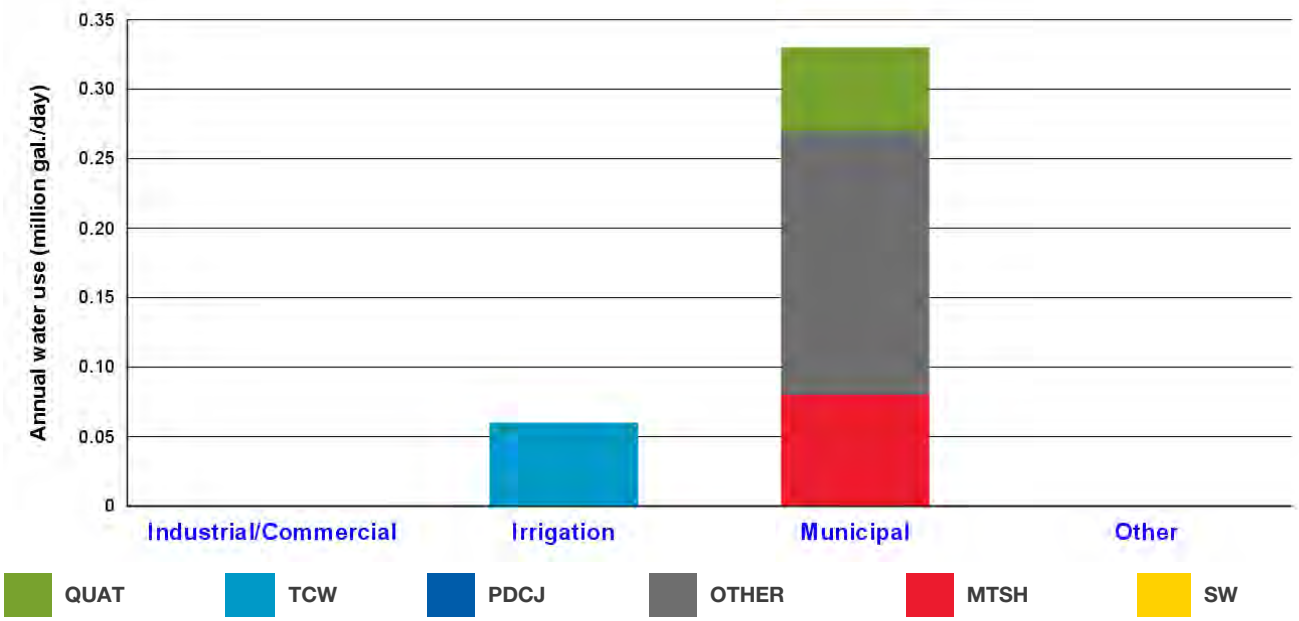
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	2	0	
Tunnel City-Wonewoc (TCW)	2	1	
Other	3	6	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

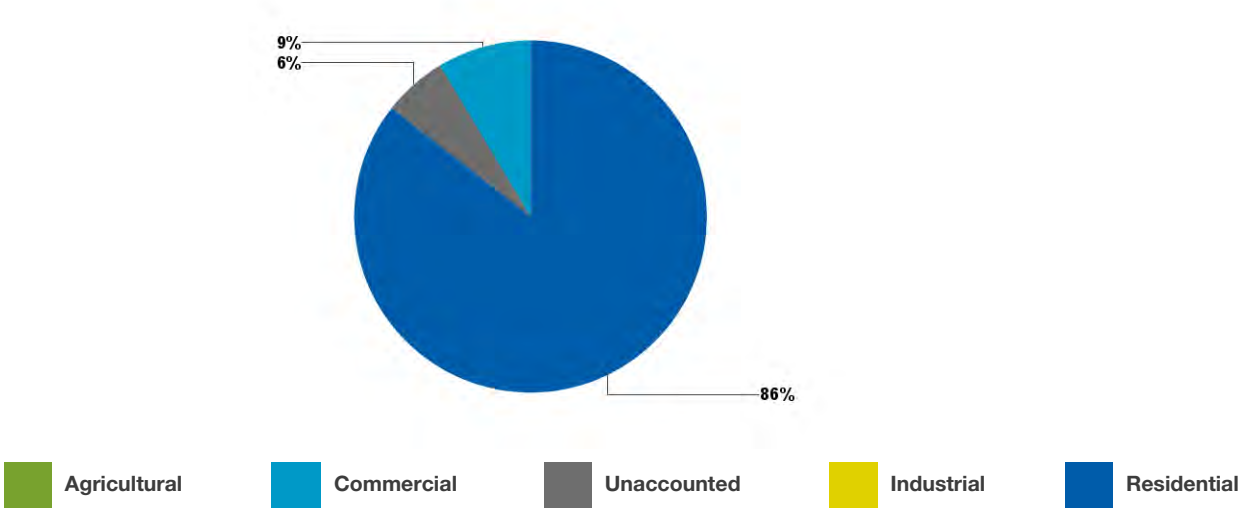
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

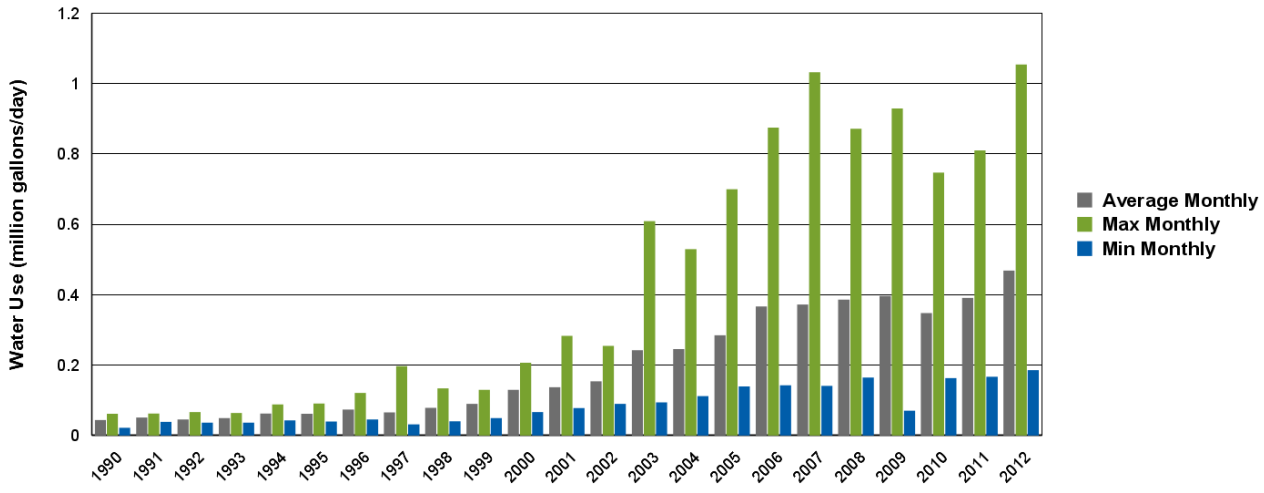
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 160



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	4,024	6,324	9,524
Total Population	7,500	9,800	13,000
Projected Average Daily Water Use (Million Gal/Day)	0.6	0.9	1.4
Total Per Capita Water Use (Gal/Person/Day)	149.11	142.31	147.00
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	117	74	49

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Mound Water Supply Profile

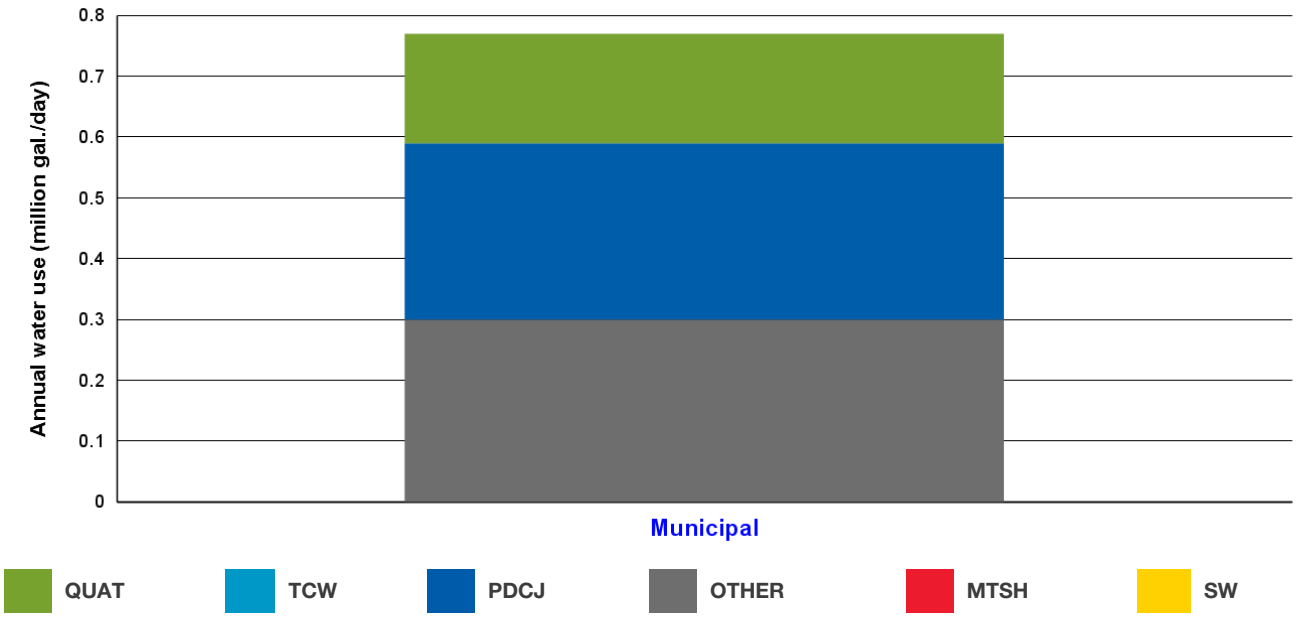
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	1	0	0
Quaternary (QUAT)	4	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	2	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

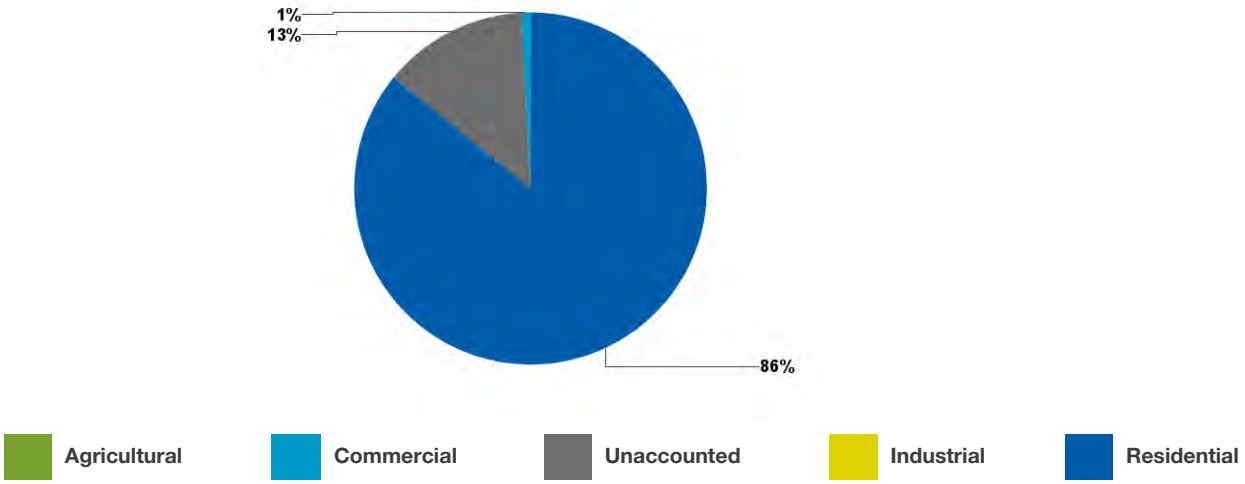
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

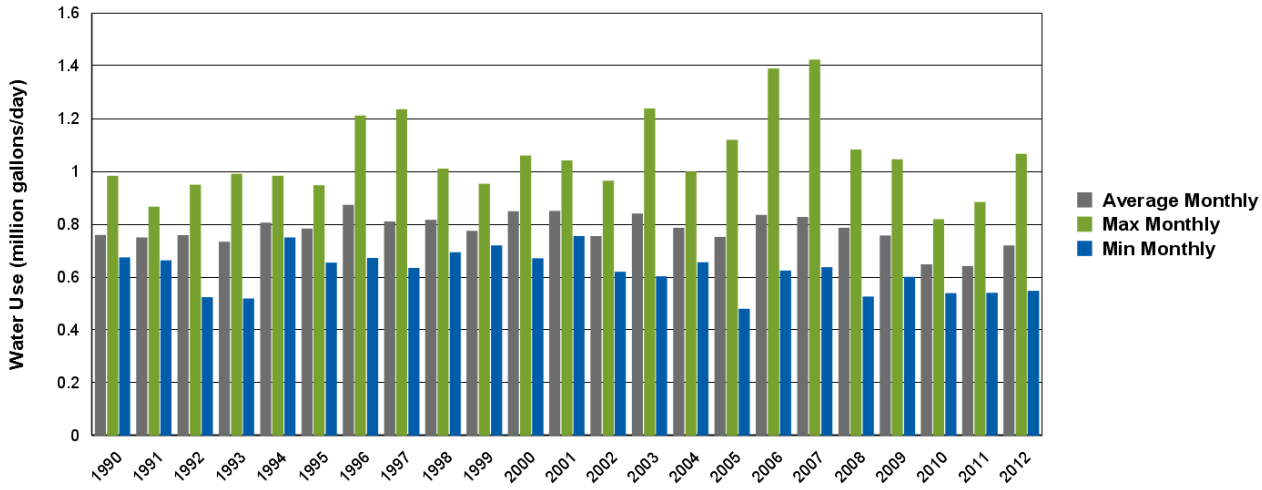
Municipal water treatment: Disinfection, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 227



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	9,600	9,900	10,500
Total Population	9,600	9,900	10,500
Projected Average Daily Water Use (Million Gal/Day)	0.8	0.8	0.9
Total Per Capita Water Use (Gal/Person/Day)	83.33	80.81	85.71
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	75	73	69

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

New Hope Water Supply Profile

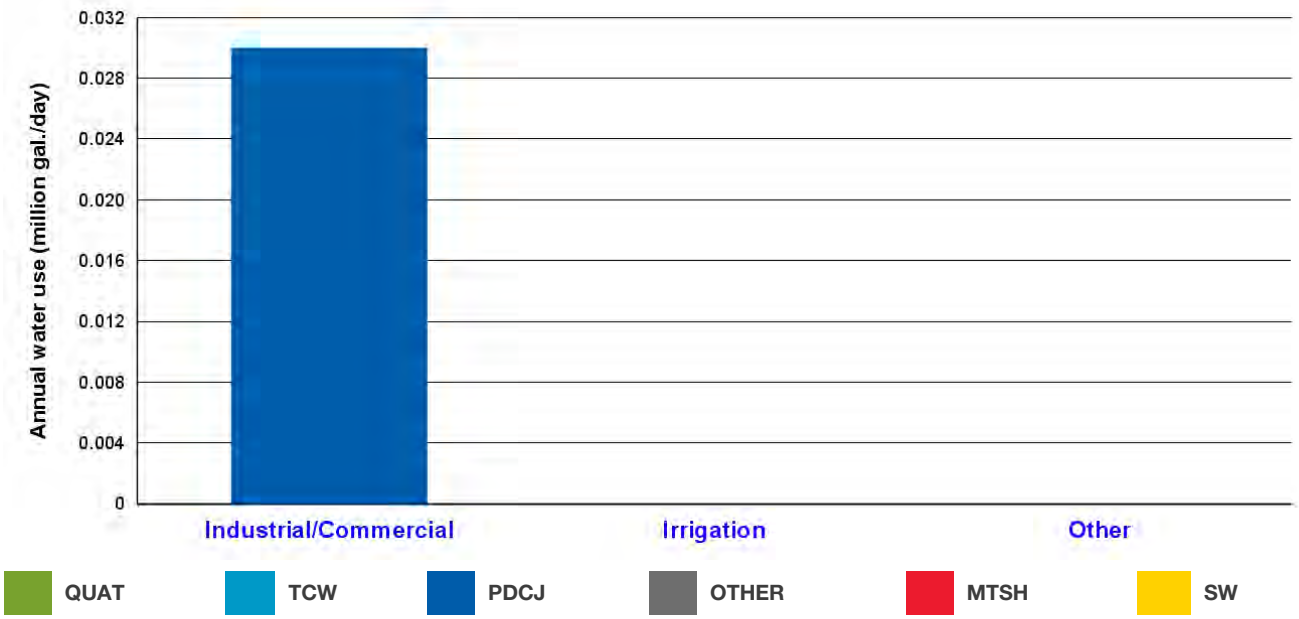
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Joint Water Commission.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	1	0
Quaternary (QUAT)	0	6	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	1

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Orono Water Supply Profile

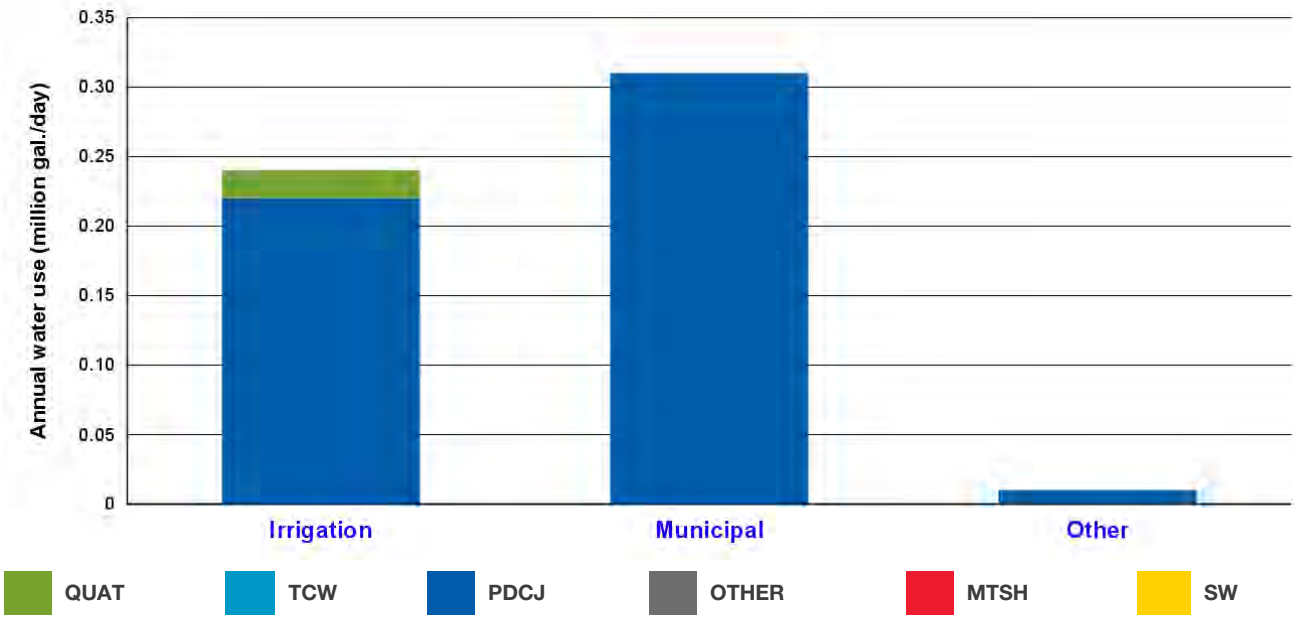
Overview of water system and use in the community:

The community owns and operates their own water supply system, with Wayzata as a water source for a small portion of the community.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	5	2
Quaternary (QUAT)	1	3	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

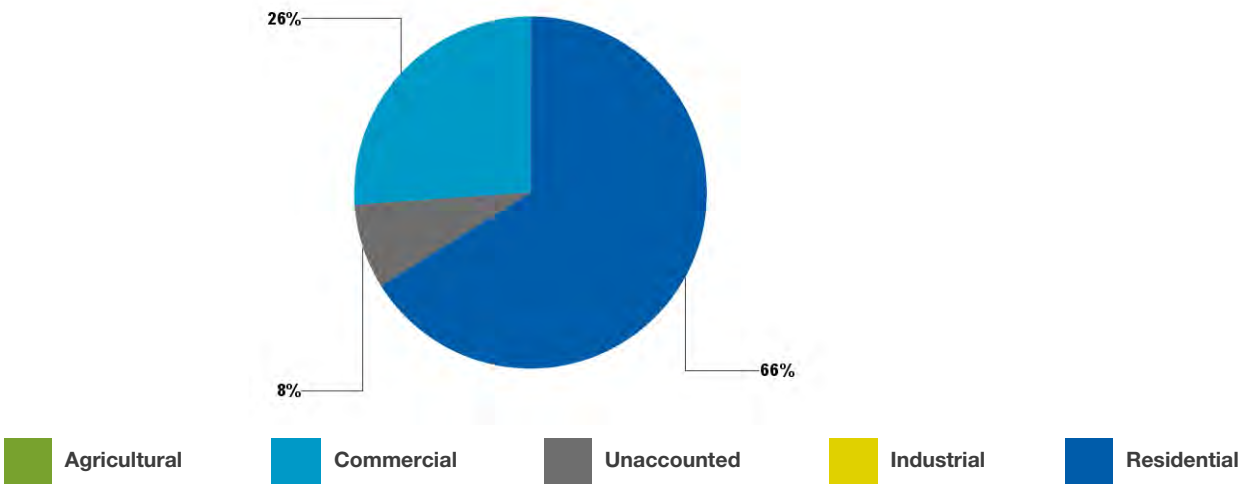
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

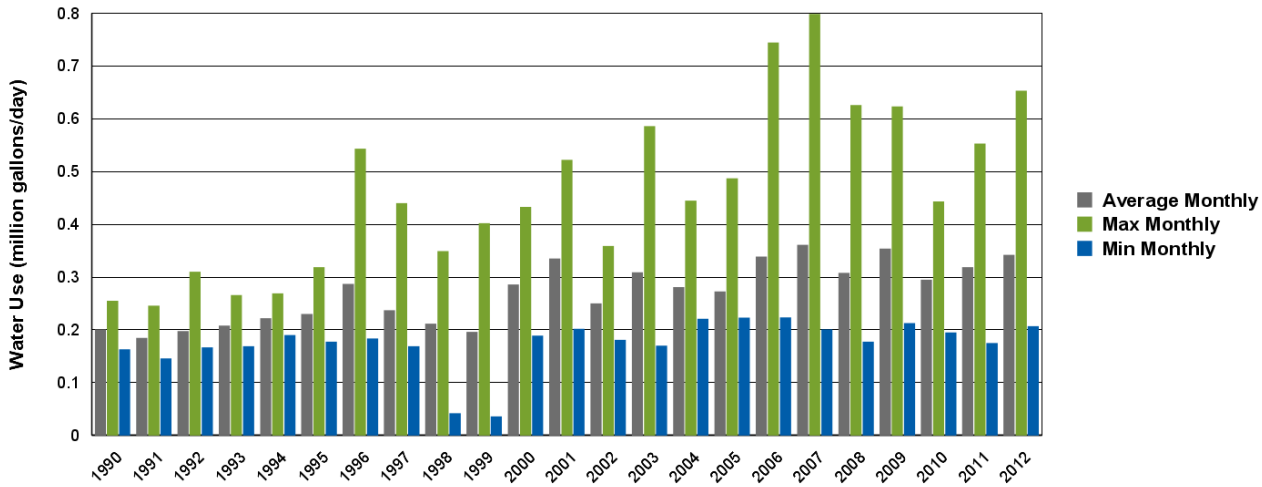
Municipal water treatment: Disinfection, Iron removal, Softening, Fluoride (Z), Corrosion control - Lead/Copper

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 115



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,666	2,966	4,066
Total Population	8,000	8,300	9,400
Projected Average Daily Water Use (Million Gal/Day)	0.4	0.4	0.6
Total Per Capita Water Use (Gal/Person/Day)	150.04	134.86	147.57
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	128	115	84

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Osseo Water Supply Profile

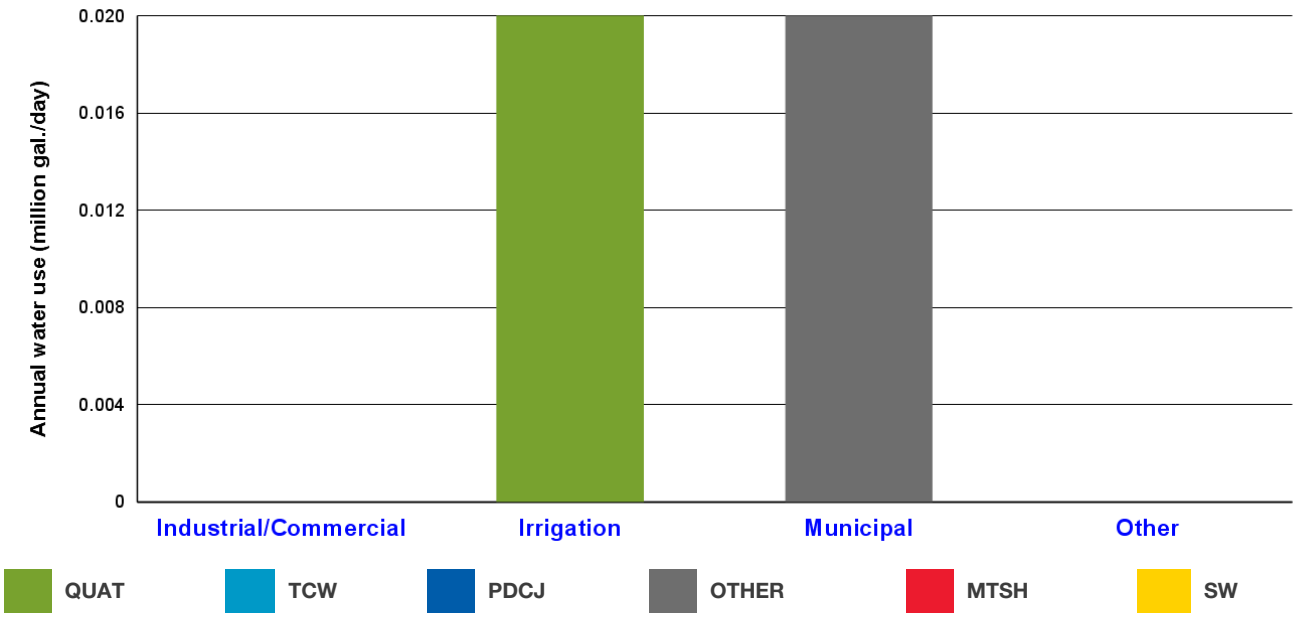
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Maple Grove.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Plymouth Water Supply Profile

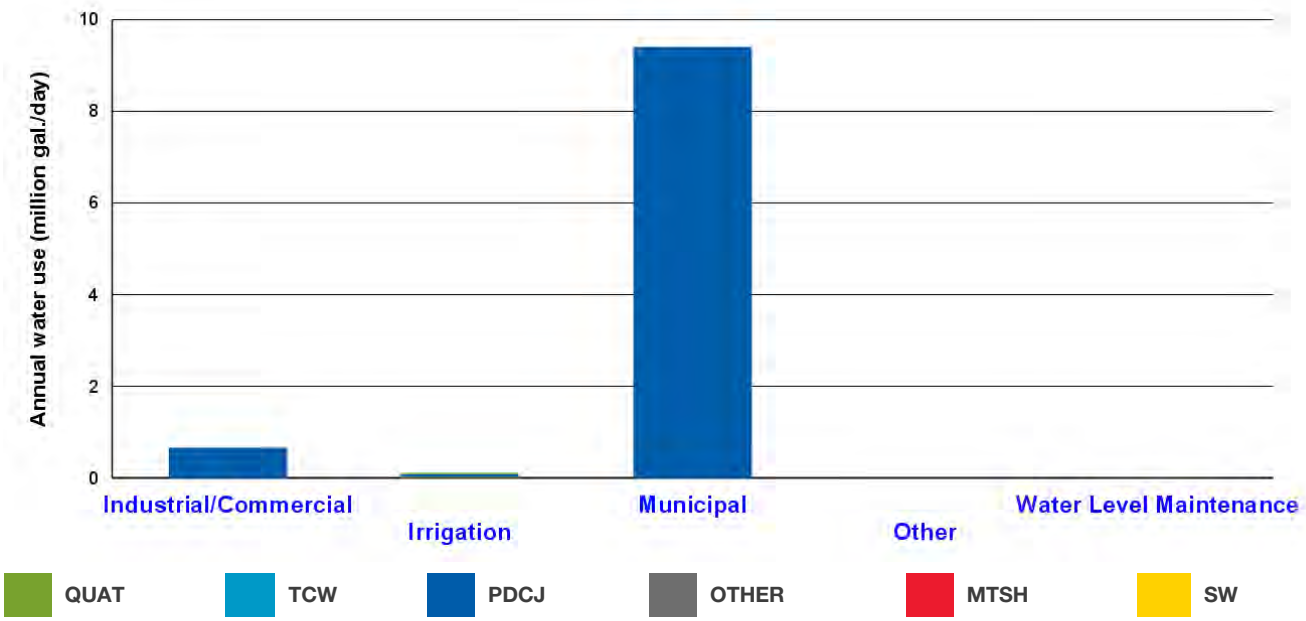
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	17	7	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	9	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

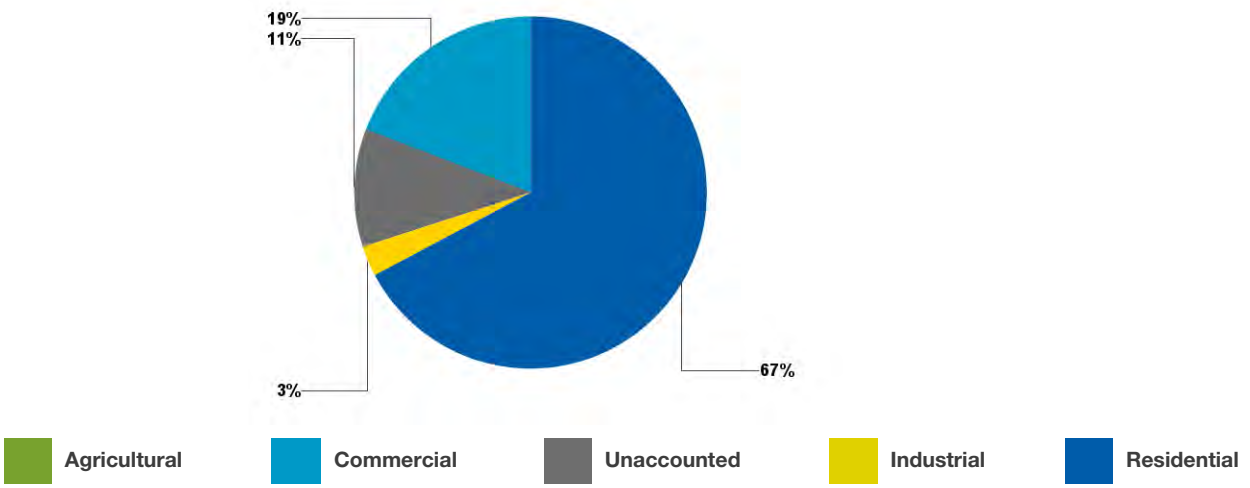
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

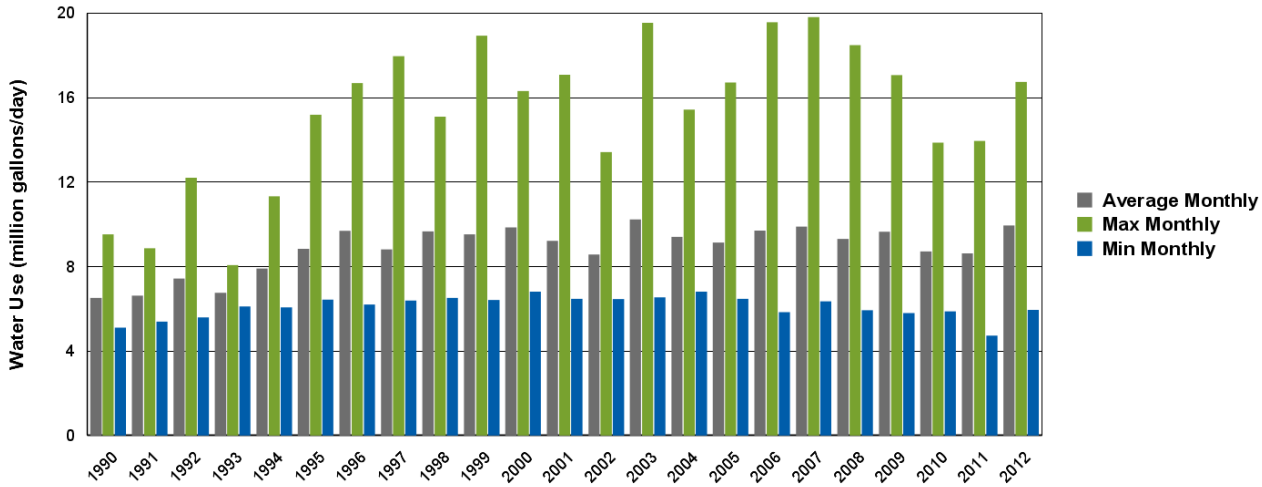
Municipal water treatment: Corrosion control - Lead/Copper, Disinfection, Iron removal, Fluoride (Z), Manganese removal

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 3,225



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	73,912	77,749	81,585
Total Population	75,400	81,600	87,800
Projected Average Daily Water Use (Million Gal/Day)	10.1	10.7	11.2
Total Per Capita Water Use (Gal/Person/Day)	136.65	137.62	137.28
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	135	128	122

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Richfield Water Supply Profile

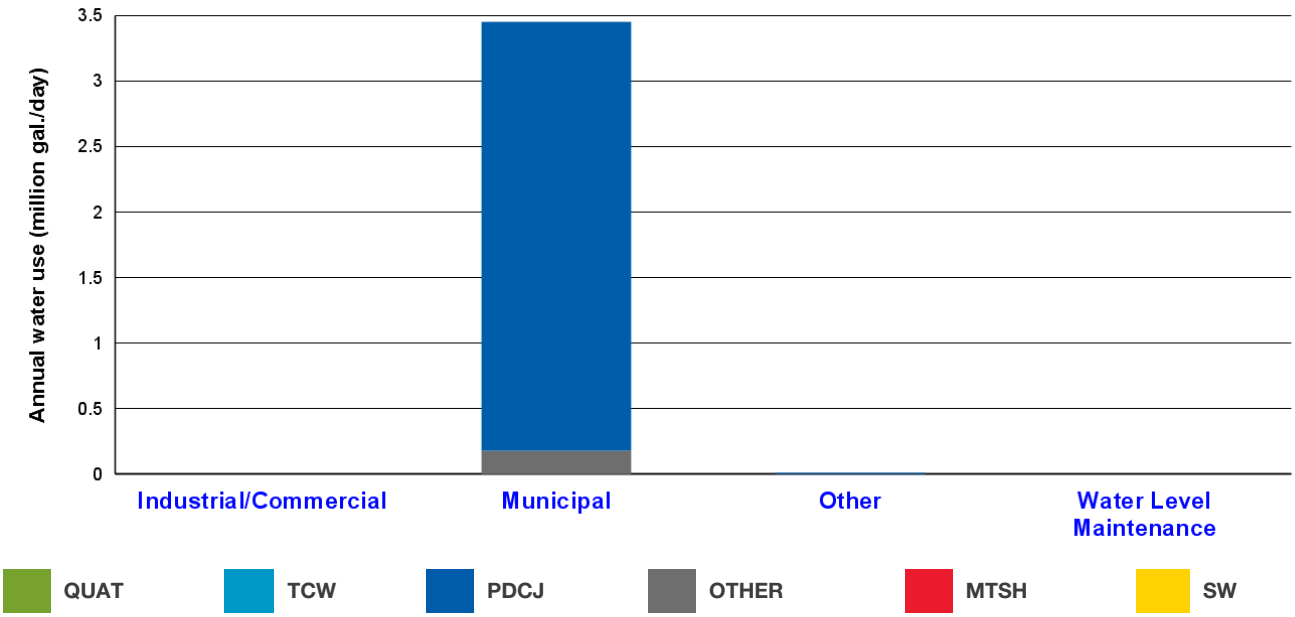
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	6	3	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

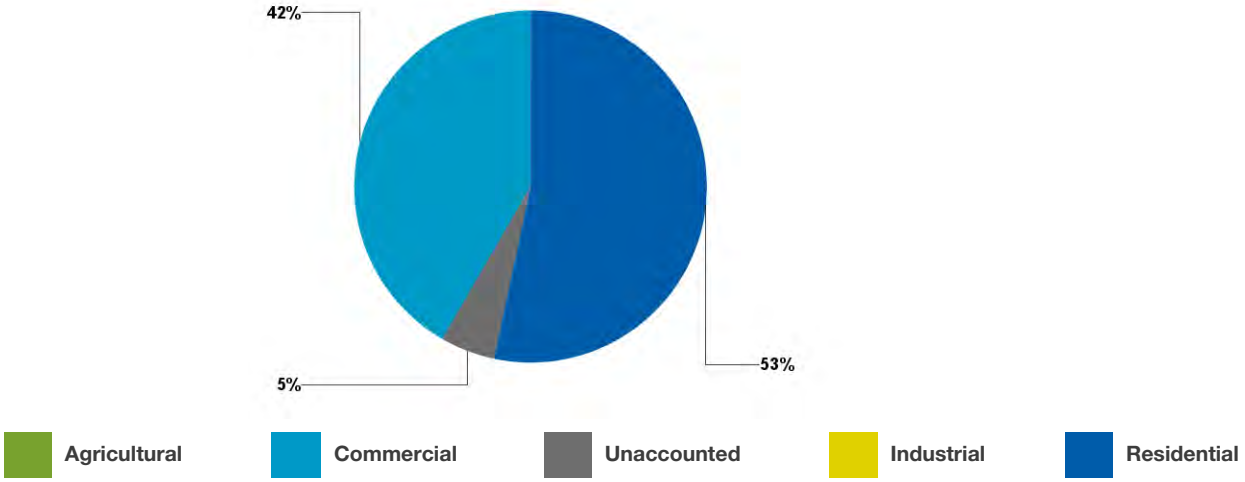
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

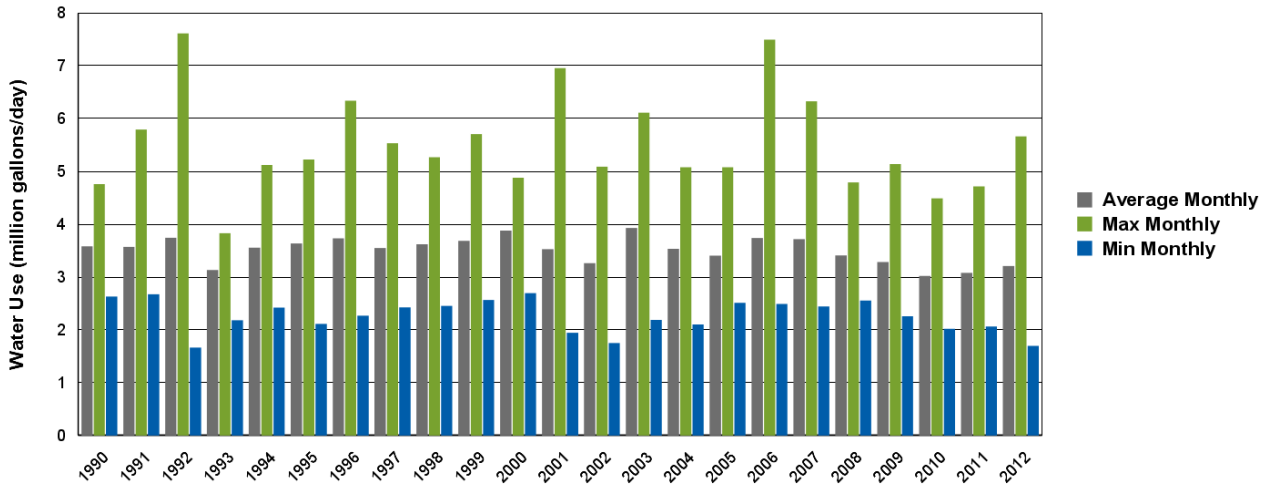
Municipal water treatment: Disinfection, Softening, Fluoride (Z), Iron removal, Other

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 1,108



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	37,300	38,800	39,900
Total Population	37,300	38,800	39,900
Projected Average Daily Water Use (Million Gal/Day)	3.0	3.1	3.2
Total Per Capita Water Use (Gal/Person/Day)	80.43	79.90	80.20
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	86	83	80

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.

- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Robbinsdale Water Supply Profile

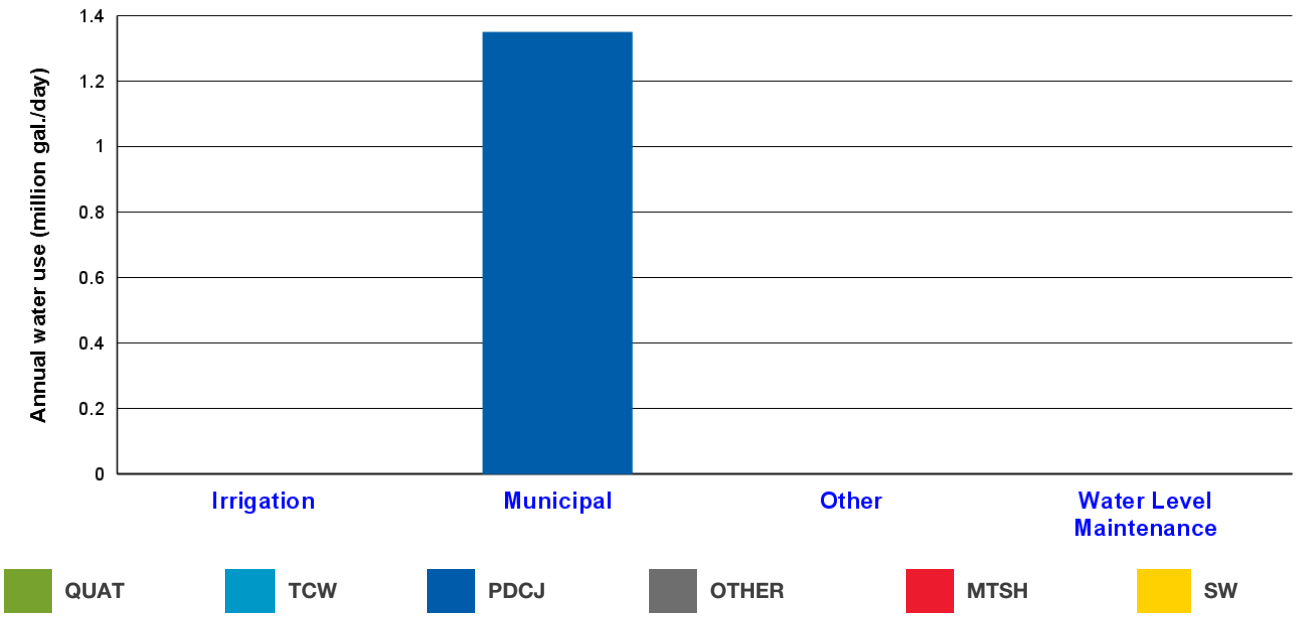
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	5	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

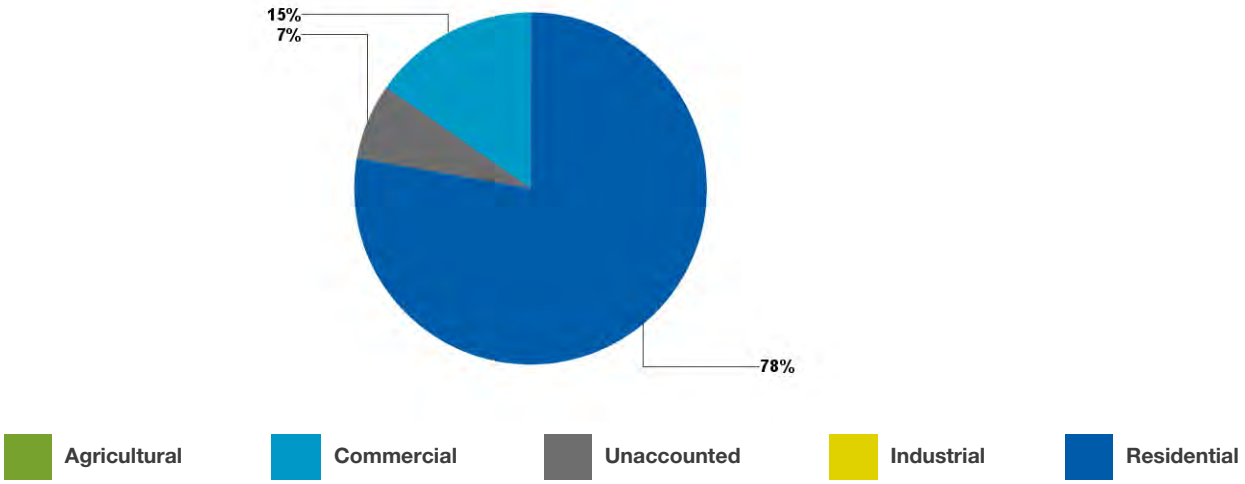
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

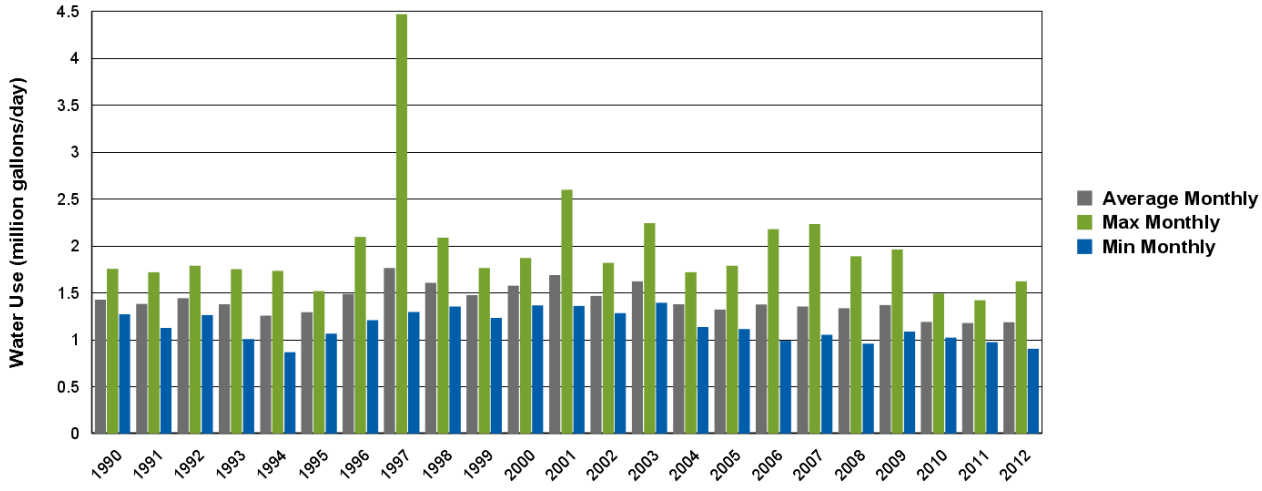
Municipal water treatment: Fluoride (Z), Other, Manganese removal, Iron removal, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 404



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	14,600	14,800	15,300
Total Population	14,600	14,800	15,300
Projected Average Daily Water Use (Million Gal/Day)	1.2	1.2	1.2
Total Per Capita Water Use (Gal/Person/Day)	82.19	81.08	78.43
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	81	80	78

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Shorewood Water Supply Profile

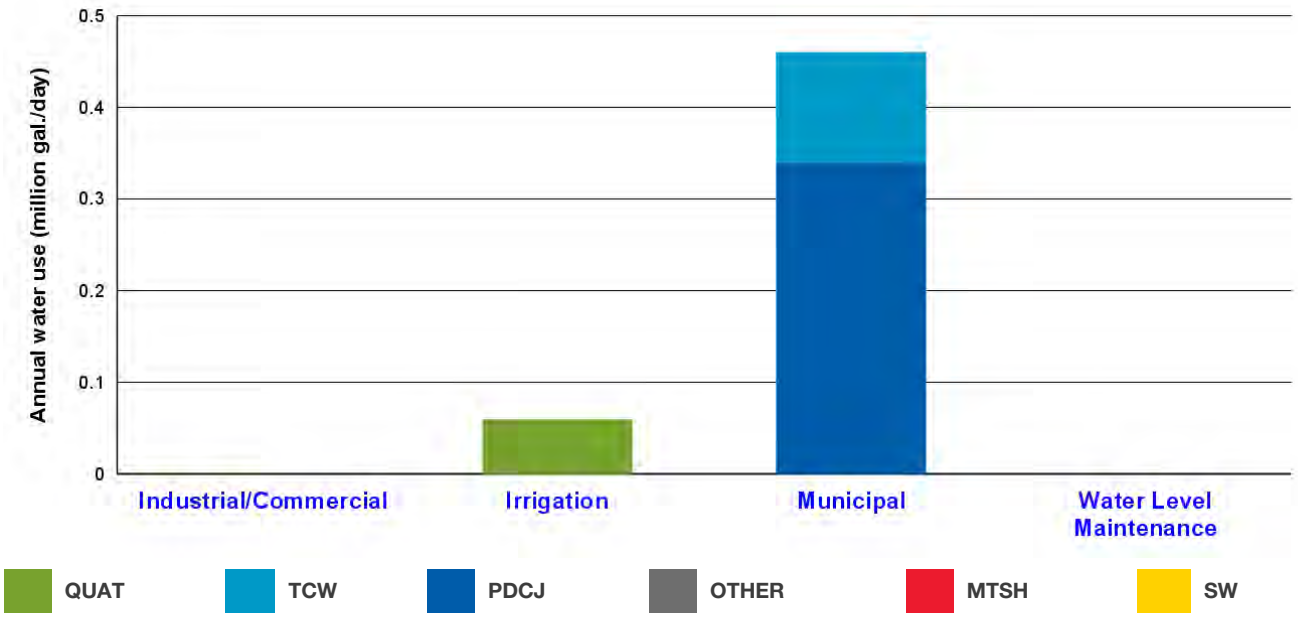
Overview of water system and use in the community:

The community owns and operates their own water supply system, with Minnetonka as a water source for a small portion of the community.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	7	0	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	4	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

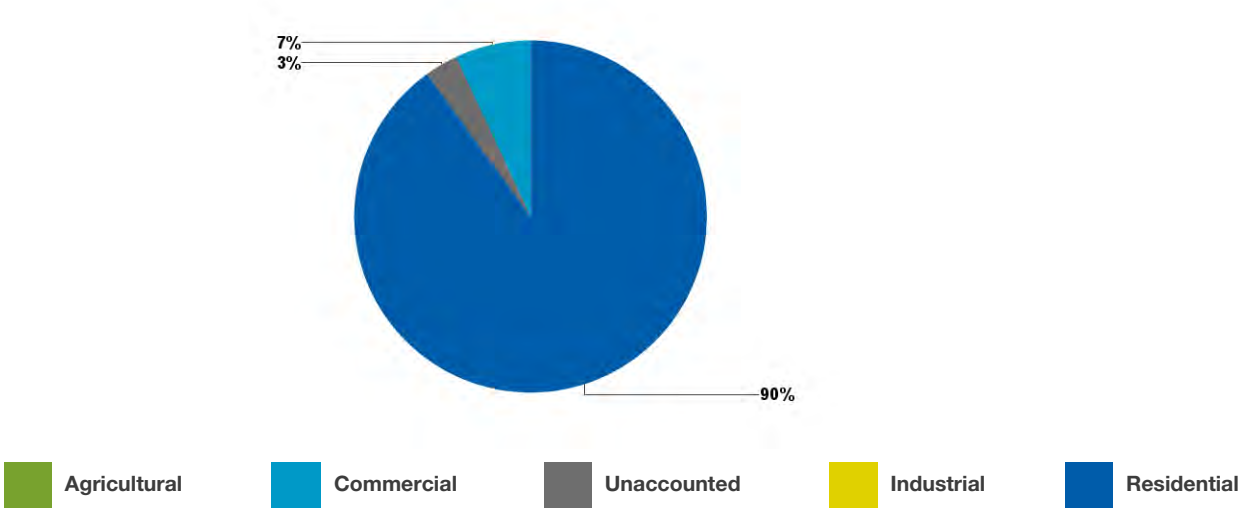
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

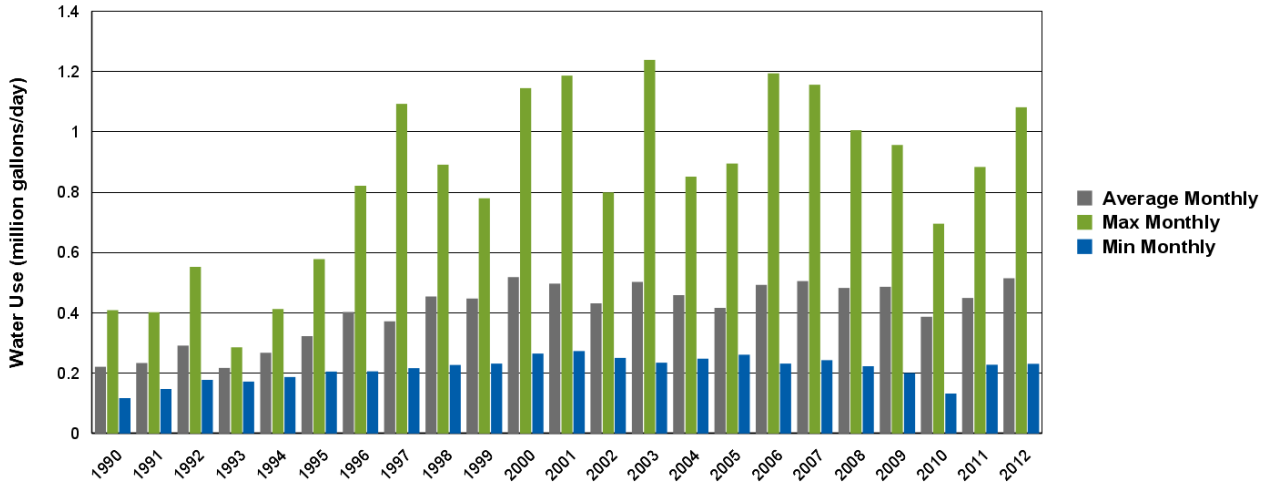
Municipal water treatment: Disinfection, Iron removal, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 182



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	3,480	3,480	3,480
Total Population	7,400	7,400	7,400
Projected Average Daily Water Use (Million Gal/Day)	0.5	0.5	0.5
Total Per Capita Water Use (Gal/Person/Day)	143.68	143.68	143.68
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	148	148	148

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Spring Park Water Supply Profile

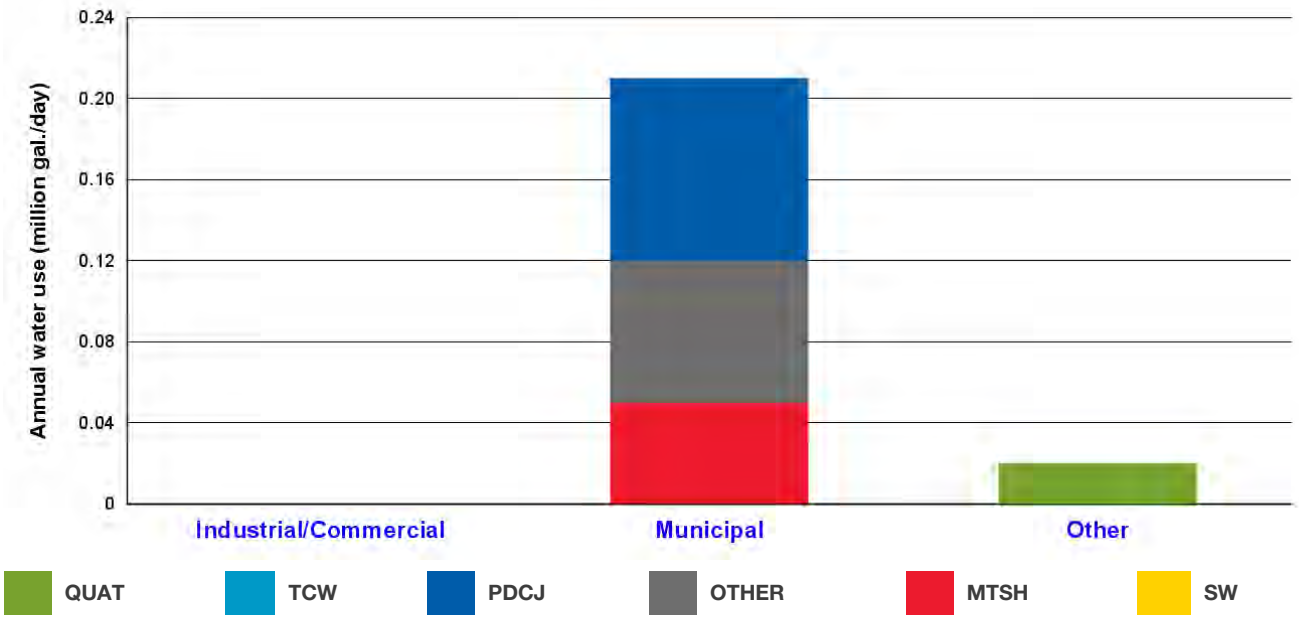
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	1	0	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

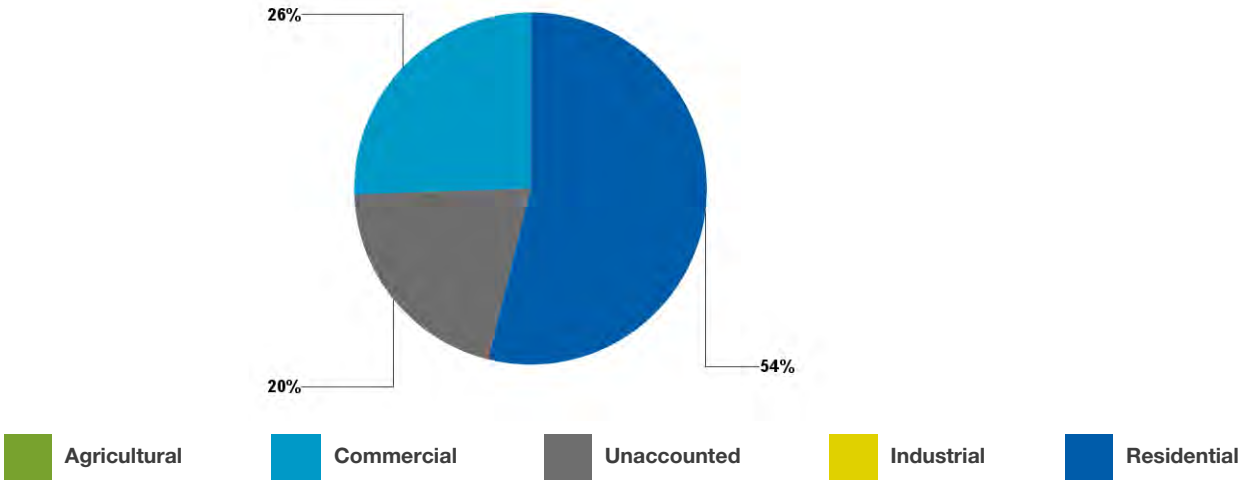
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

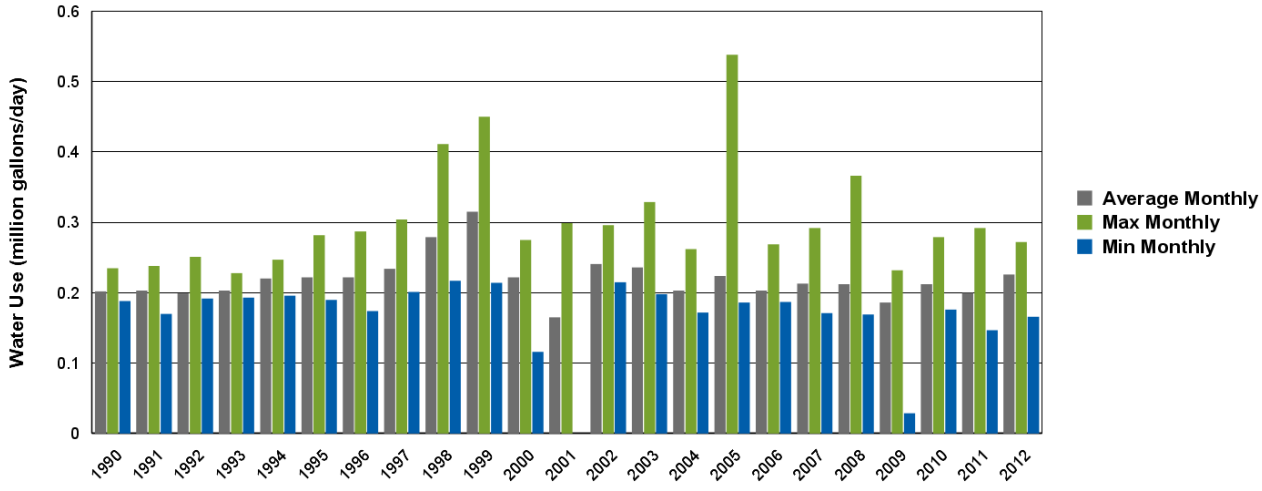
Municipal water treatment: Fluoride (Z), Iron removal, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 67



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	1,950	2,120	2,200
Total Population	1,950	2,120	2,200
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.3	0.3
Total Per Capita Water Use (Gal/Person/Day)	102.56	141.51	136.36
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	116	107	103

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Bonifacius Water Supply Profile

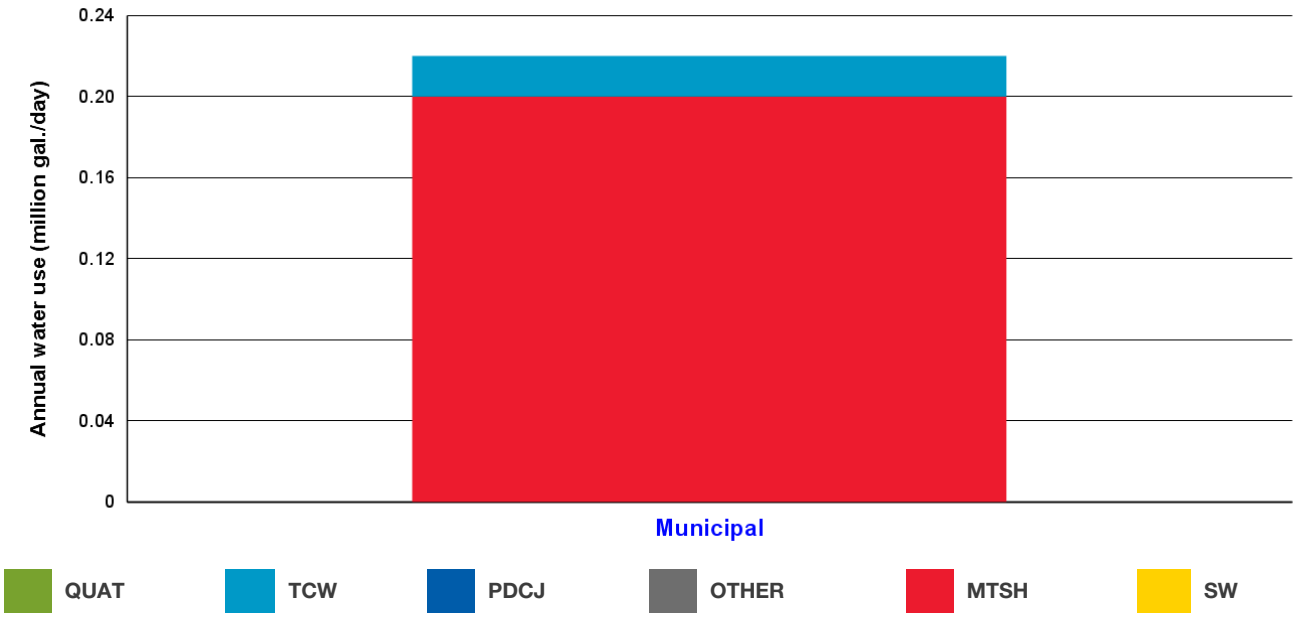
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	3	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

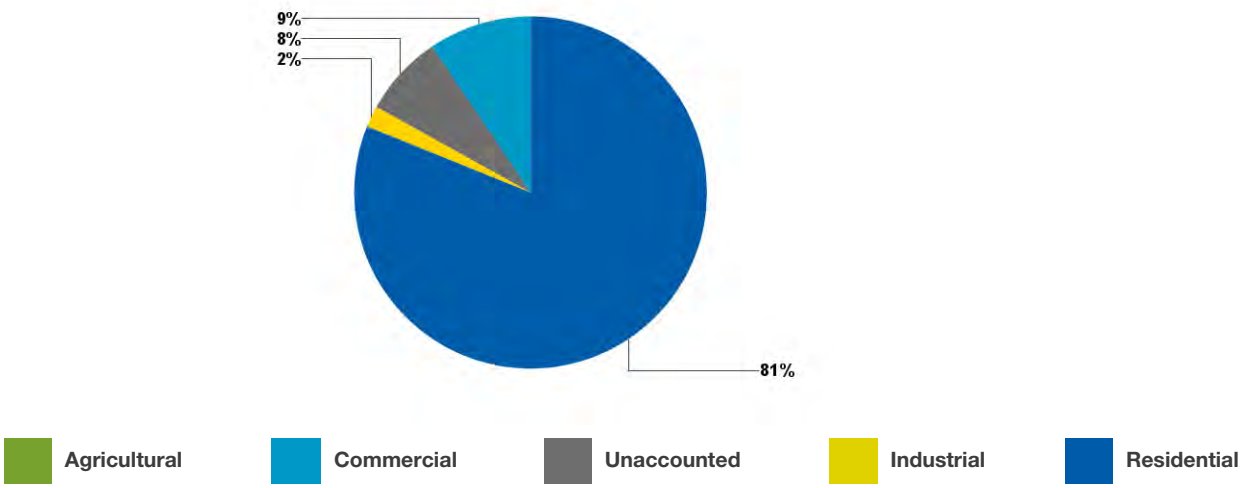
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

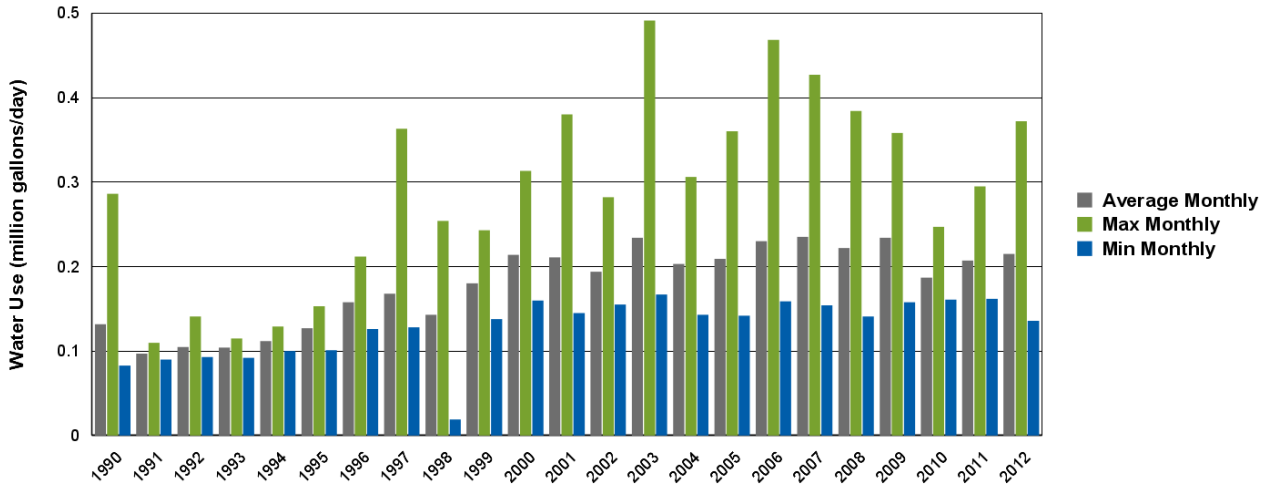
Municipal water treatment: Fluoride (Z), Corrosion control - Lead/Copper, Manganese removal, Iron removal, Disinfection

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 72



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,210	2,200	2,200
Total Population	2,210	2,200	2,200
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.2	0.2
Total Per Capita Water Use (Gal/Person/Day)	90.50	90.91	90.91
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	97	98	98

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

St. Louis Park Water Supply Profile

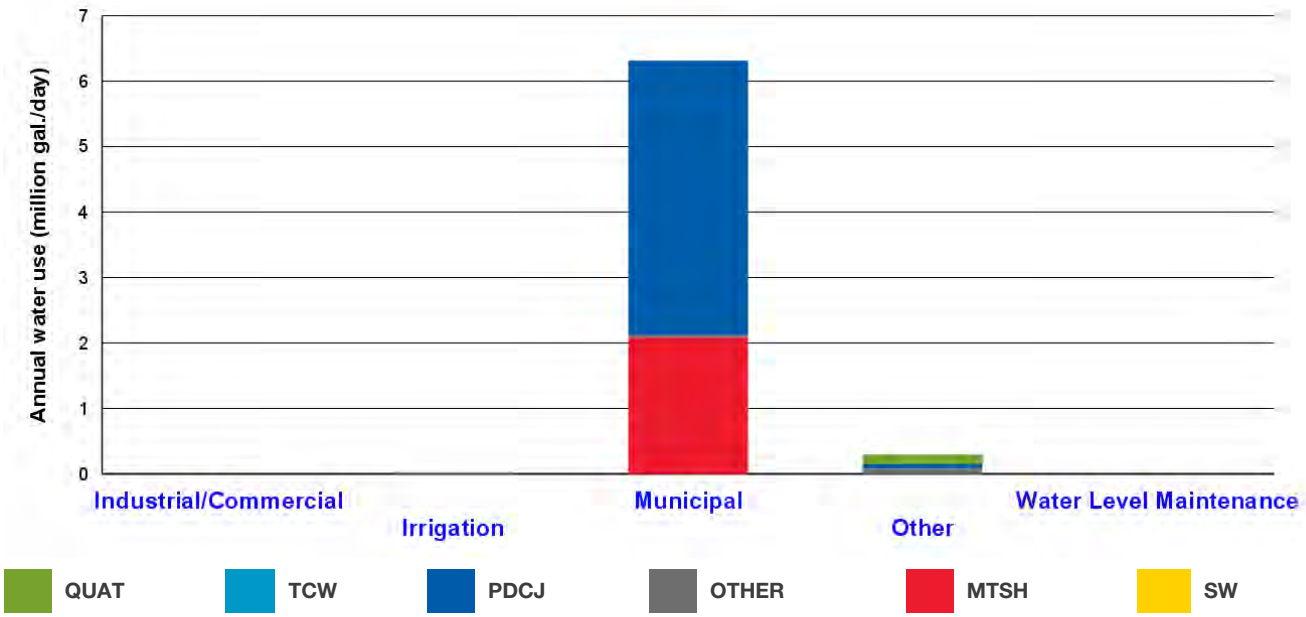
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	6	0	
Prairie du Chien-Jordan (PDCJ)	8	6	0
Quaternary (QUAT)	0	24	
Tunnel City-Wonewoc (TCW)	0	1	
Other	4	6	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

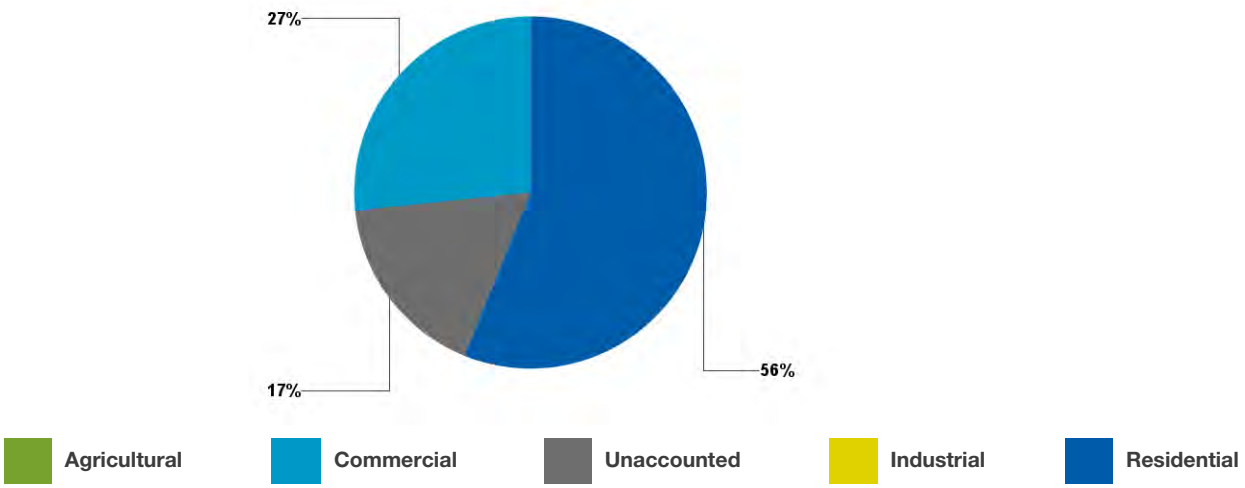
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

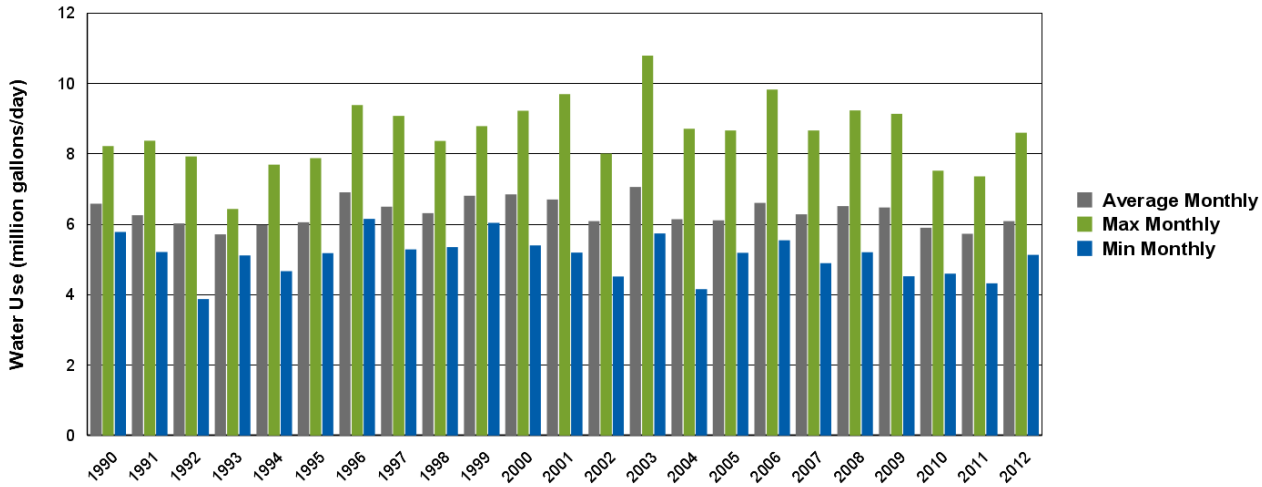
Municipal water treatment: Fluoride (Z), Disinfection, Iron removal, Organics removal, Radionuclides removal

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 1,864



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	50,100	52,700	54,500
Total Population	50,100	52,700	54,500
Projected Average Daily Water Use (Million Gal/Day)	7.0	7.4	7.6
Total Per Capita Water Use (Gal/Person/Day)	139.72	140.42	139.45
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	122	116	112

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Tonka Bay Water Supply Profile

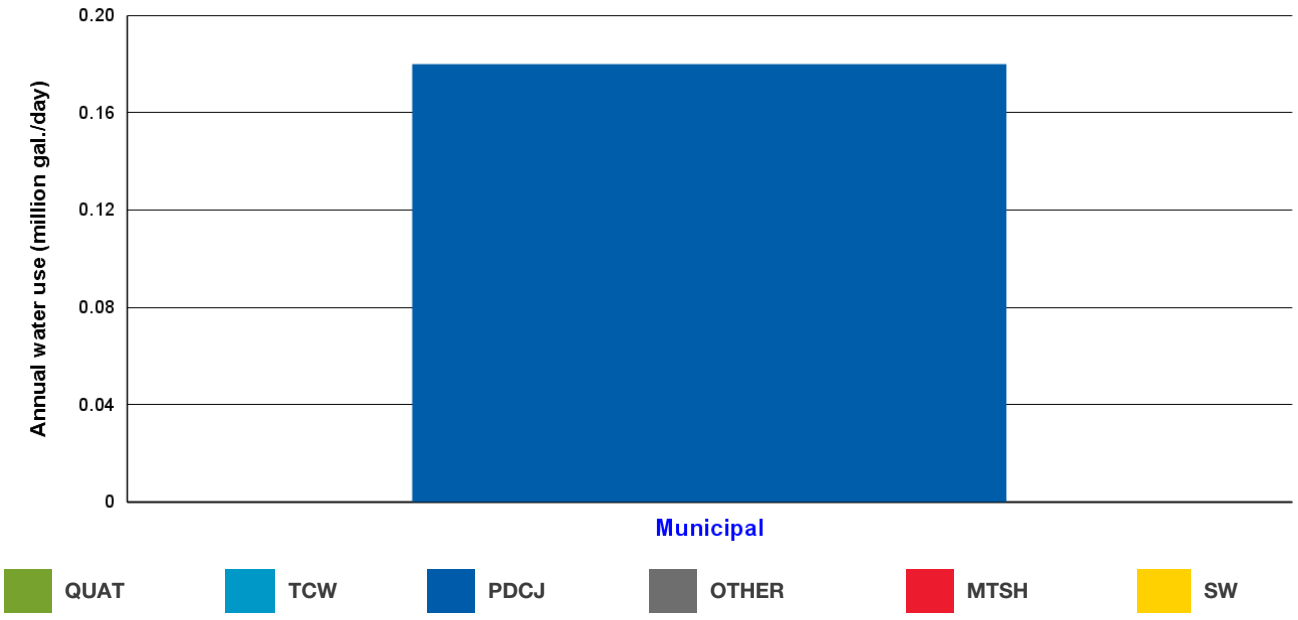
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

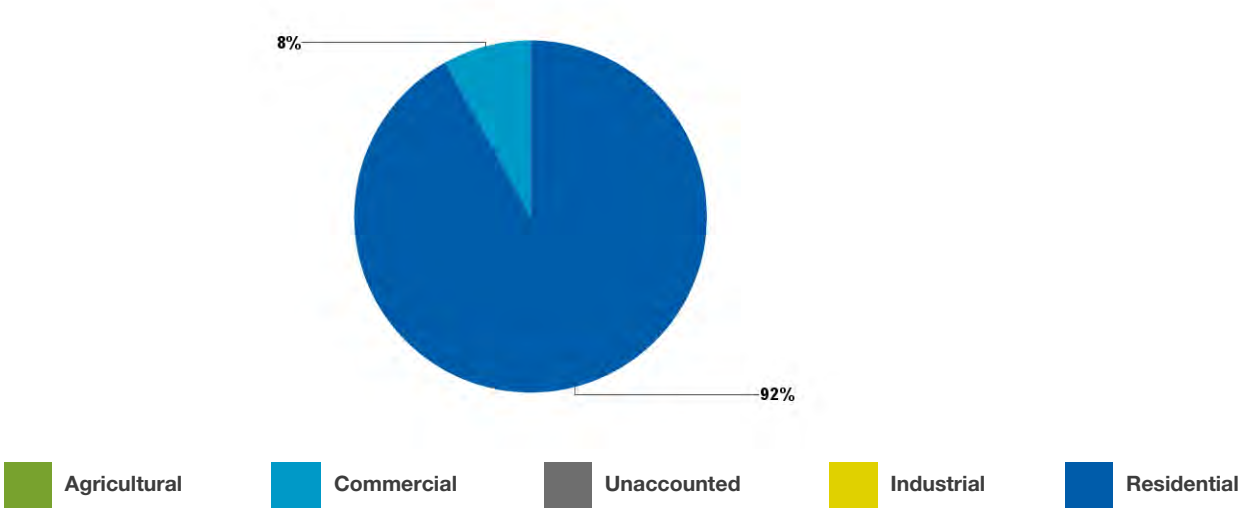
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

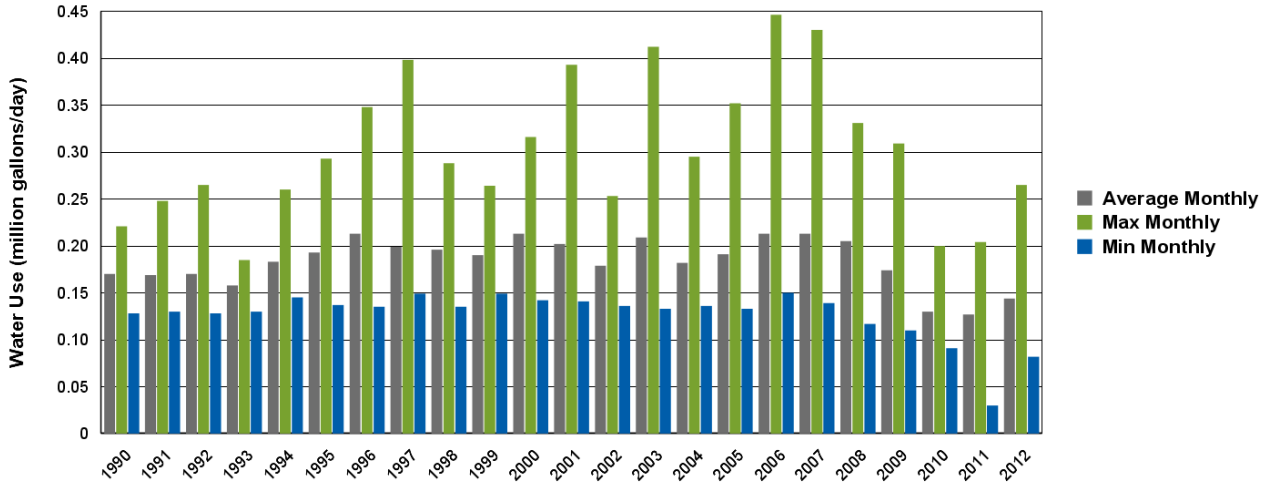
Municipal water treatment: Iron/Manganese Sequestration, Softening, Disinfection, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 55



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	1,490	1,500	1,500
Total Population	1,490	1,500	1,500
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.2	0.2
Total Per Capita Water Use (Gal/Person/Day)	134.23	133.33	133.33
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	97	96	96

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines

are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Victoria Water Supply Profile

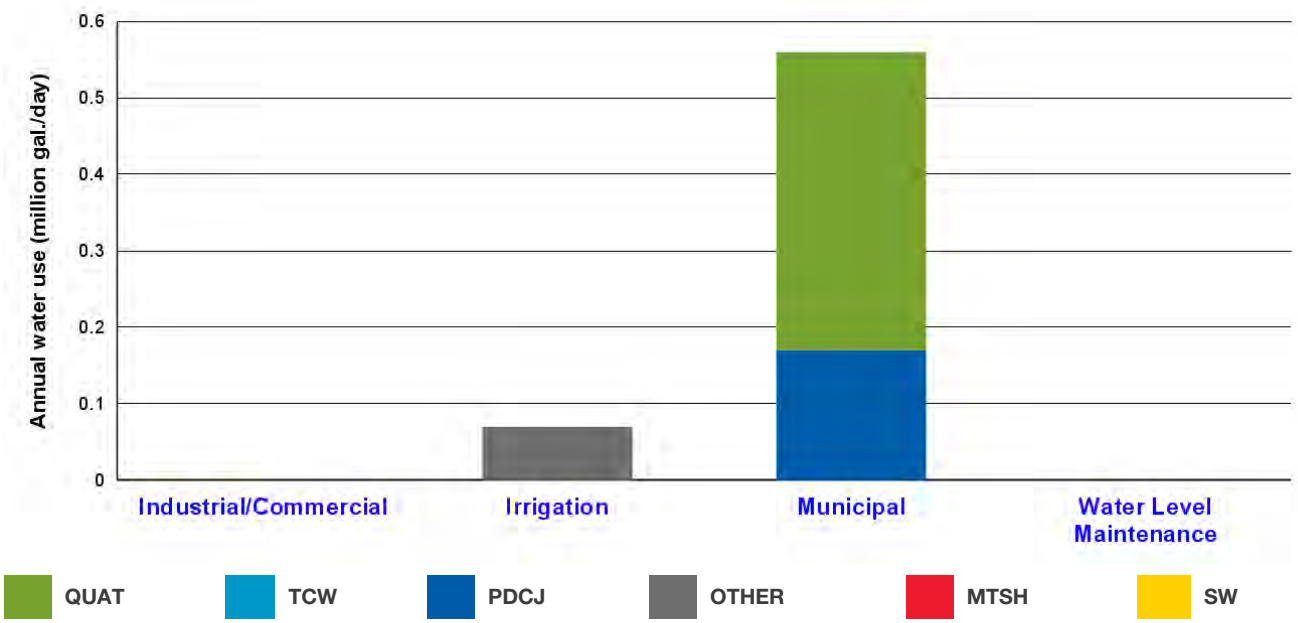
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	1	0	0
Quaternary (QUAT)	3	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	1	6	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

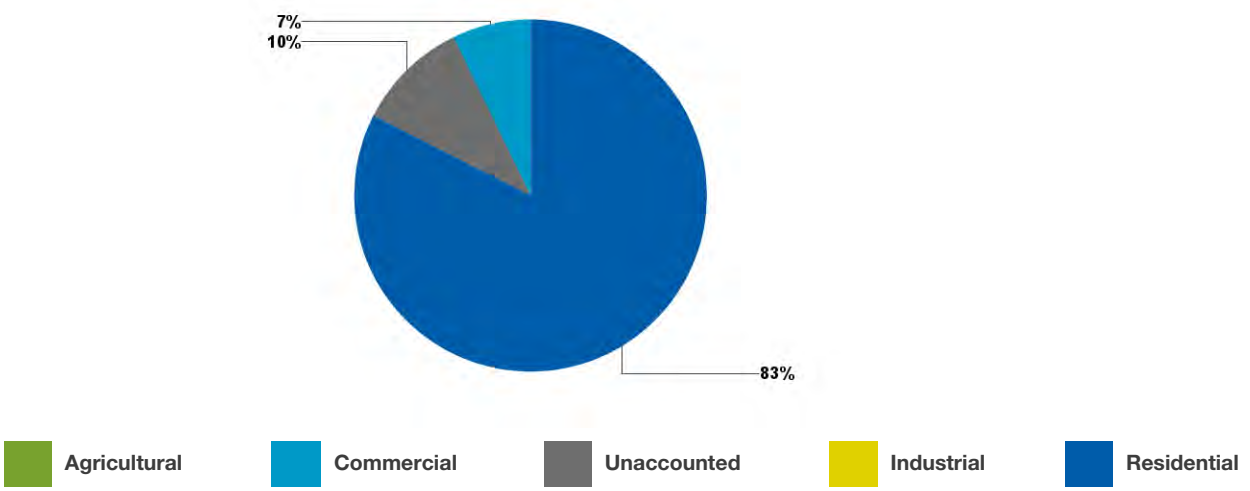
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

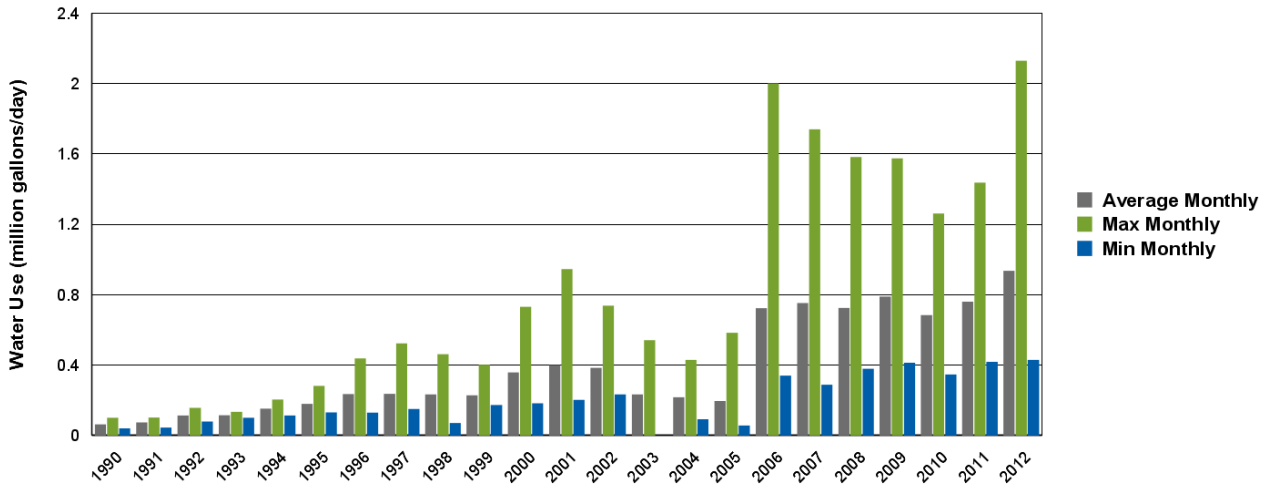
Municipal water treatment: Fluoride (Z), Iron/Manganese Removal, Corrosion control - Lead/Copper, Iron/Manganese Sequestration, Other, Disinfection

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 305



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	8,271	10,271	13,871
Total Population	9,400	11,400	15,000
Projected Average Daily Water Use (Million Gal/Day)	1.1	1.4	1.8
Total Per Capita Water Use (Gal/Person/Day)	132.99	136.31	129.77
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	113	91	67

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

  – Compliance with Safe Drinking Water Act standards

  – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

  – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Wayzata Water Supply Profile

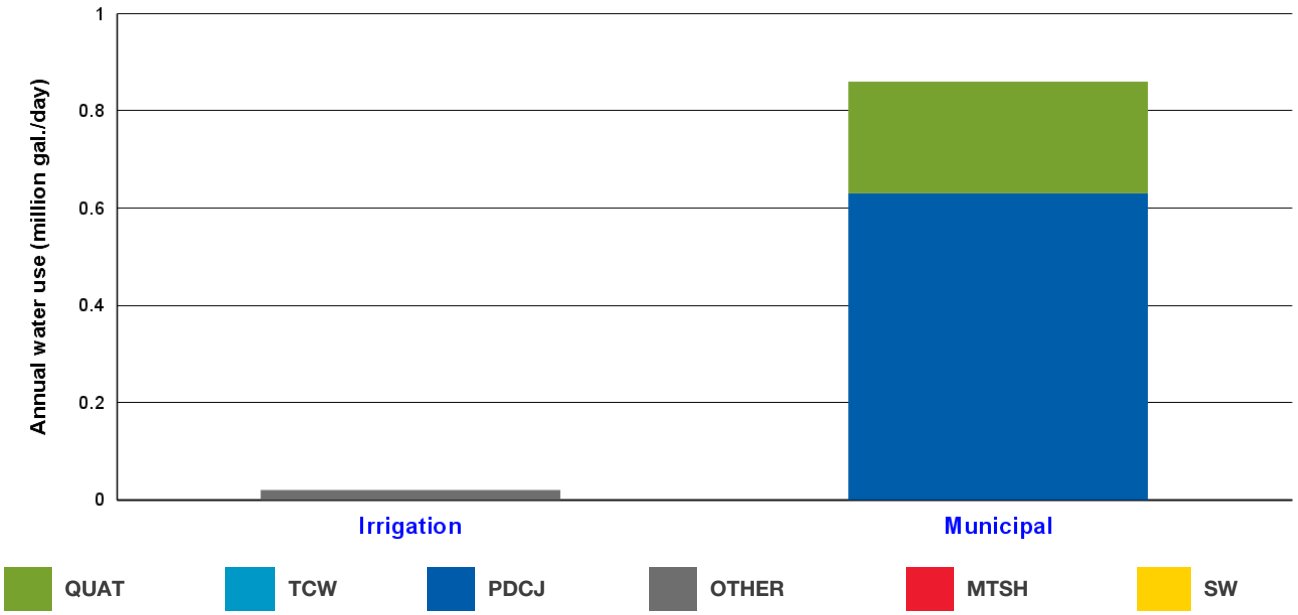
Overview of water system and use in the community:

The community owns and operates their own water supply system, with Minnetonka as a water source for a small portion of the community.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	0	22
Quaternary (QUAT)	3	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

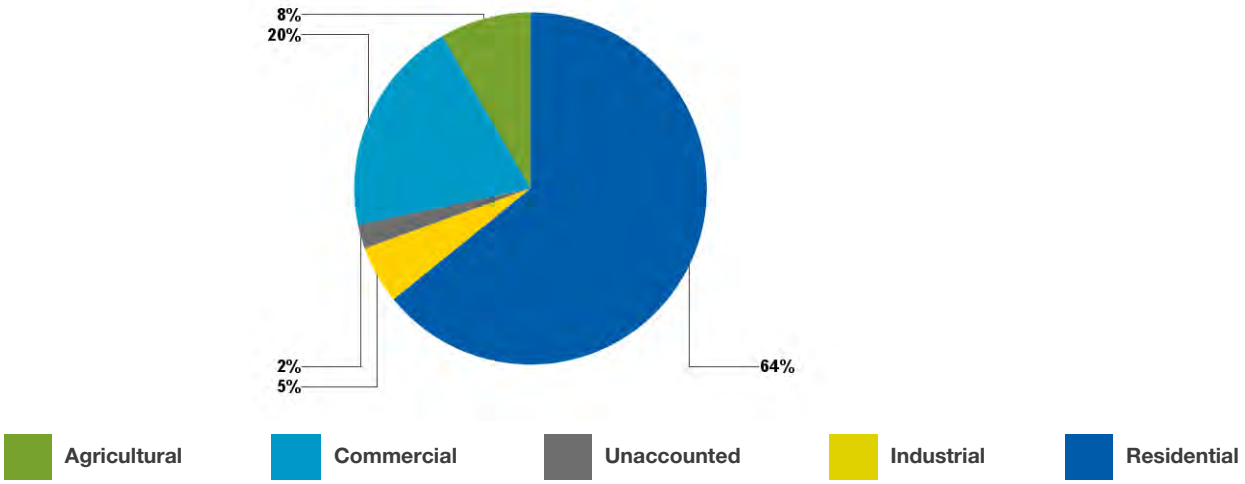
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

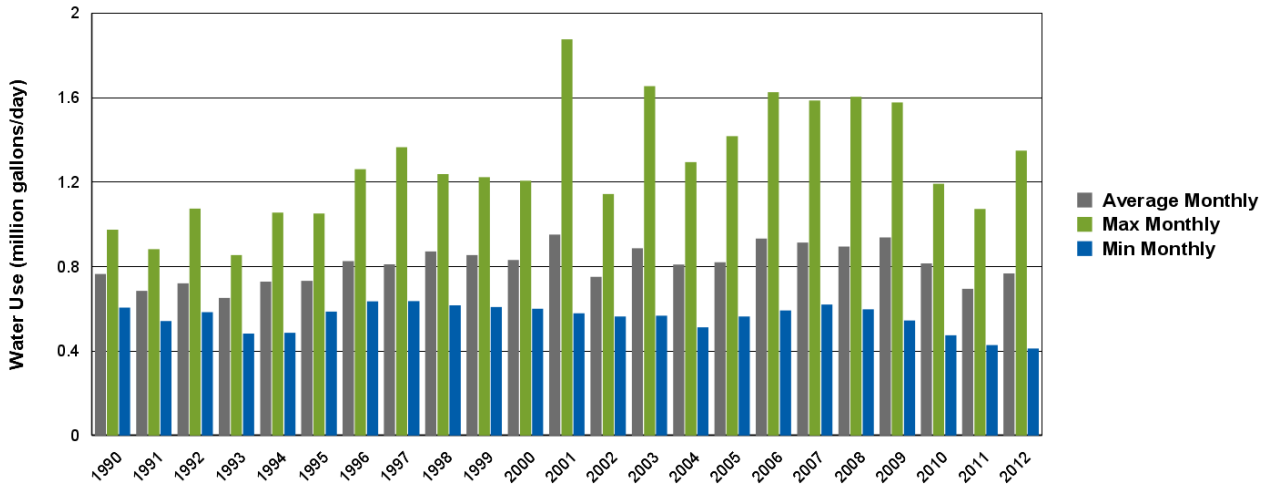
Municipal water treatment: Corrosion control - Lead/Copper, Fluoride (Z), Disinfection, Iron removal

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 271



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	4,270	4,670	4,900
Total Population	4,270	4,670	4,900
Projected Average Daily Water Use (Million Gal/Day)	0.8	0.9	0.9
Total Per Capita Water Use (Gal/Person/Day)	187.35	192.72	183.67
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	180	164	156

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding

50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Woodland Water Supply Profile

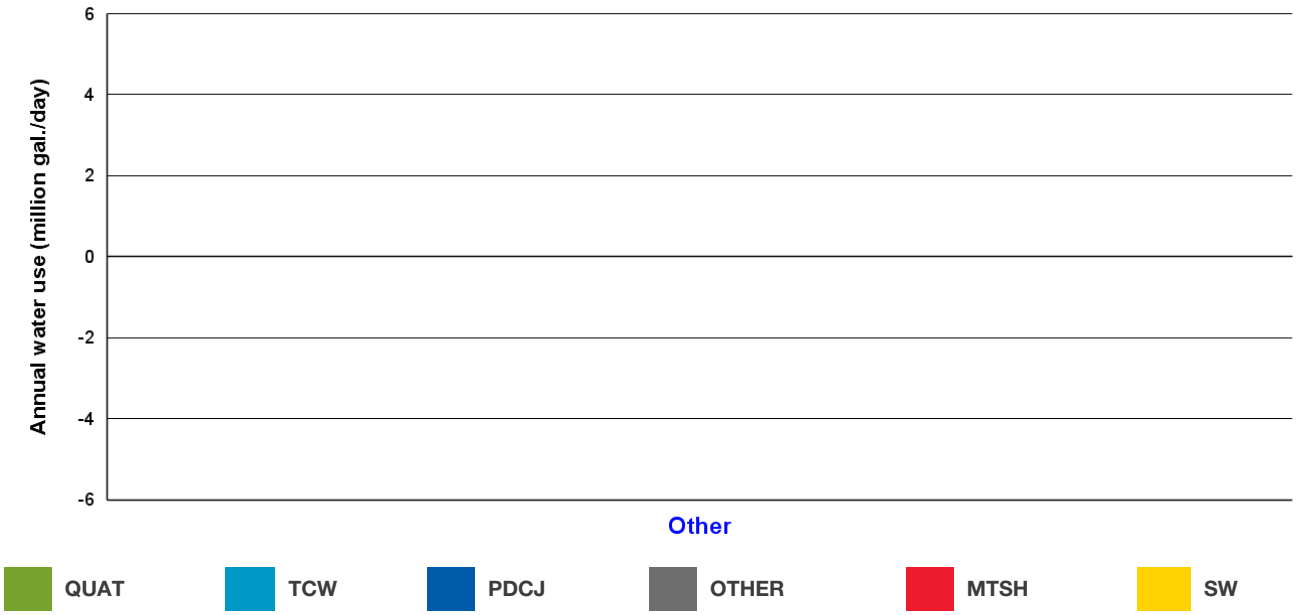
Overview of water system and use in the community:

The community is served by a municipal system that is owned and operated by Minnetonka (for a portion of the community only).

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	22
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

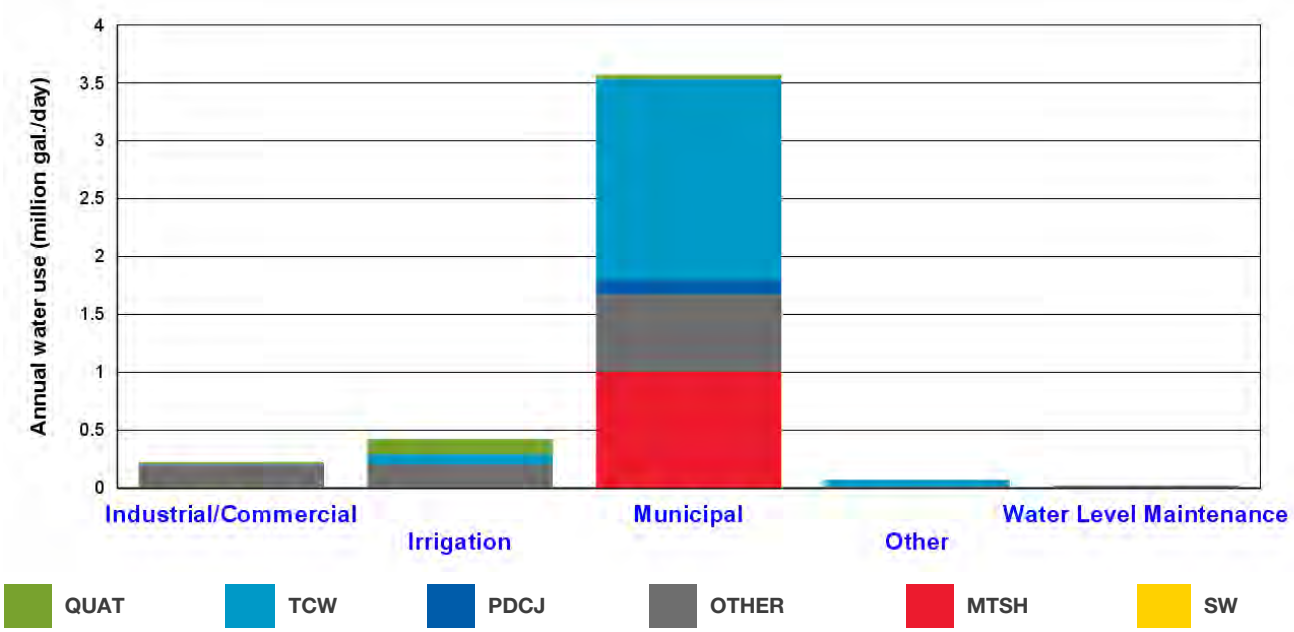
withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

West Metro Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	31,561	41,428	57,106
Total Population	37,890	48,240	63,400
Projected Average Daily Water Use (Million Gal/Day)	0.4	0.5	0.6
Total Per Capita Water Use (Gal/Person/Day)	100	100	100
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	71	53	40

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system

  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

– Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Benton Twp. Water Supply Profile

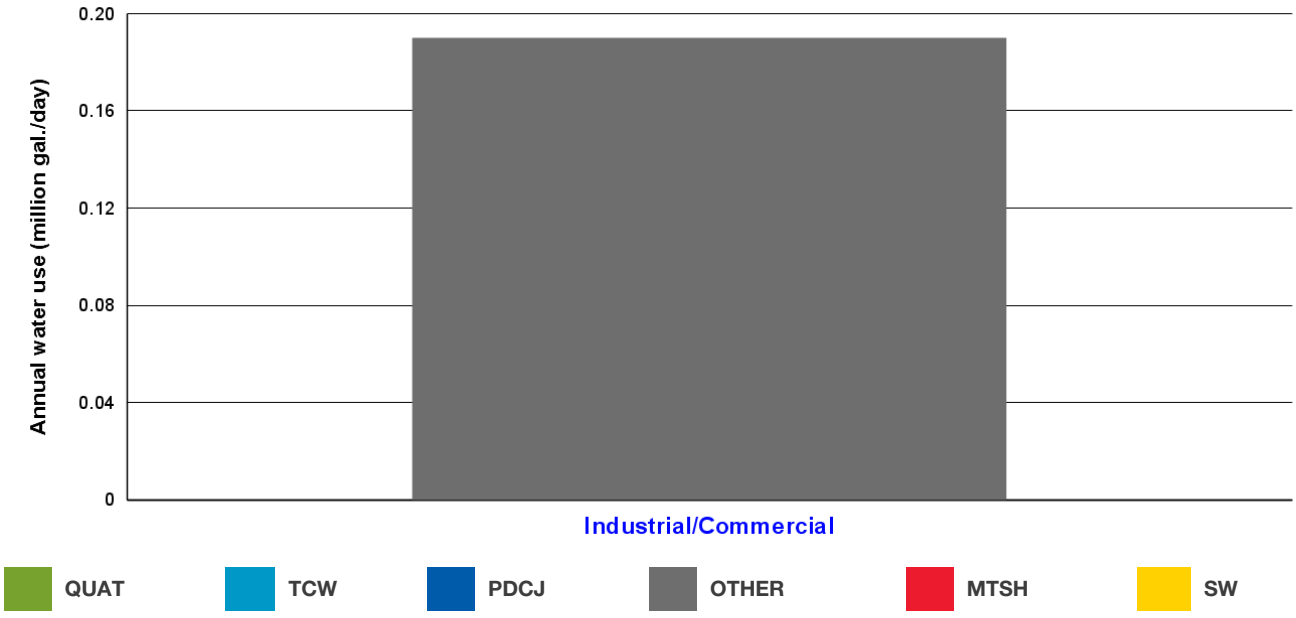
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	4	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Camden Twp. Water Supply Profile

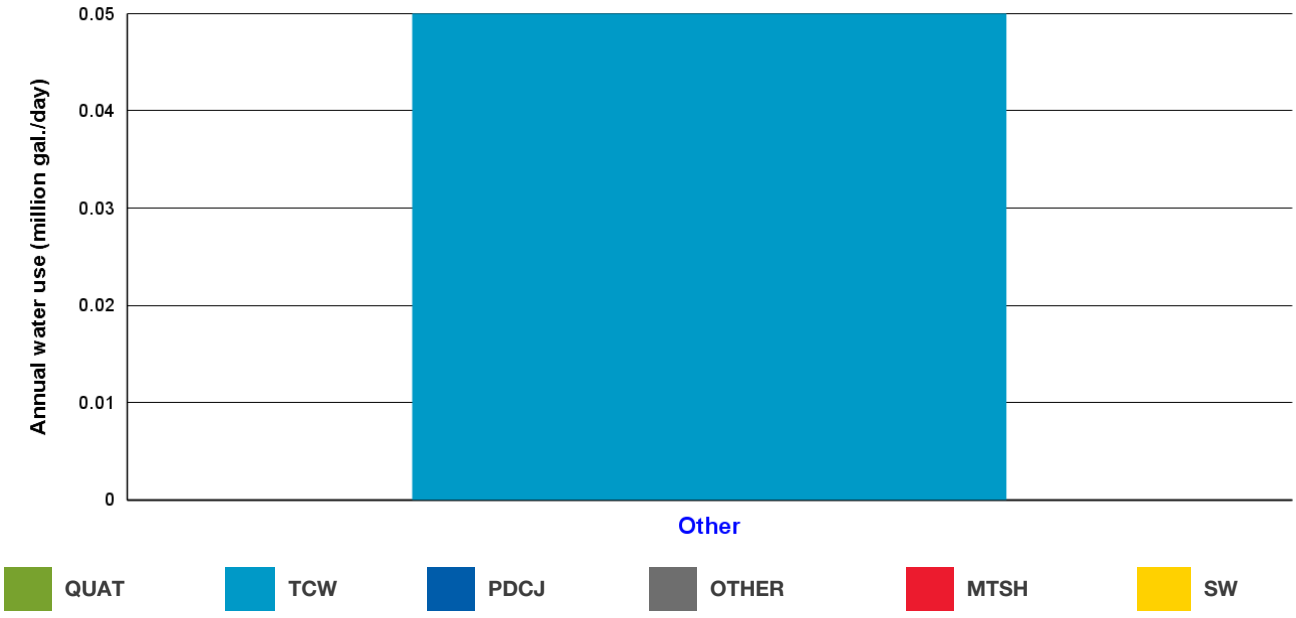
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	2	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards

- Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
- Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Cologne Water Supply Profile

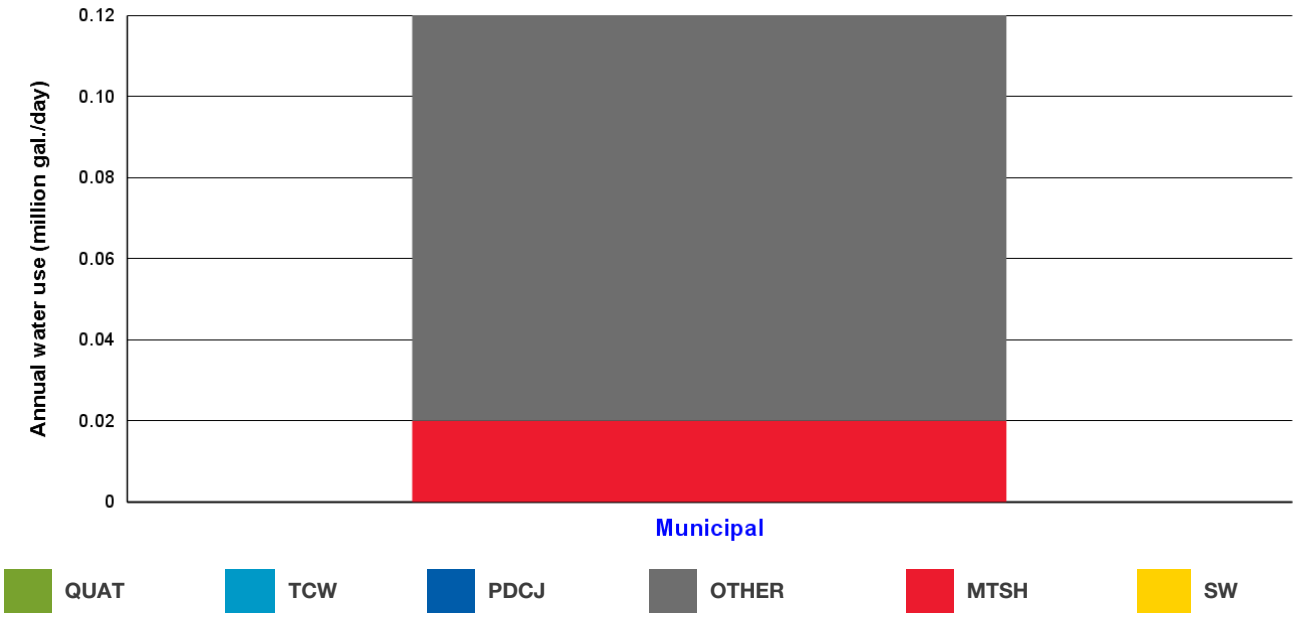
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	2	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

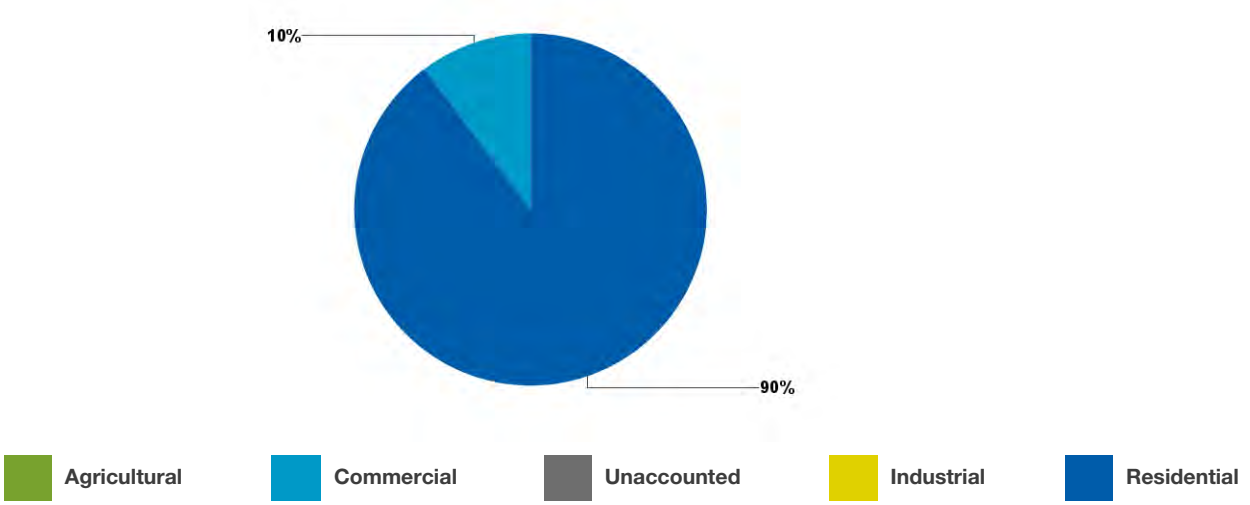
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

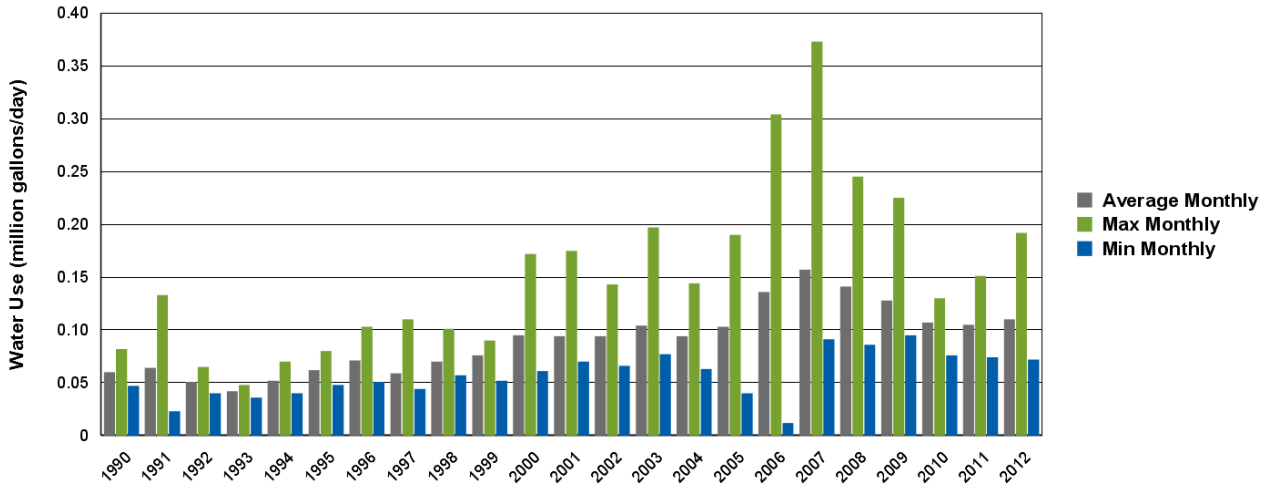
Municipal water treatment: Disinfection, Fluoride (Z), Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 39



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,060	2,900	4,600
Total Population	2,060	2,900	4,600
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.3	0.4
Total Per Capita Water Use (Gal/Person/Day)	97.09	103.45	86.96
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	54	38	24

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - – Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant vulnerability to contamination
  - – Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - – Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.

- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Corcoran Water Supply Profile

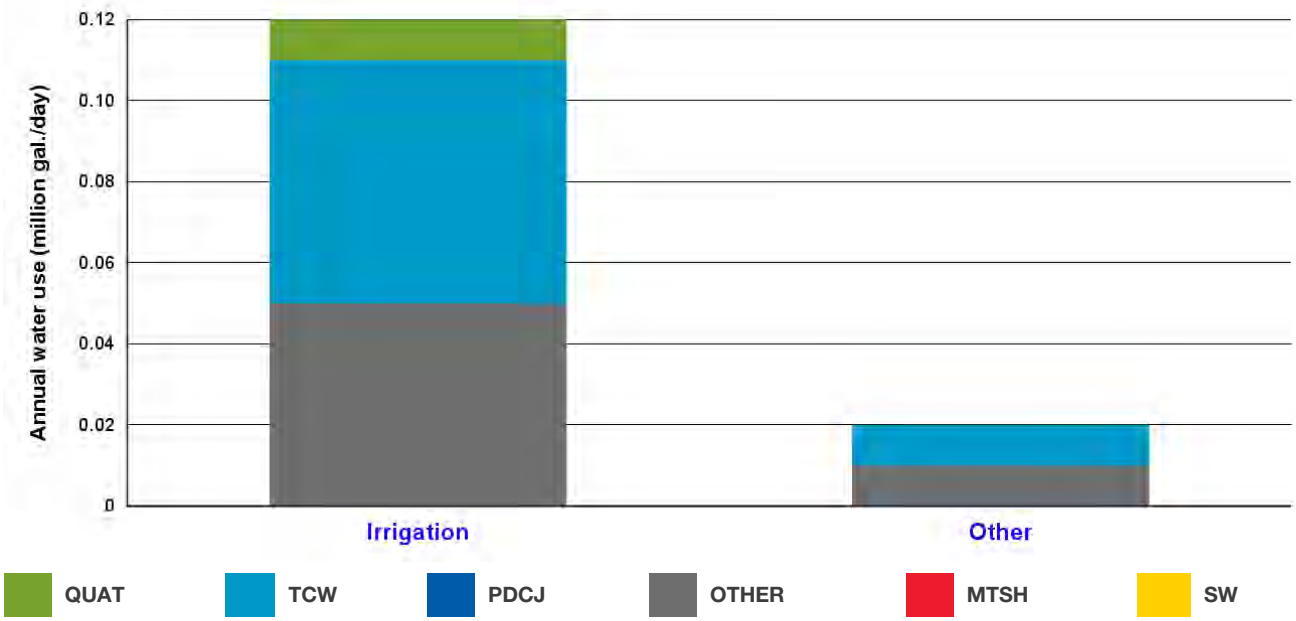
Overview of water system and use in the community:

The community does not currently have a municipal water supply but is actively planning for one.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	3	
Other	0	2	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Dayton Water Supply Profile

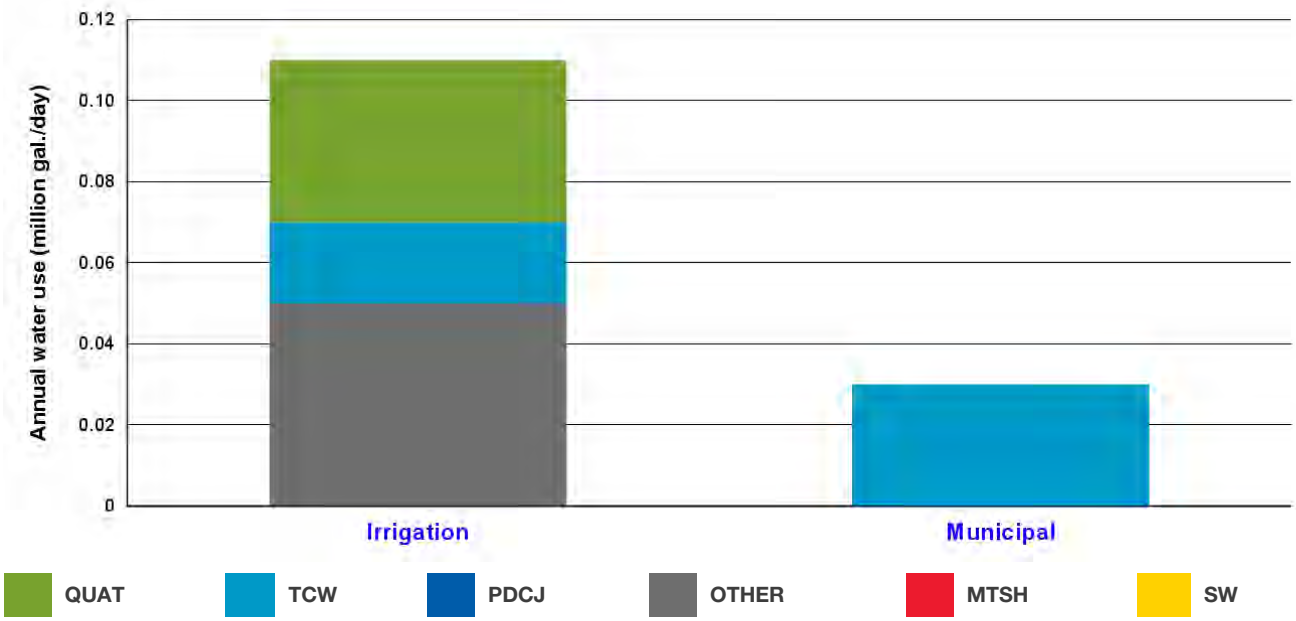
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	2	1	
Other	0	1	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

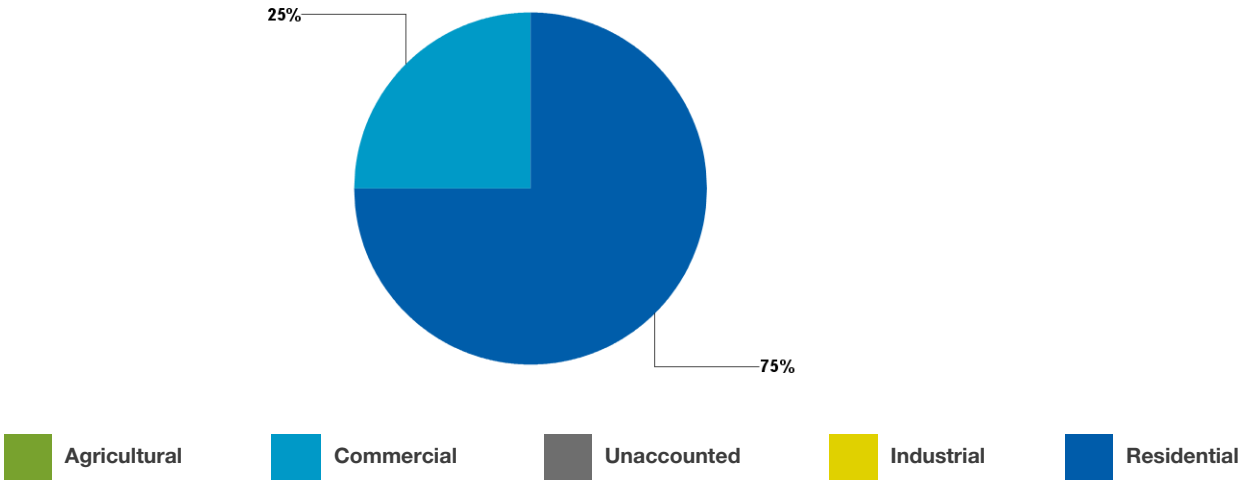
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

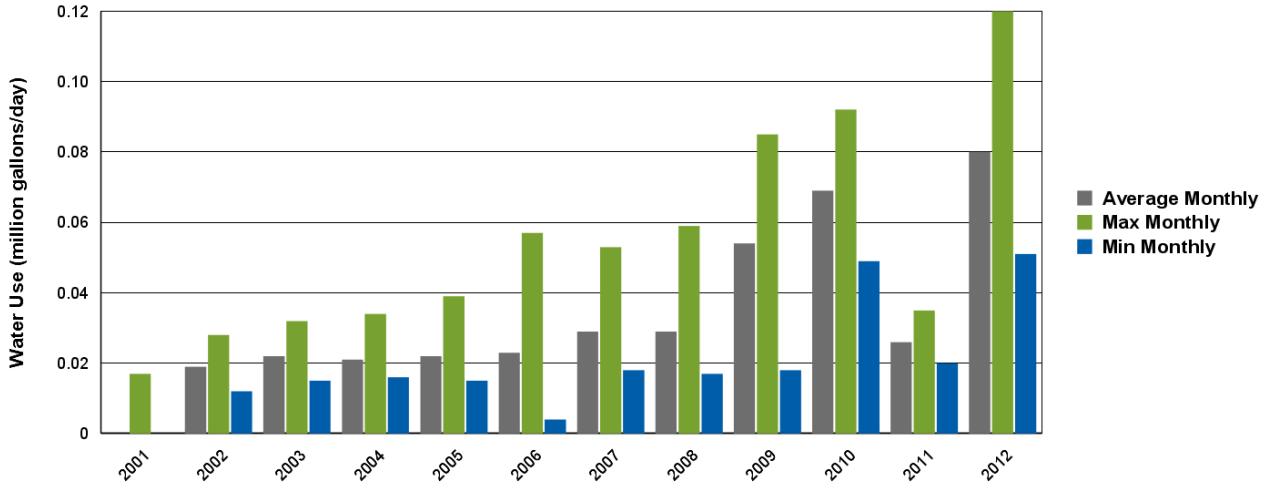
Municipal water treatment: Iron/Manganese Sequestration, Disinfection, Fluoride (Z)

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 29



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	2,859	4,876	6,894
Total Population	6,600	9,100	10,600
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.4	0.6
Total Per Capita Water Use (Gal/Person/Day)	69.95	82.03	87.03
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	28	16	12

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Greenfield Water Supply Profile

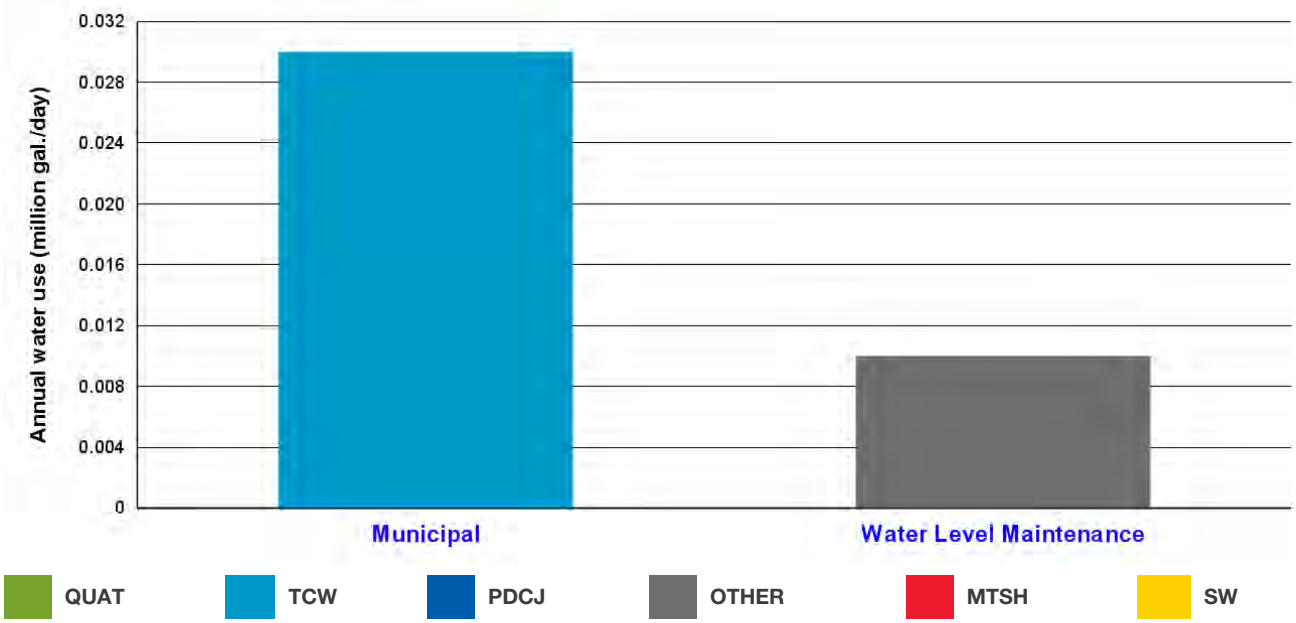
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

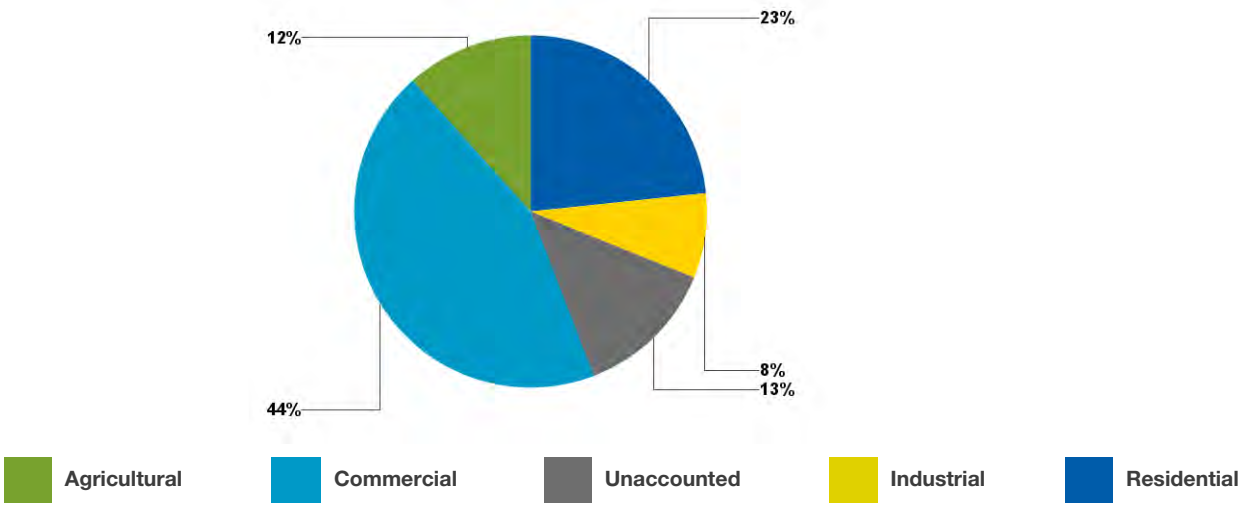
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

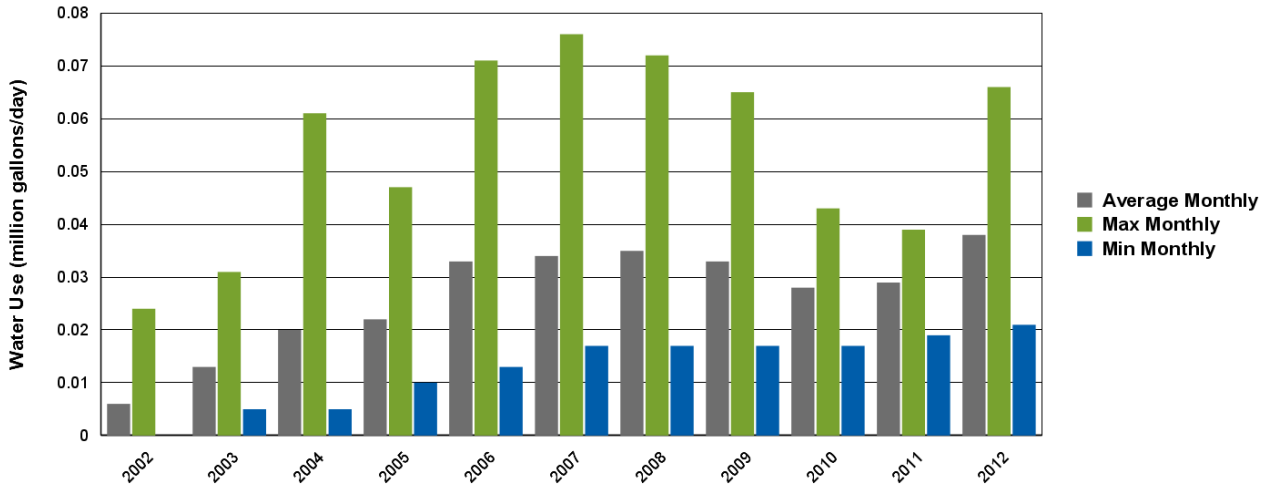
Municipal water treatment: Manganese removal, Disinfection, Fluoride (Z), Iron removal

Rate structure: Unknown

2012 Permitted amount for municipal water supply (million gallons/year): 12



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	358	858	1,588
Total Population	2,870	3,370	4,100
Projected Average Daily Water Use (Million Gal/Day)	0.1	0.1	0.2
Total Per Capita Water Use (Gal/Person/Day)	279.33	116.55	125.94
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	106	44	24

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hamburg Water Supply Profile

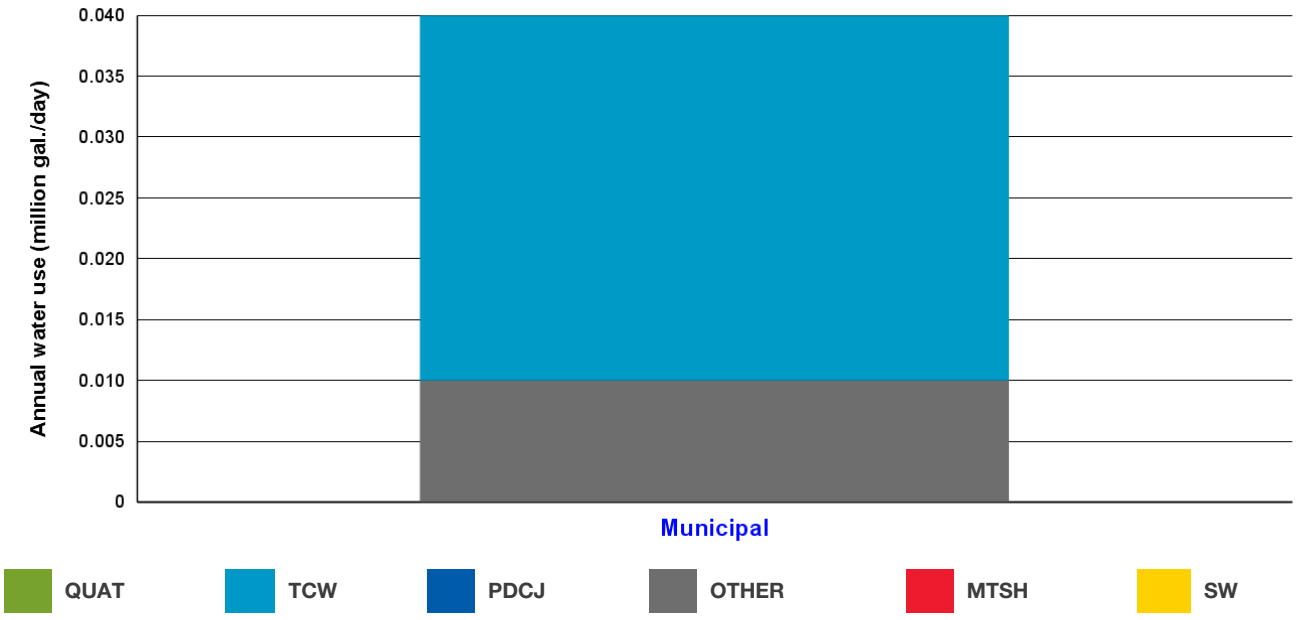
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	2	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

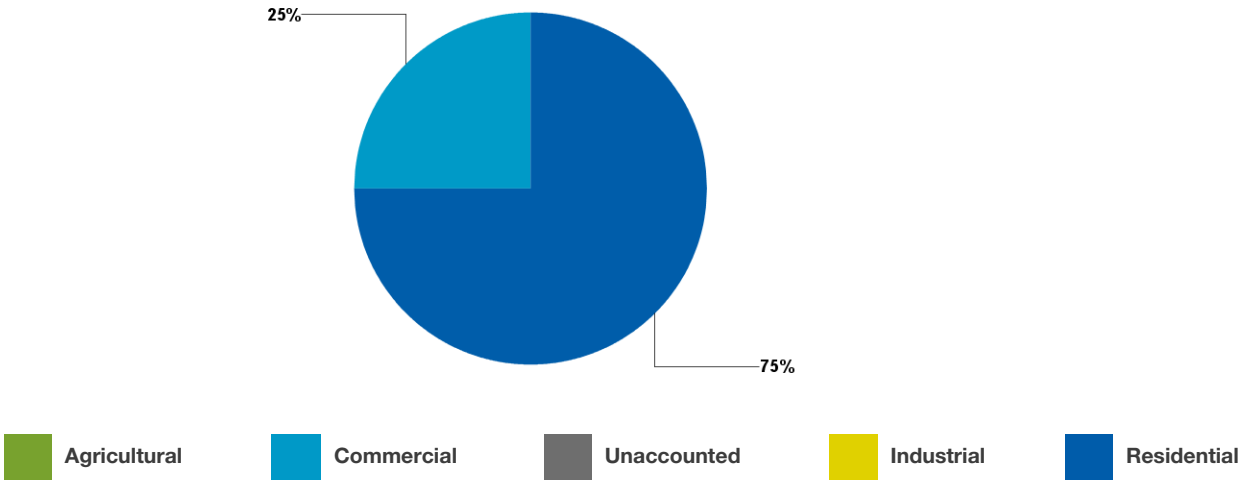
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

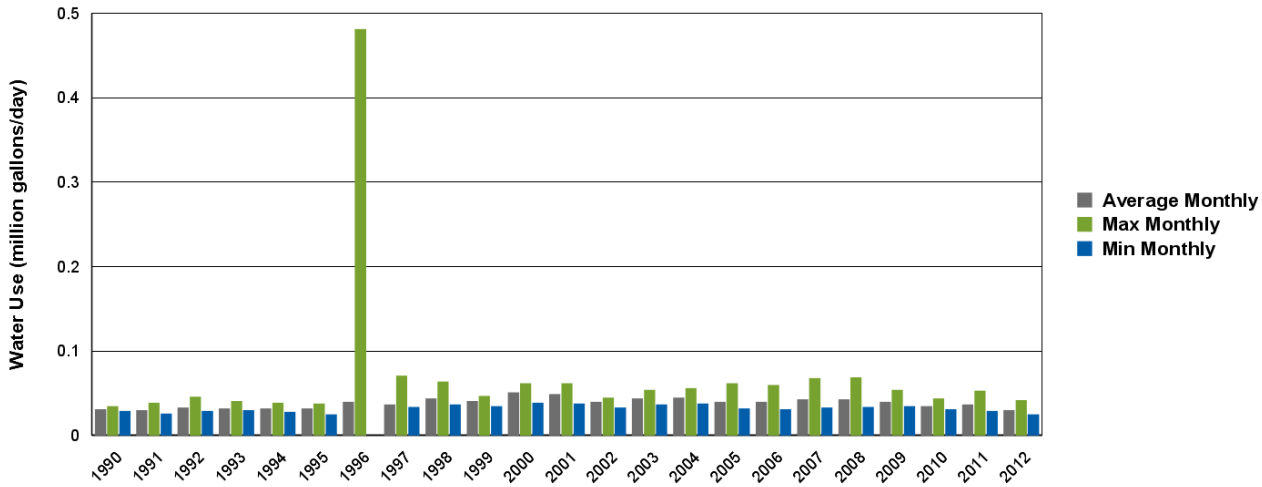
Municipal water treatment: Disinfection, Iron removal, Radionuclides removal, Fluoride (Z), Iron/ Manganese Removal

Rate structure: Flat

2012 Permitted amount for municipal water supply (million gallons/year): 11



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	530	550	600
Total Population	530	550	600
Projected Average Daily Water Use (Million Gal/Day)	0.04	0.04	0.05
Total Per Capita Water Use (Gal/Person/Day)	75.47	72.73	83.33
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	58	55	51

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hanover Water Supply Profile

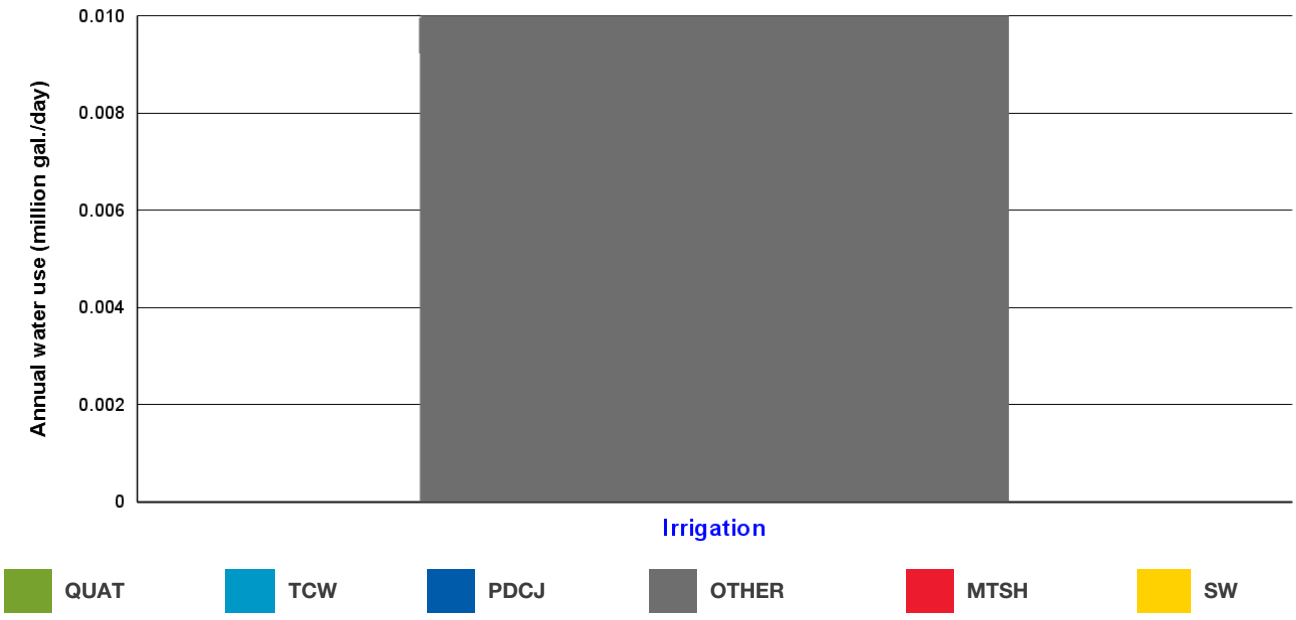
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	3	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hollywood Twp. Water Supply Profile

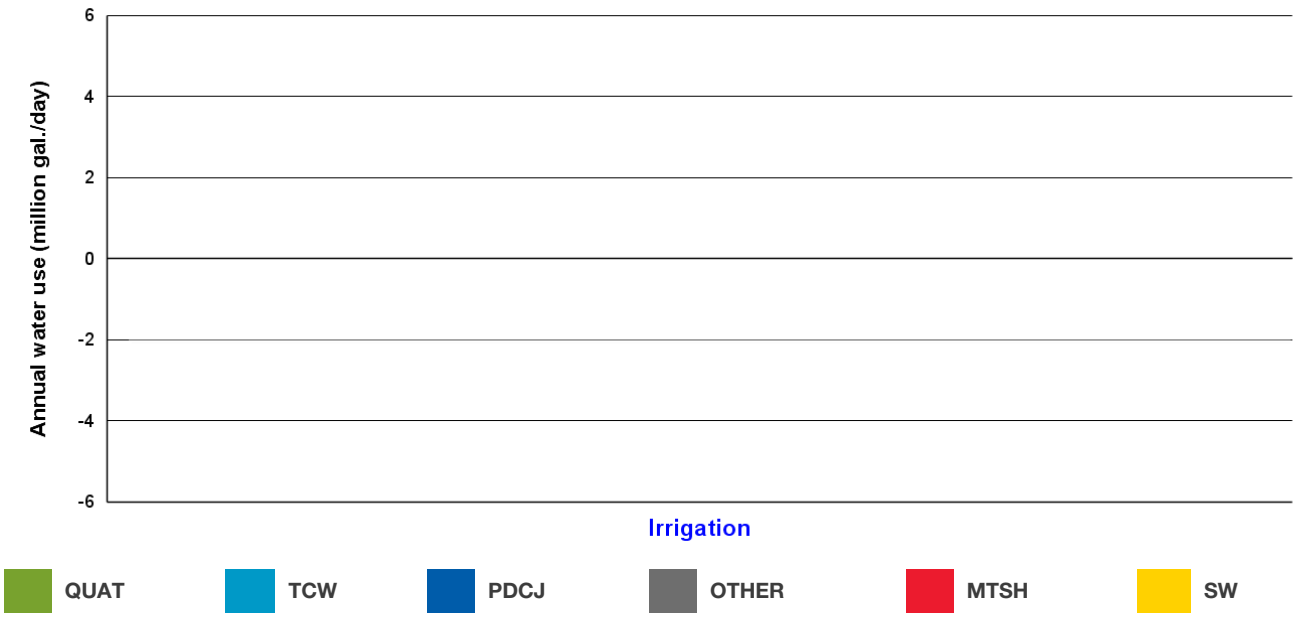
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	3	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards

- Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
- Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Independence Water Supply Profile

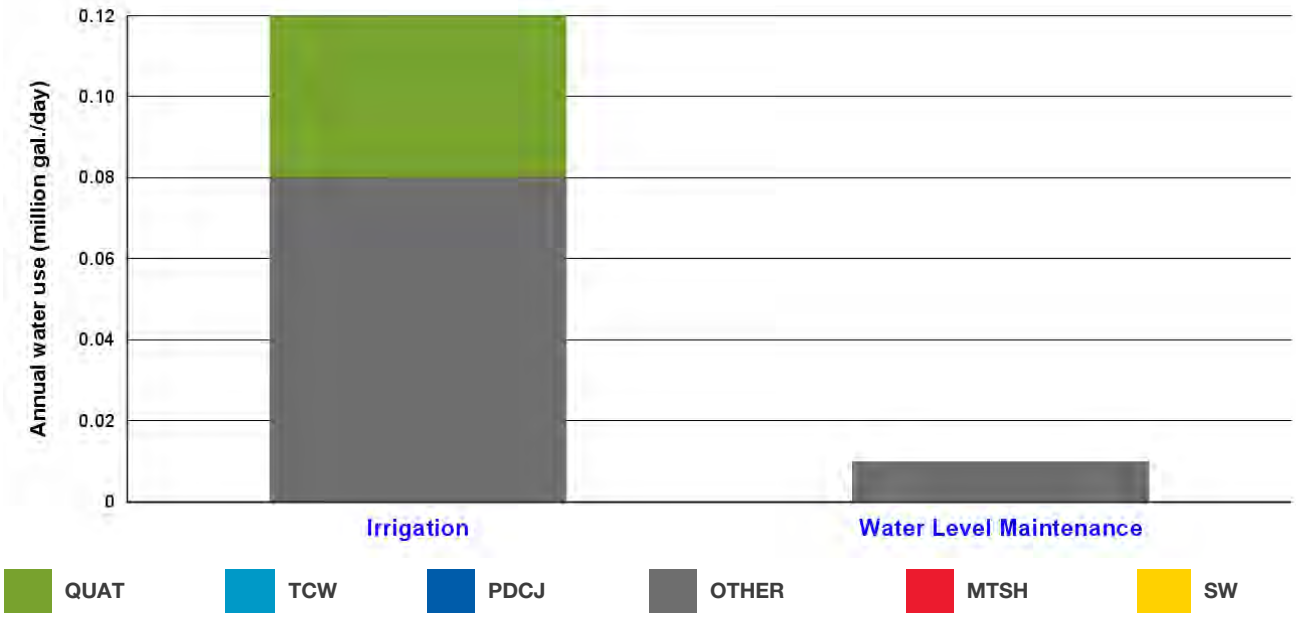
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	4	
Surface Water	0	3	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

  – Compliance with Safe Drinking Water Act standards

  – Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

  – Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Maple Plain Water Supply Profile

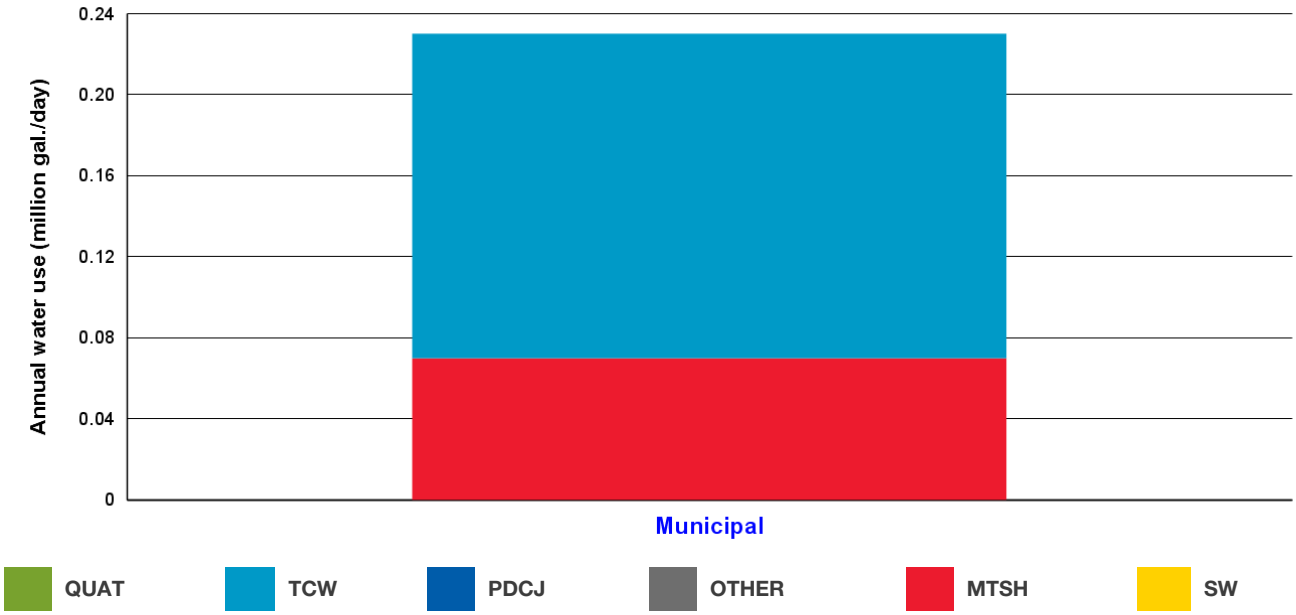
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	1	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	2	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

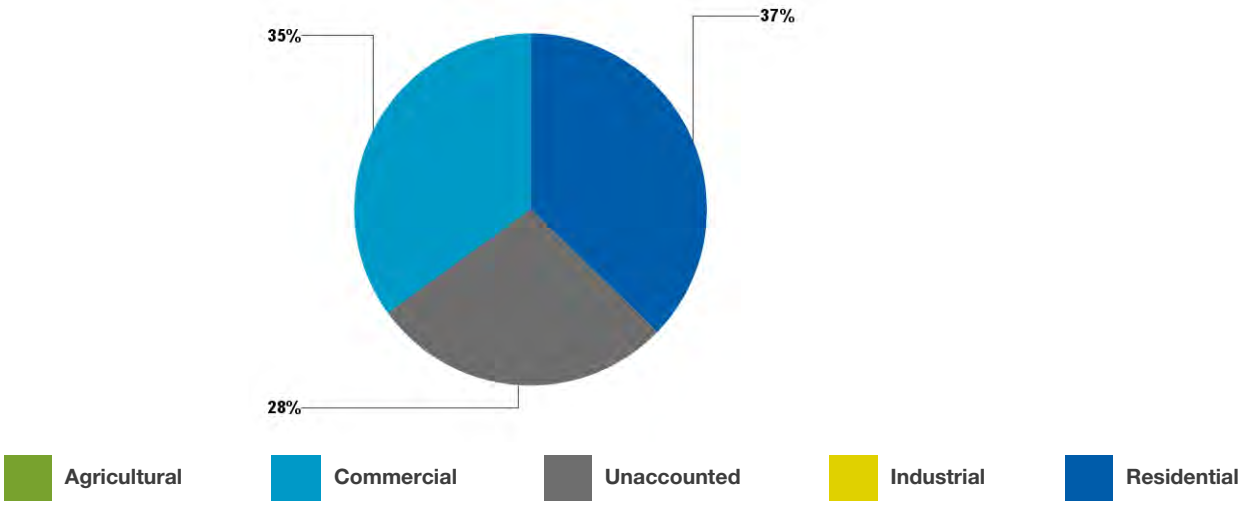
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

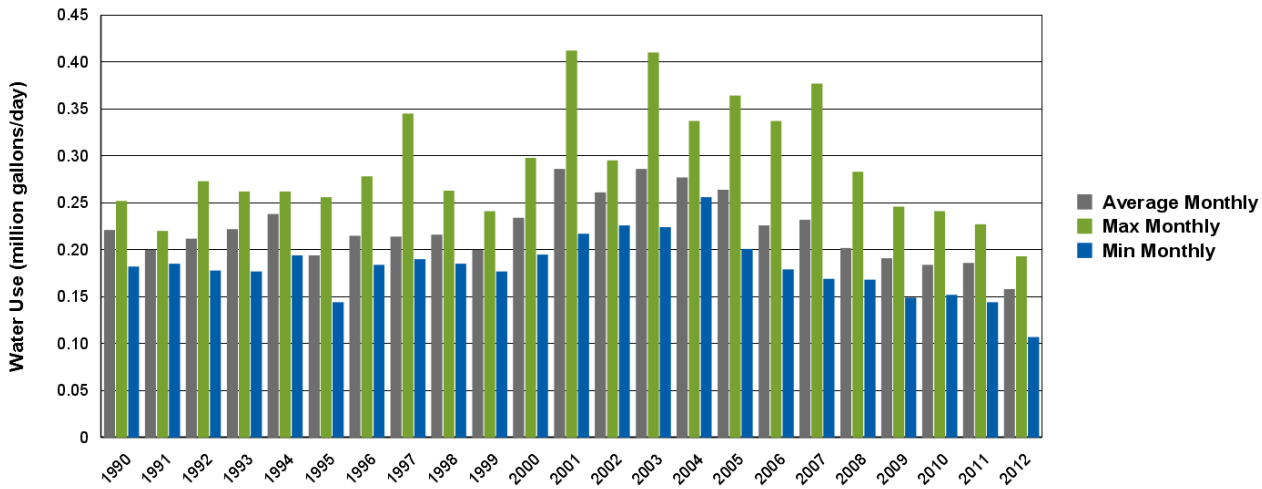
Municipal water treatment: Radionuclides removal, Iron removal, Fluoride (Z), Corrosion control - Lead/Copper, Iron/Manganese Removal, Disinfection, Iron/Manganese Sequestration

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 41



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	1,980	2,190	2,300
Total Population	1,980	2,190	2,300
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.3	0.3
Total Per Capita Water Use (Gal/Person/Day)	101.01	136.99	130.43
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	80	72	69

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Mayer Water Supply Profile

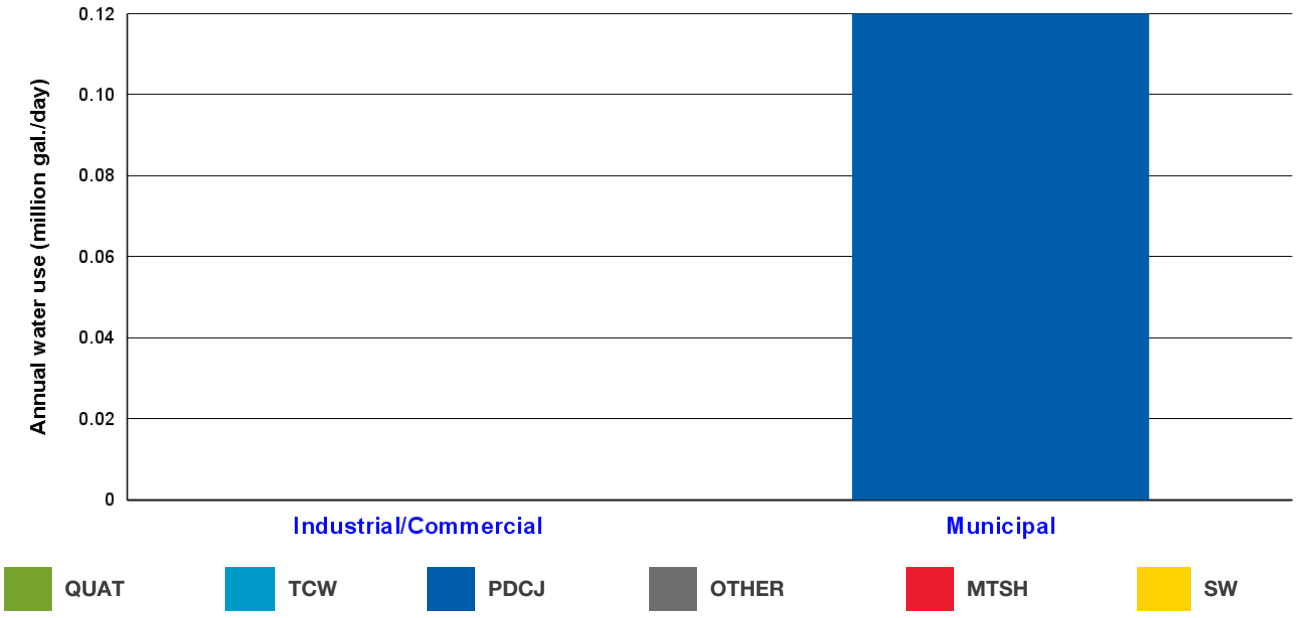
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	2	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

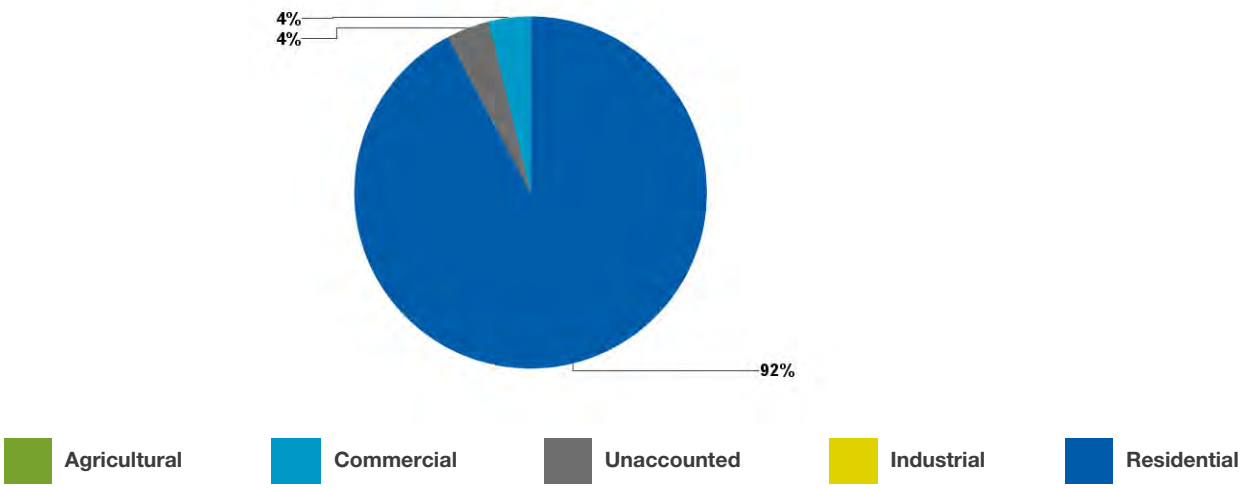
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

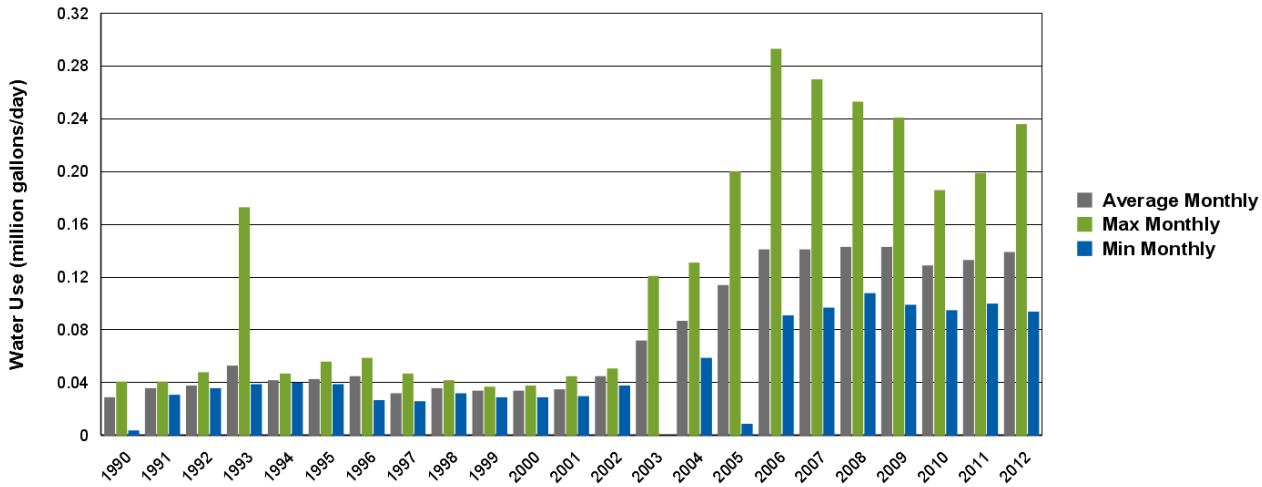
Municipal water treatment: Iron/Manganese Removal, Corrosion control - Lead/Copper, Fluoride (Z), Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 48



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	1,870	2,230	3,000
Total Population	1,870	2,230	3,000
Projected Average Daily Water Use (Million Gal/Day)	0.2	0.2	0.3
Total Per Capita Water Use (Gal/Person/Day)	106.95	89.69	100.00
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	74	62	46

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

New Germany Water Supply Profile

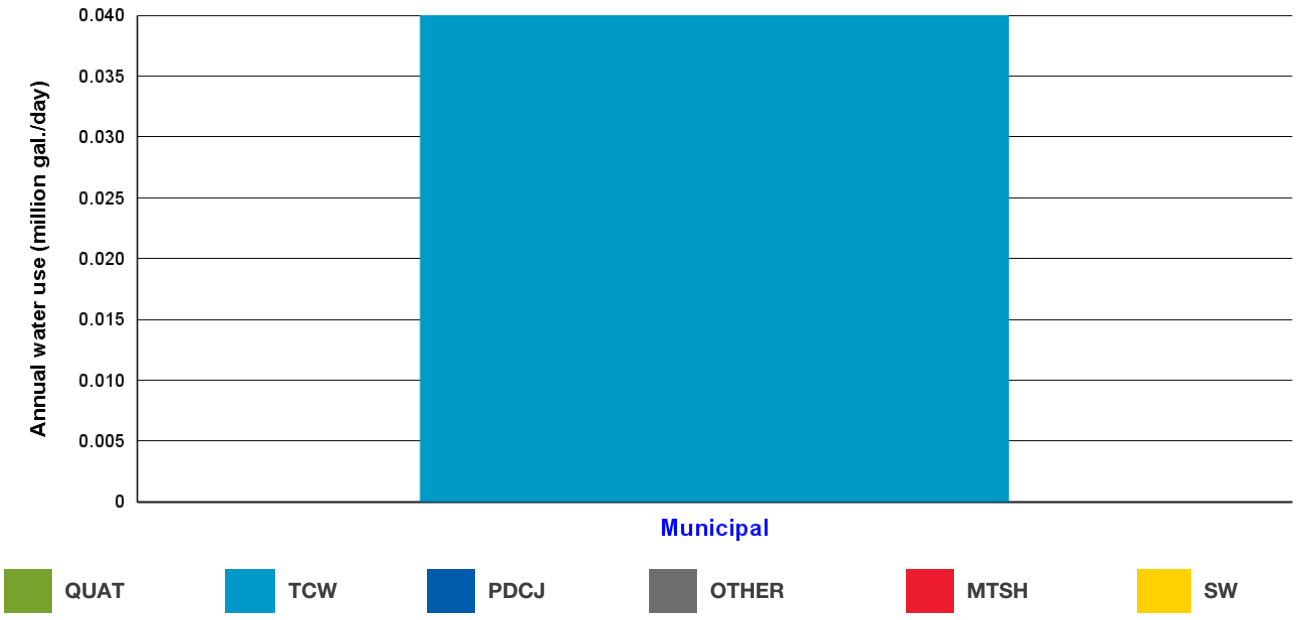
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	2	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

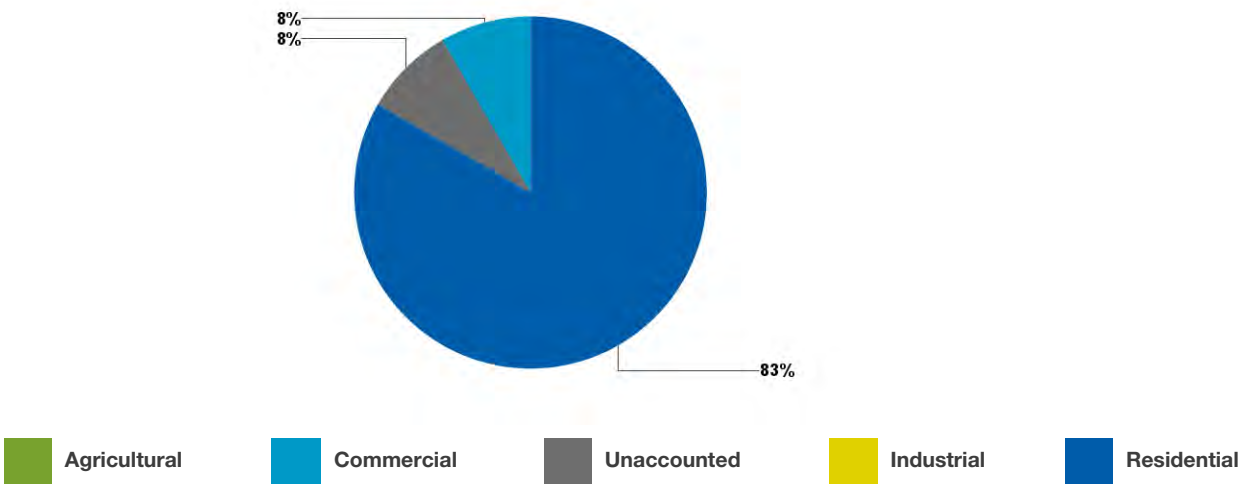
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

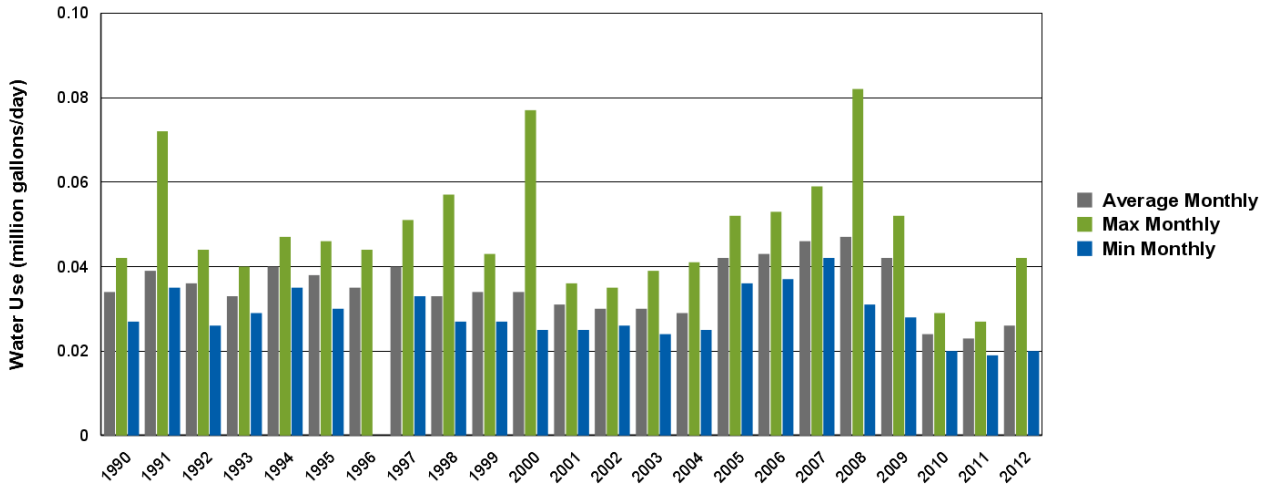
Municipal water treatment: Radionuclides removal, Iron/Manganese Removal, Corrosion control - Lead/Copper, Other, Disinfection, Iron/Manganese Sequestration, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 8



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	497	597	1,397
Total Population	500	600	1,400
Projected Average Daily Water Use (Million Gal/Day)	0.05	0.1	0.1
Total Per Capita Water Use (Gal/Person/Day)	100.60	167.50	71.58
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	53	44	19

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Norwood Young America Water Supply Profile

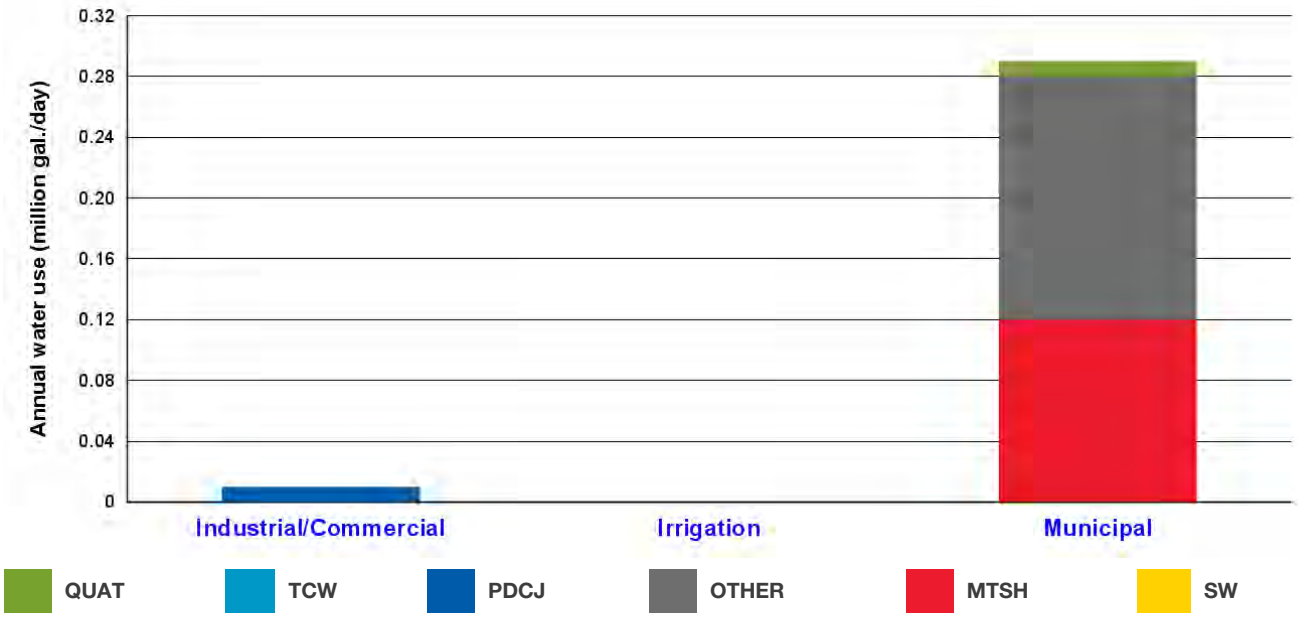
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	2	0	
Prairie du Chien-Jordan (PDCJ)	1	1	0
Quaternary (QUAT)	1	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	4	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

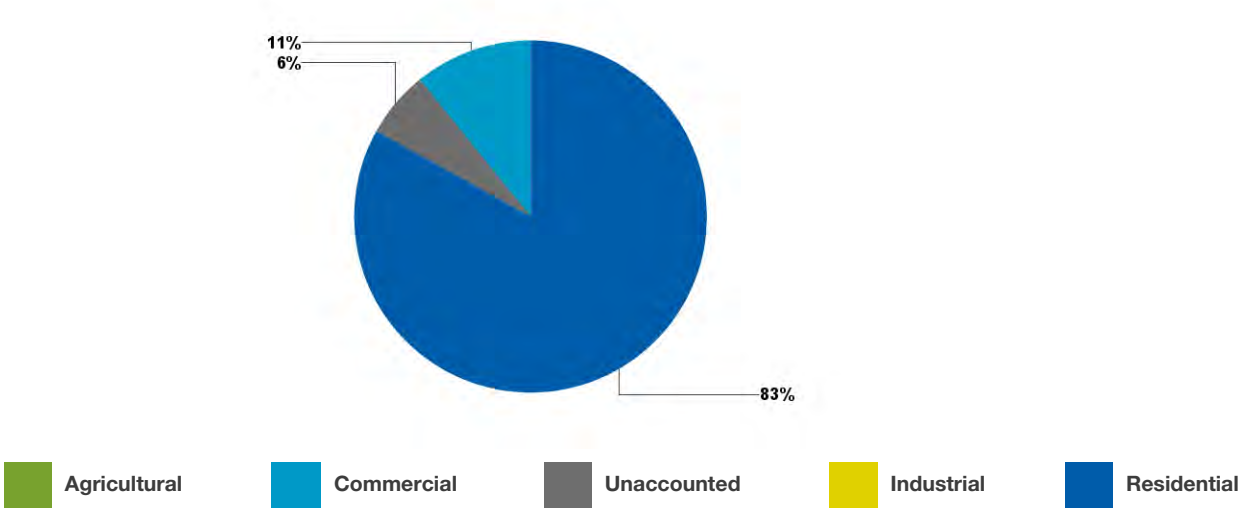
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

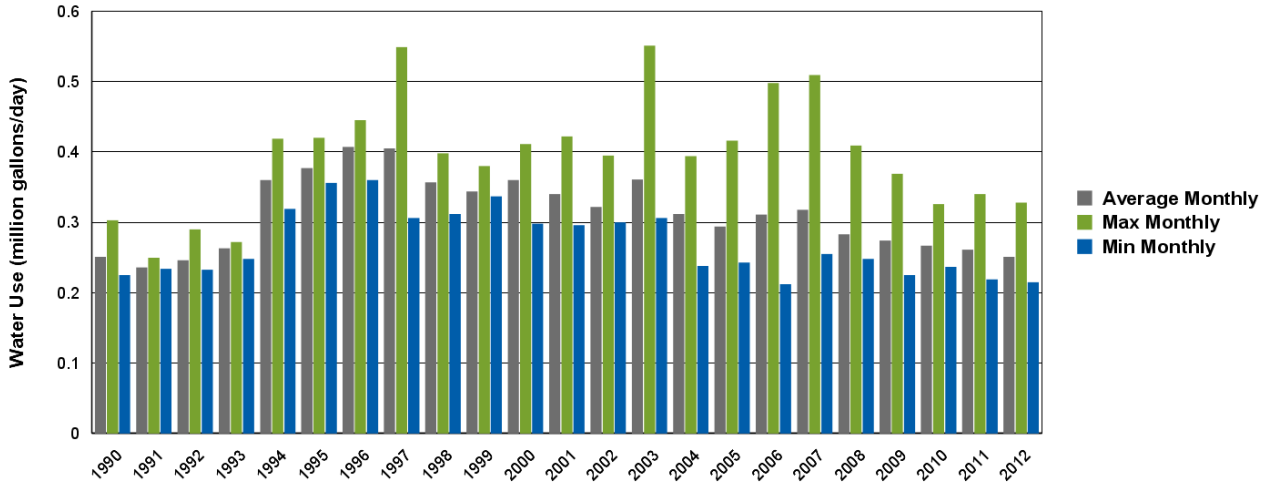
Municipal water treatment: Disinfection, Iron removal, Radionuclides removal, Fluoride (Z)

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 85



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	4,420	5,900	8,800
Total Population	4,420	5,900	8,800
Projected Average Daily Water Use (Million Gal/Day)	0.3	0.4	0.6
Total Per Capita Water Use (Gal/Person/Day)	67.87	67.80	68.18
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	57	43	29

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Rockford Water Supply Profile

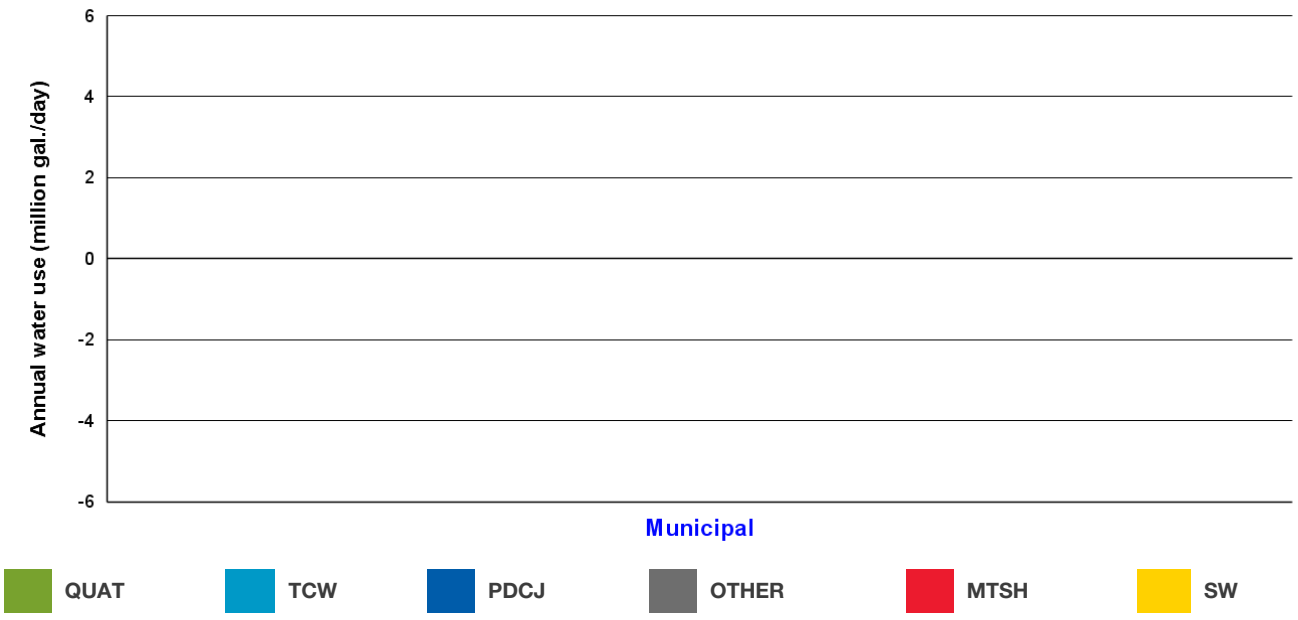
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards

– Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

– Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Rogers Water Supply Profile

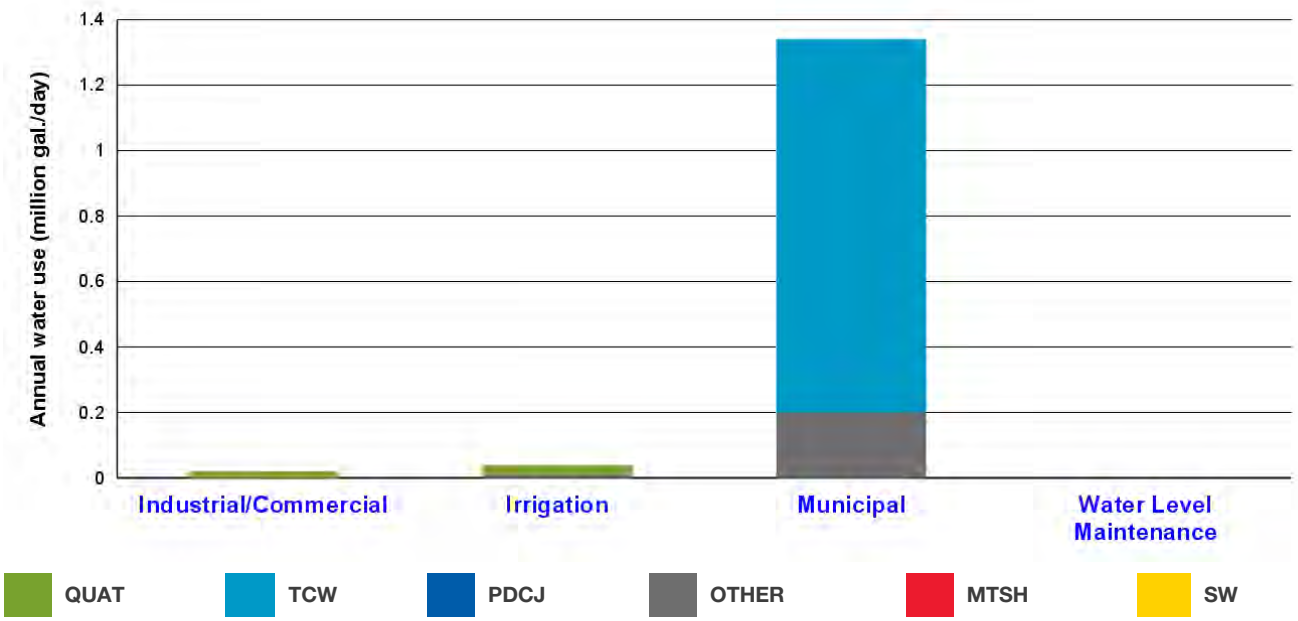
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	4	
Tunnel City-Wonewoc (TCW)	7	3	
Other	1	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

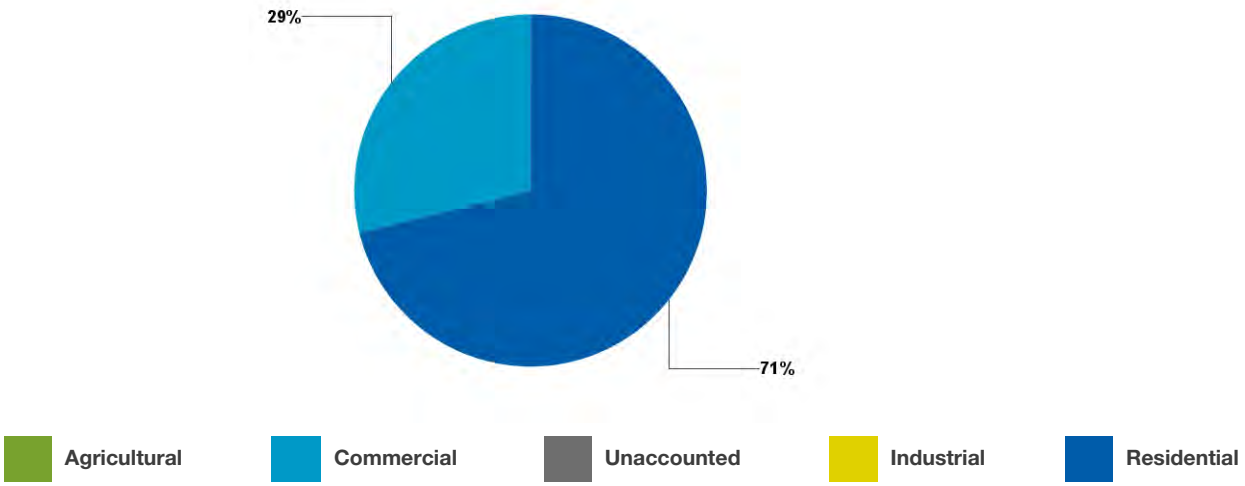
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

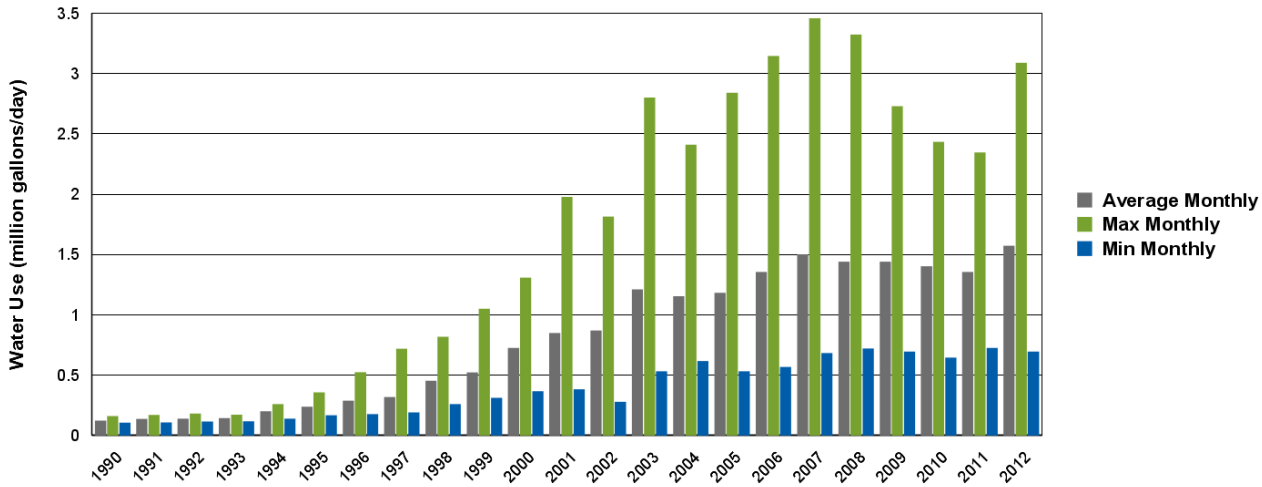
Municipal water treatment: Disinfection, Fluoride (Z), Corrosion control - Lead/Copper, Iron/Manganese Sequestration

Rate structure: Flat and Increasing Block depending on customer classification

2012 Permitted amount for municipal water supply (million gallons/year): 572



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	12,527	16,127	21,227
Total Population	12,600	16,200	21,300
Projected Average Daily Water Use (Million Gal/Day)	1.9	2.5	3.3
Total Per Capita Water Use (Gal/Person/Day)	151.67	155.02	155.46
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	126	98	74

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

San Francisco Twp. Water Supply Profile

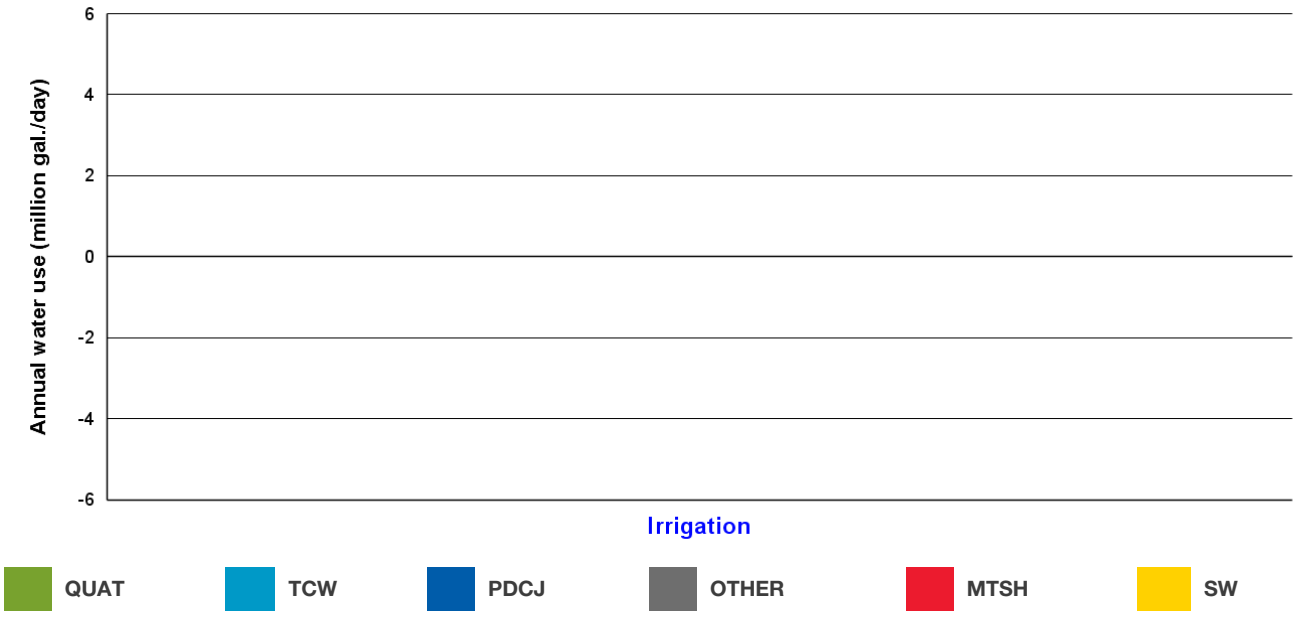
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	1	
Tunnel City-Wonewoc (TCW)	0	2	
Other	0	0	
Surface Water	0	2	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Waconia Twp. Water Supply Profile

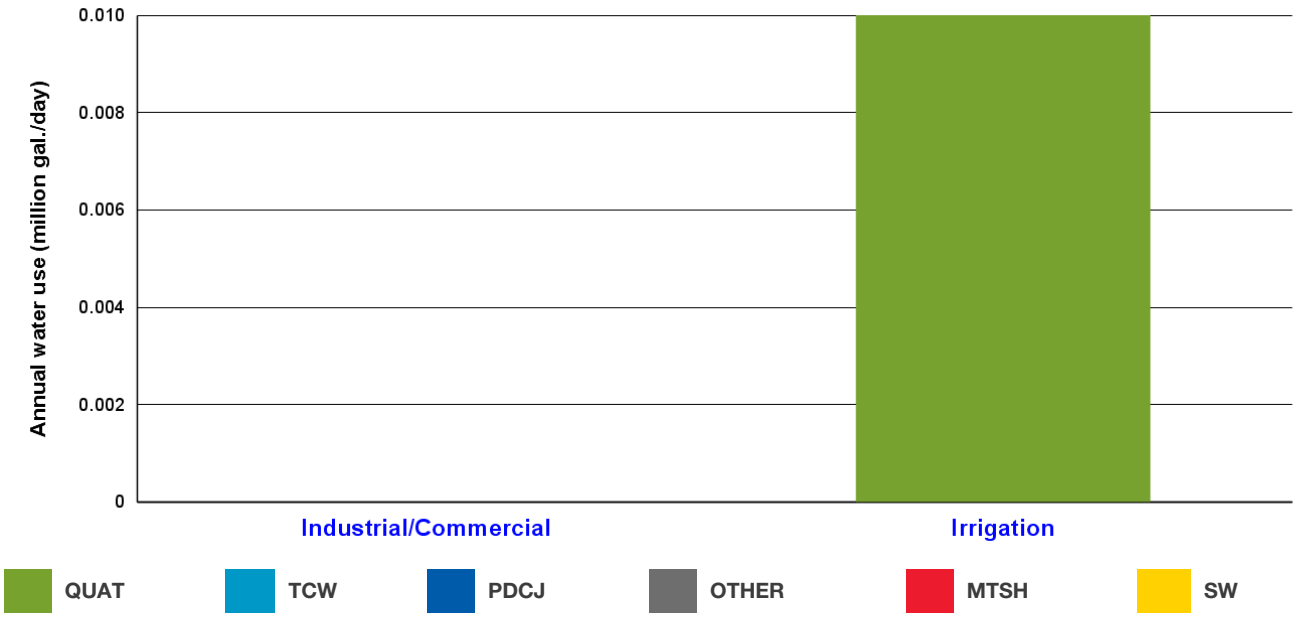
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	2	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	1	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water

suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Waconia Water Supply Profile

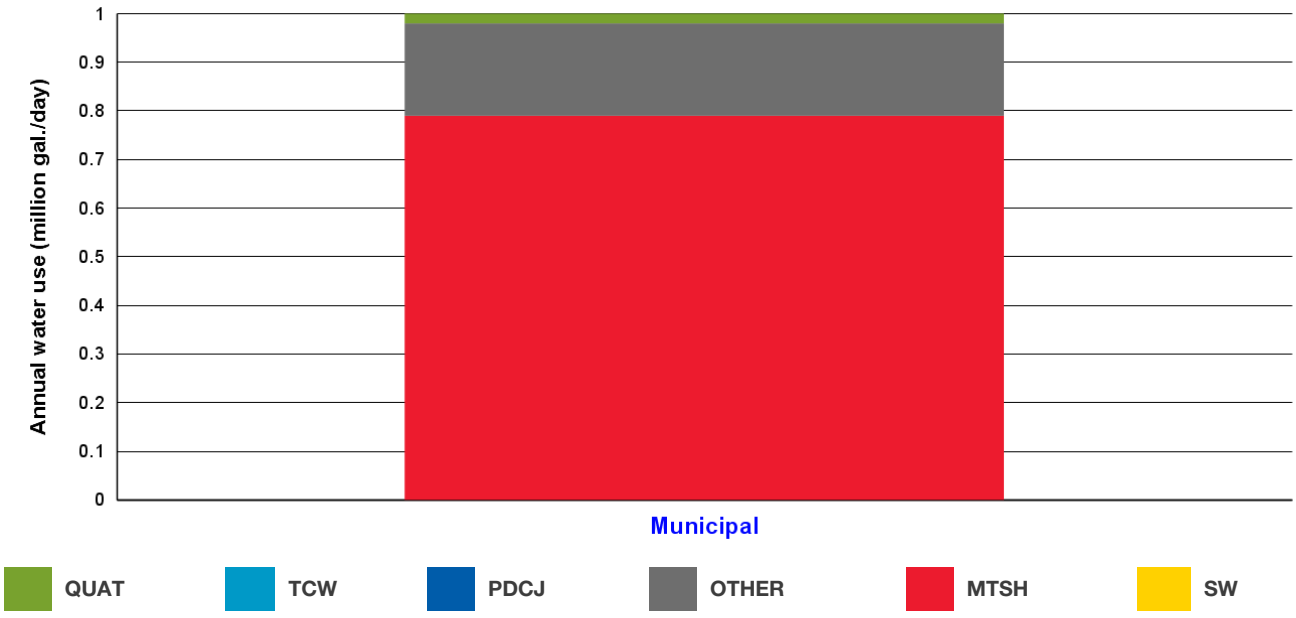
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	3	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	3	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	1	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

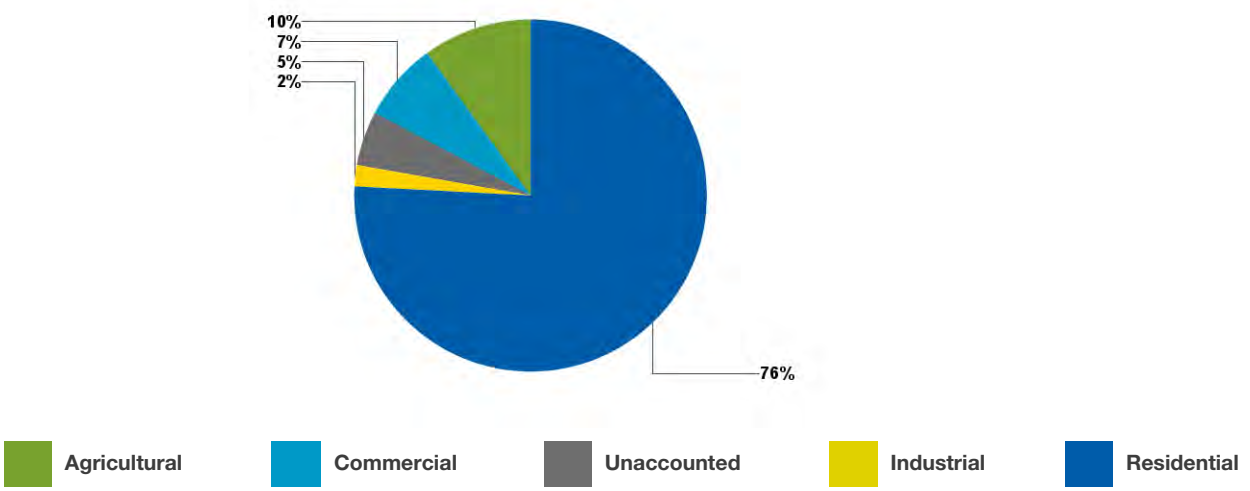
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

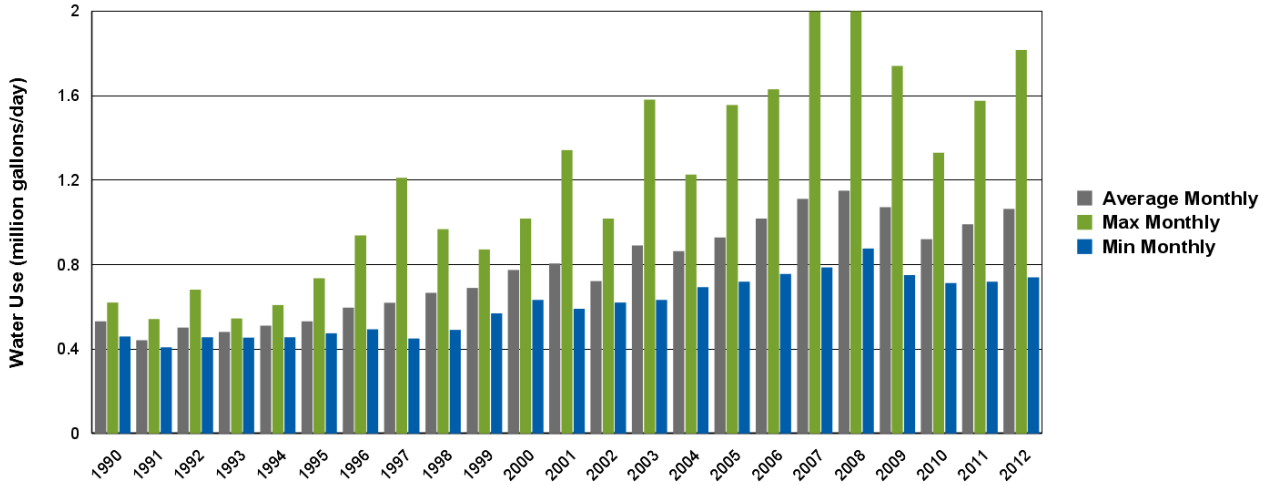
Municipal water treatment: Iron removal, Fluoride (Z), Corrosion control - Lead/Copper, Iron/Manganese Removal, Disinfection

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 367



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	12,336	16,136	21,536
Total Population	12,900	16,700	22,100
Projected Average Daily Water Use (Million Gal/Day)	1.4	1.8	2.4
Total Per Capita Water Use (Gal/Person/Day)	113.49	111.55	111.44
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	86	66	49

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Watertown Twp. Water Supply Profile

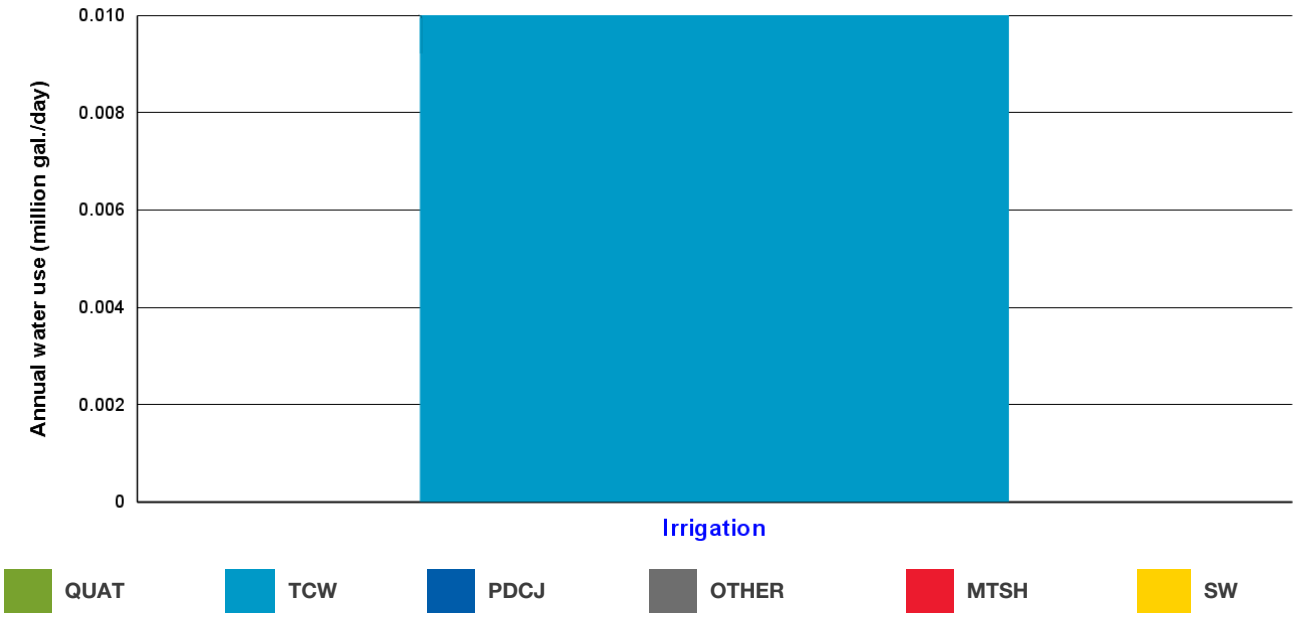
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	1	
Other	0	0	
Surface Water	0	1	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards

- Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
- Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Watertown Water Supply Profile

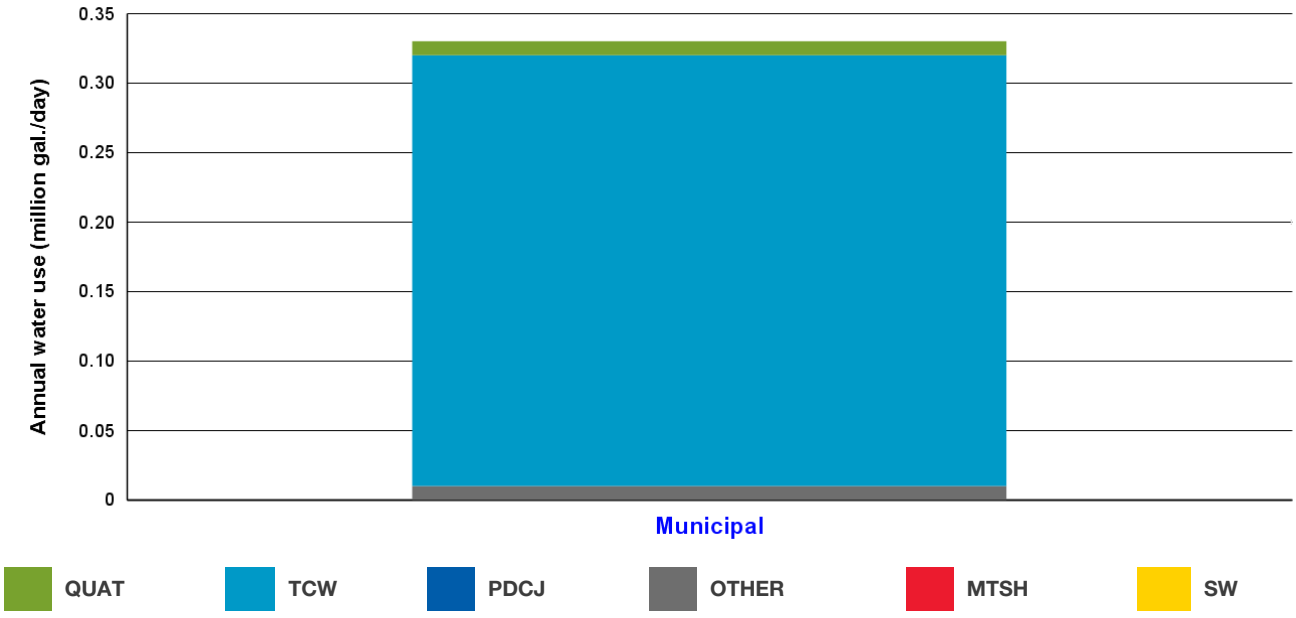
Overview of water system and use in the community:

The community owns and operates their own water supply system.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	1	0	
Tunnel City-Wonewoc (TCW)	1	0	
Other	2	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

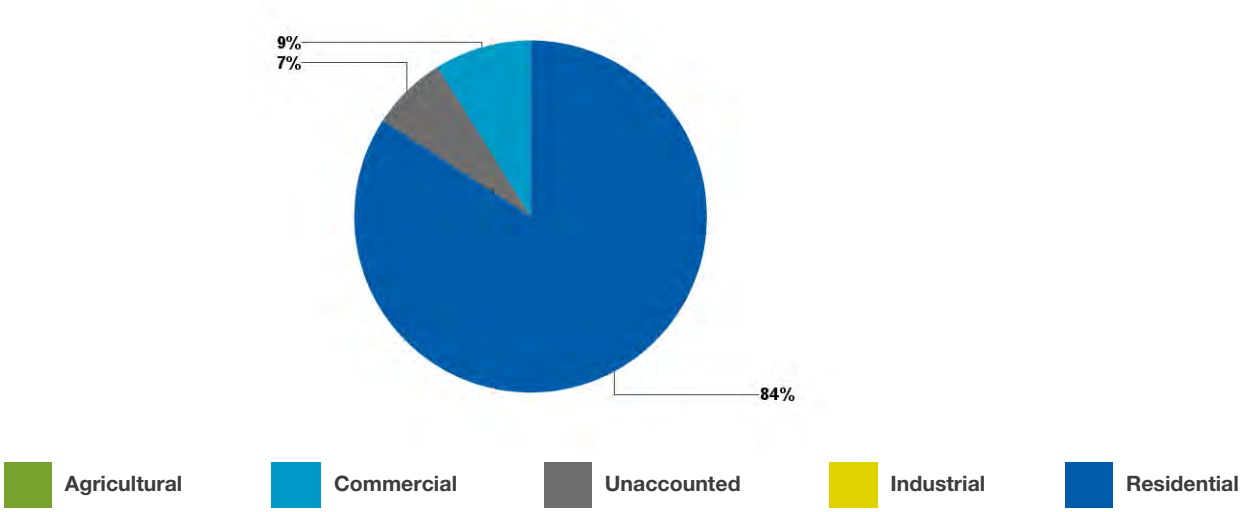
1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

Municipal Water Use

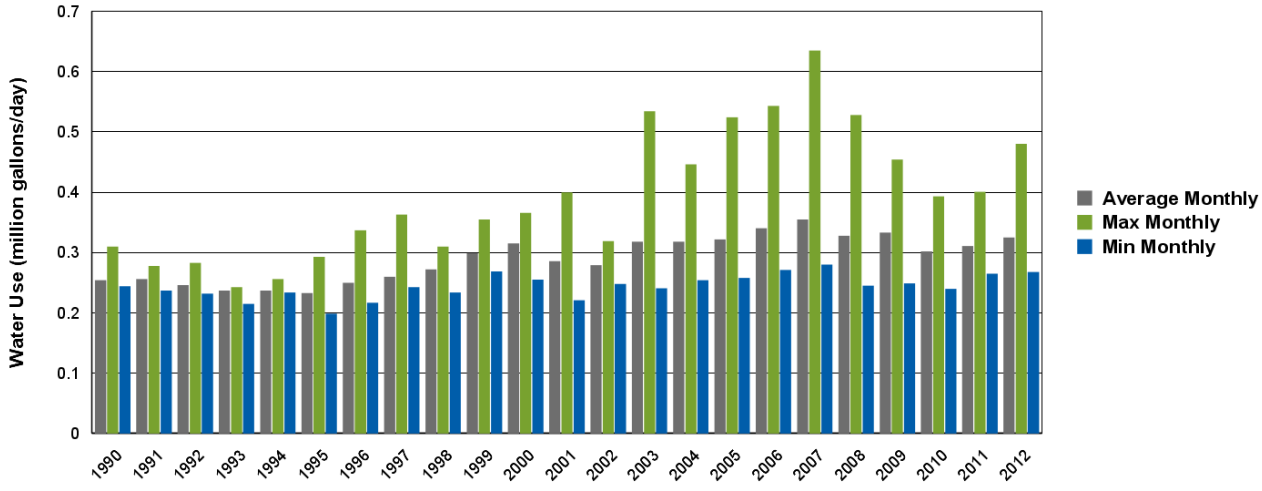
Municipal water treatment: Other, Fluoride (Z), Iron removal, Disinfection, Iron/Manganese Removal

Rate structure: Increasing Block

2012 Permitted amount for municipal water supply (million gallons/year): 110



Historical municipal water use in the community



Projected water use

	2020	2030	2040
Population Served	4,460	5,200	6,700
Total Population	4,460	5,200	6,700
Projected Average Daily Water Use (Million Gal/Day)	0.4	0.4	0.6
Total Per Capita Water Use (Gal/Person/Day)	89.69	76.92	89.55
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	73	62	48

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Young America Twp. Water Supply Profile

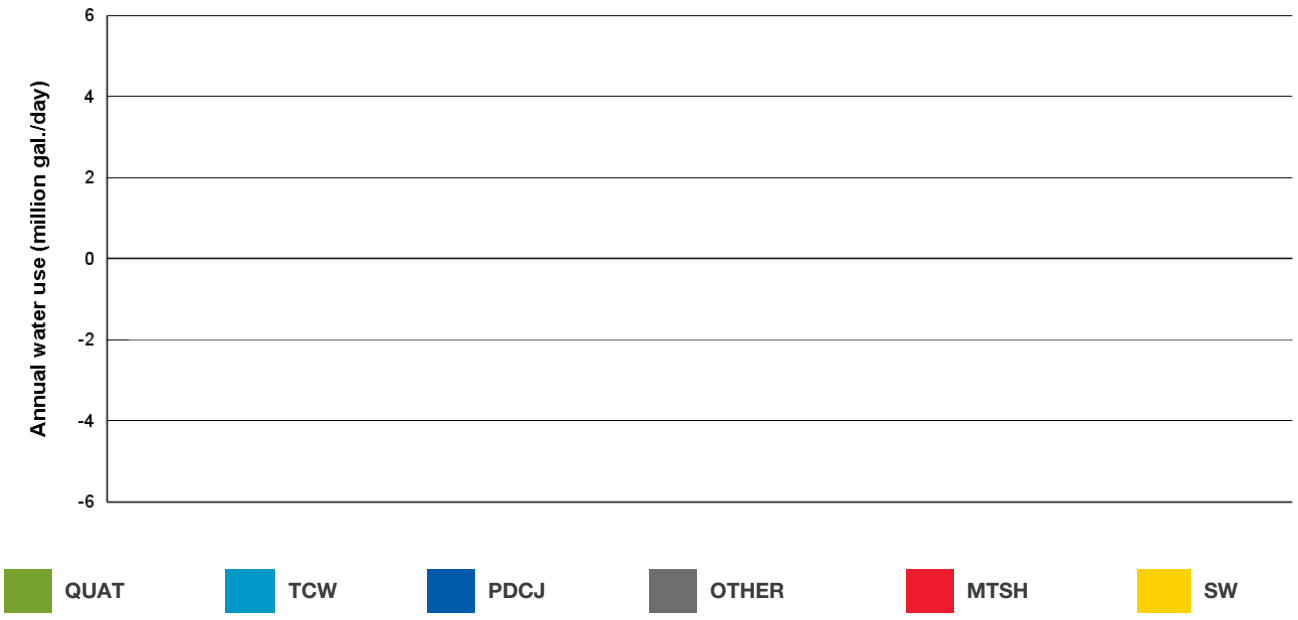
Overview of water system and use in the community:

The community does not have a municipal supply. Private wells supply existing demand.

Number of withdrawls permitted by DNR within the community:

Source	Municipal Wells or intakes in the community	Non-Municipal Wells or intakes in the community	Municipal Wells or intakes outside the community
Mt. Simon-Hinckley (MTSH)	0	0	
Prairie du Chien-Jordan (PDCJ)	0	0	0
Quaternary (QUAT)	0	0	
Tunnel City-Wonewoc (TCW)	0	0	
Other	0	0	
Surface Water	0	0	0

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

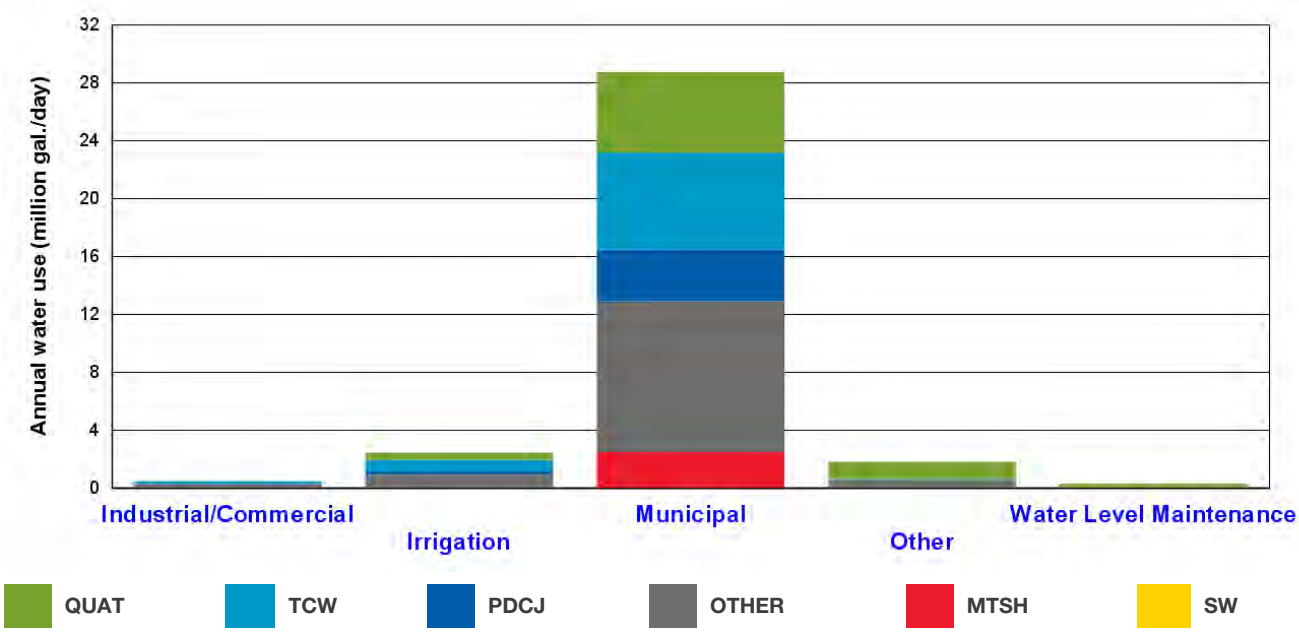
- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

County Water Supply Profiles

Anoka Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	270,410	294,111	332,331
Total Population	333,430	358,440	398,320
Projected Average Daily Water Use (Million Gal/Day)	2.2	2.4	2.7
Total Per Capita Water Use (Gal/Person/Day)	123	123	123
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	103	95	86

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

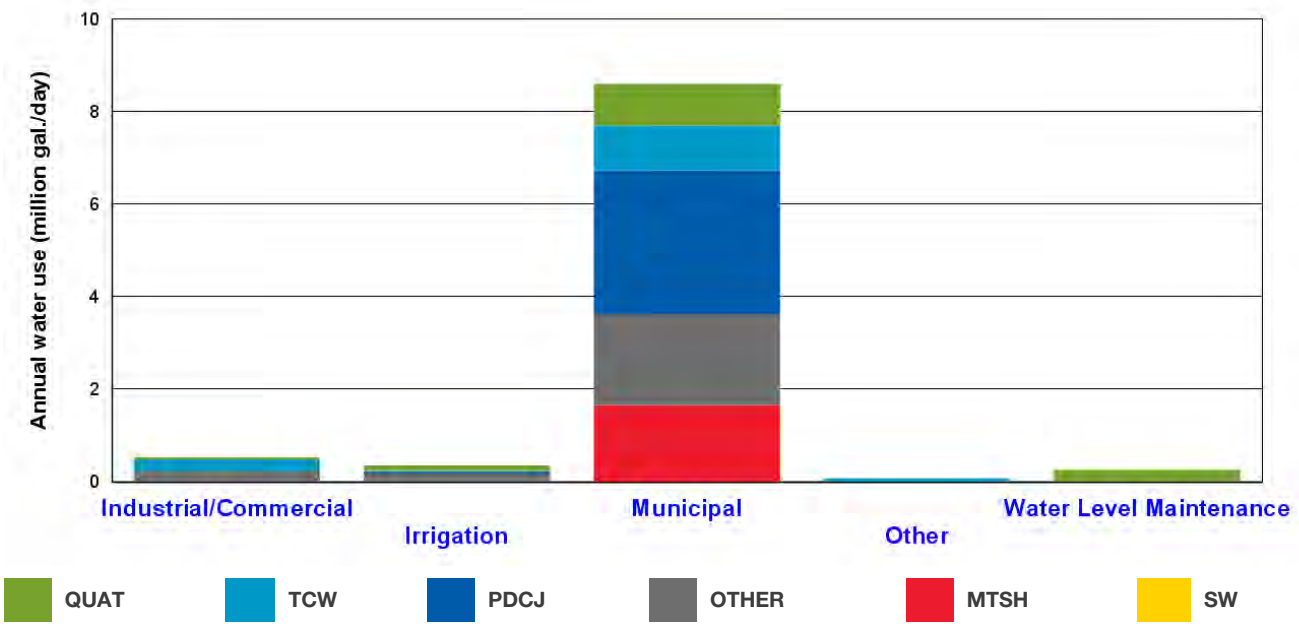
public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Carver Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	89,290	111,430	144,250
Total Population	93,340	115,480	148,300
Projected Average Daily Water Use (Million Gal/Day)	1.0	1.3	1.6
Total Per Capita Water Use (Gal/Person/Day)	103	103	103
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	82	66	50

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where

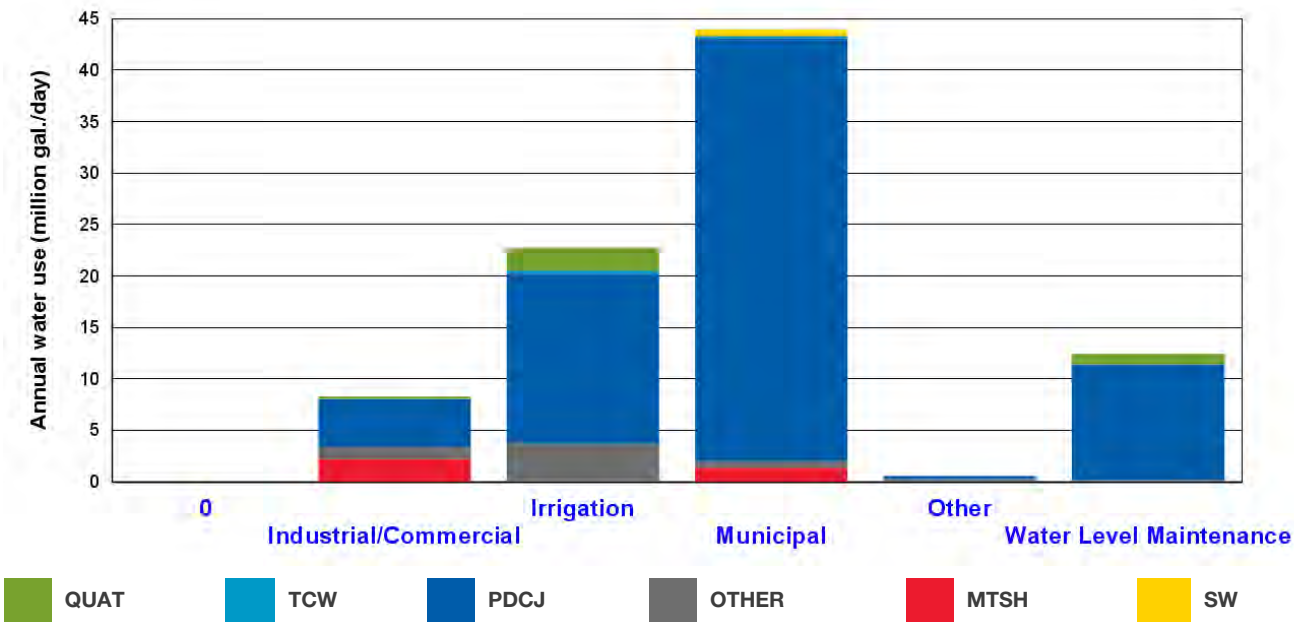
significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Dakota Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	379,059	420,577	461,155
Total Population	380,684	421,952	462,280
Projected Average Daily Water Use (Million Gal/Day)	3.3	3.7	4.0
Total Per Capita Water Use (Gal/Person/Day)	116	116	116
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	114	103	95

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

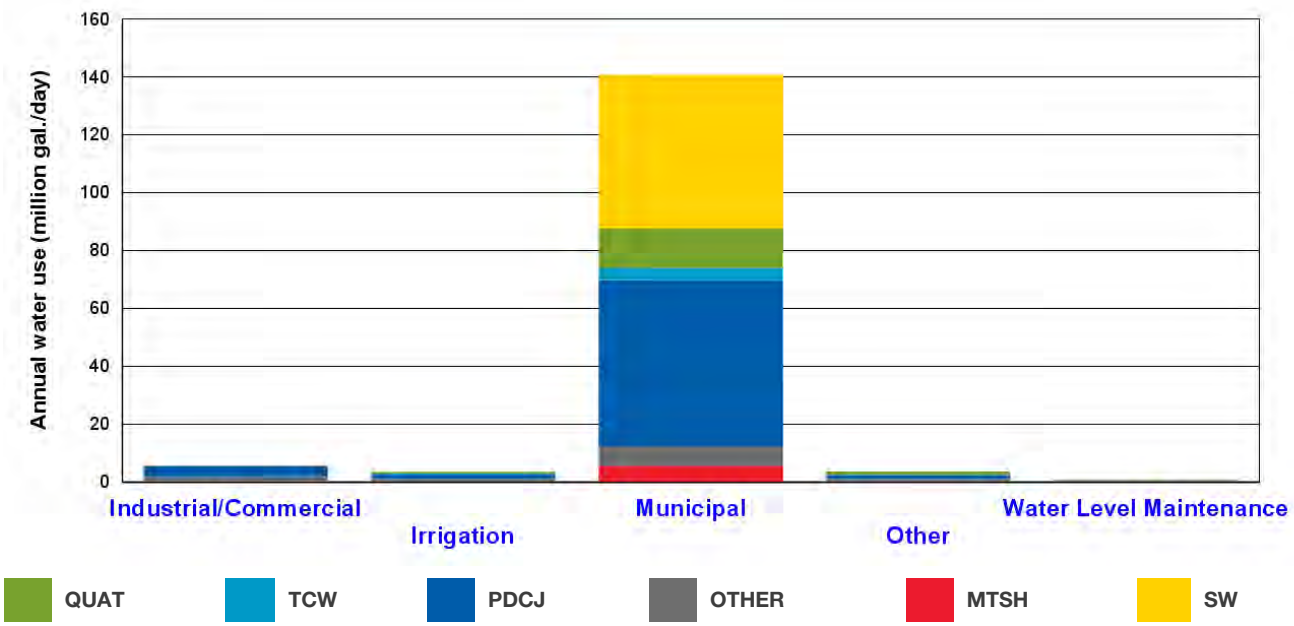
withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Hennepin Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	1,288,627	1,376,944	1,453,190
Total Population	1,313,470	1,402,510	1,478,280
Projected Average Daily Water Use (Million Gal/Day)	4.5	4.8	5.1
Total Per Capita Water Use (Gal/Person/Day)	131	131	131
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	116	105	97

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

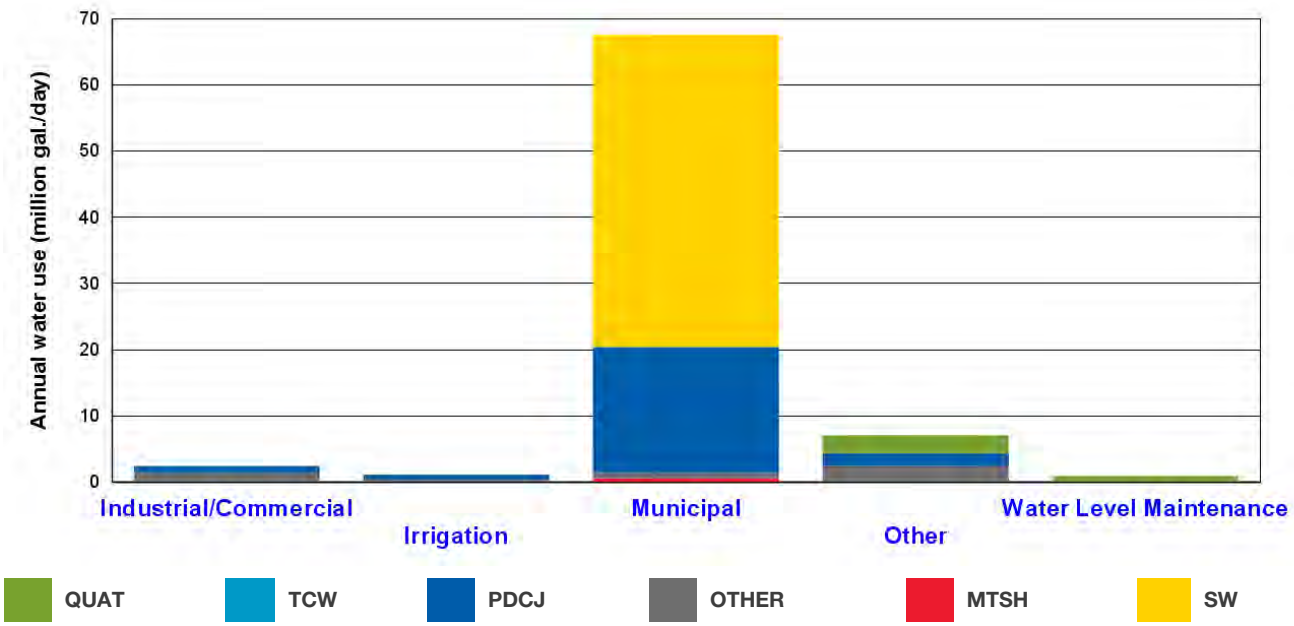
identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Ramsey Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	567,102	598,865	630,177
Total Population	431,250	452,840	469,080
Projected Average Daily Water Use (Million Gal/Day)	7.6	7.7	7.7
Total Per Capita Water Use (Gal/Person/Day)	111	111	111
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	109	104	100

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to

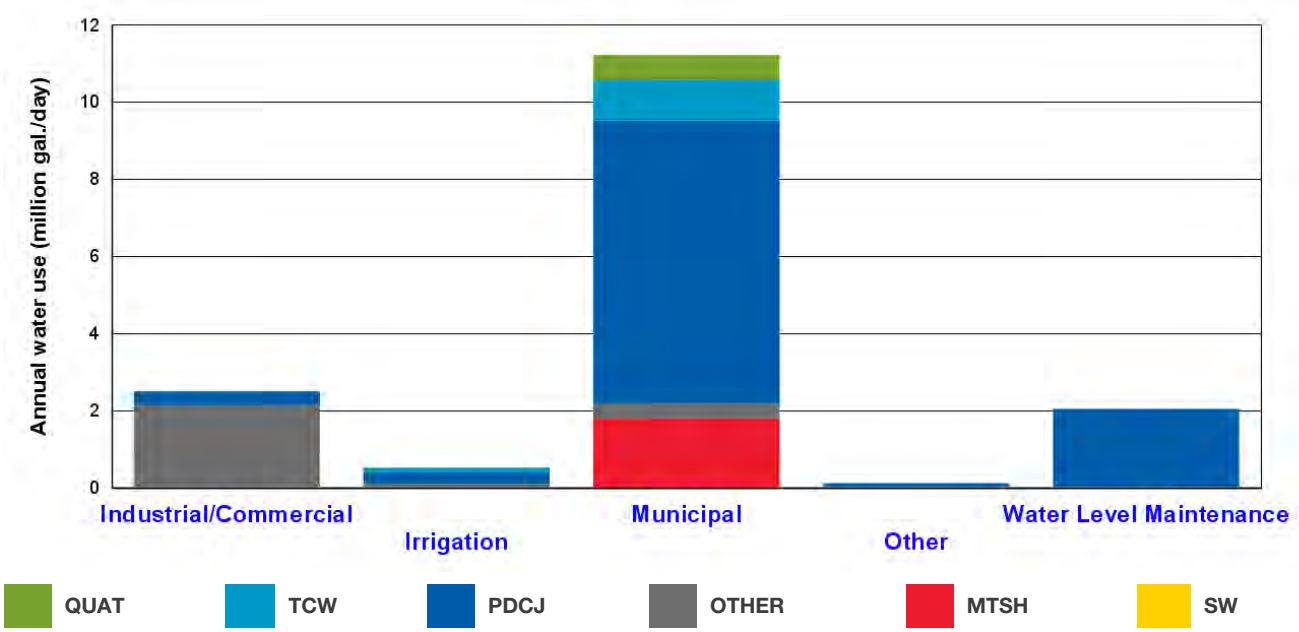
identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Scott Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	117,703	138,503	167,003
Total Population	121,800	142,600	171,100
Projected Average Daily Water Use (Million Gal/Day)	2.0	2.4	2.9
Total Per Capita Water Use (Gal/Person/Day)	97	97	97
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	91	76	61

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

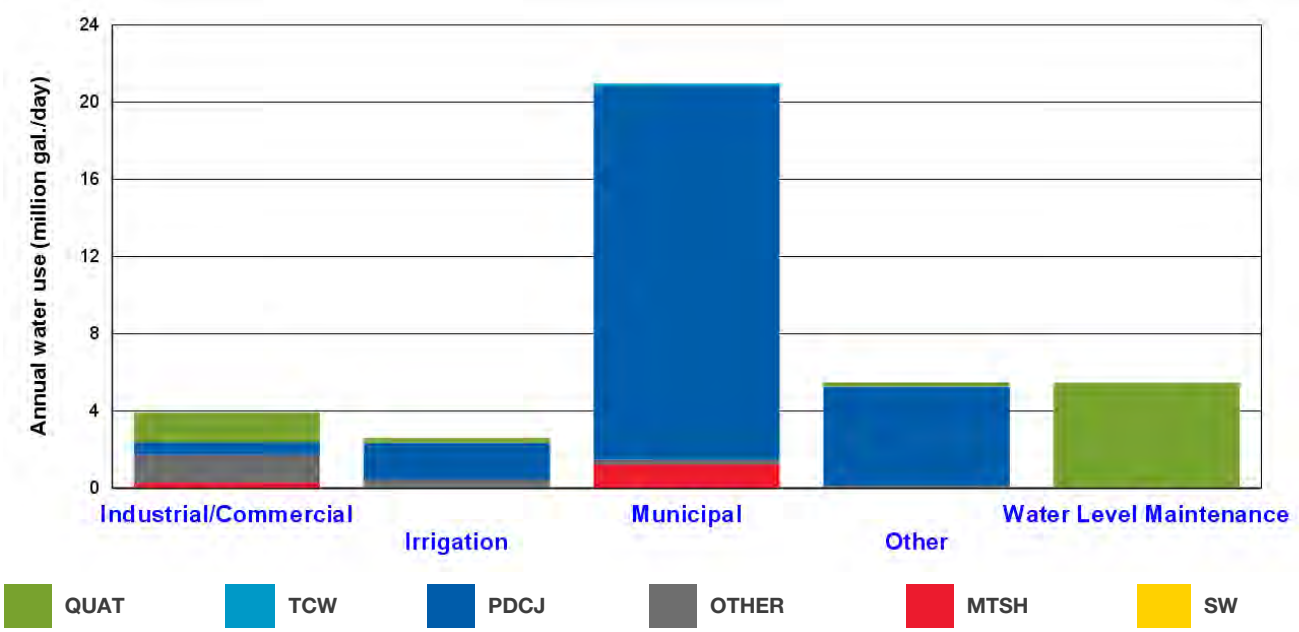
MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Washington Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	218,689	256,982	289,423
Total Population	235,704	271,724	304,494
Projected Average Daily Water Use (Million Gal/Day)	1.8	2.1	2.4
Total Per Capita Water Use (Gal/Person/Day)	111	111	111
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	99	84	76

The following should be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water suppy plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

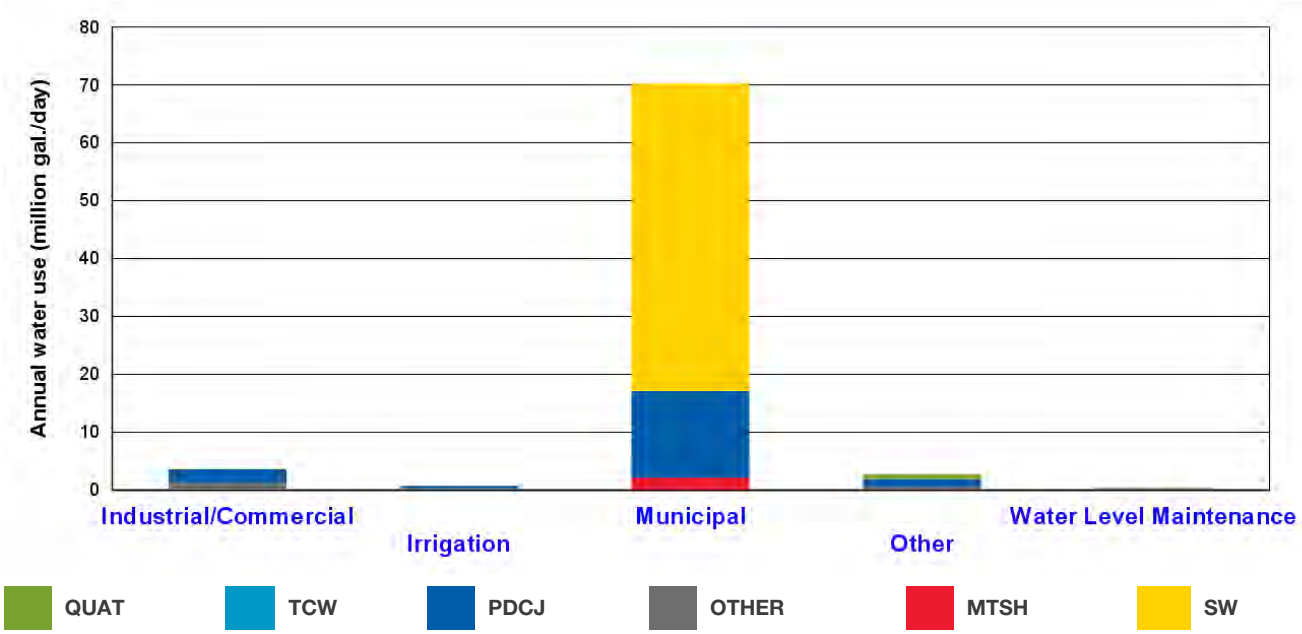
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

Watershed Water Supply Profiles

BASSETT CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	752,489	793,882	827,073
Total Population	758,300	802,800	836,800
Projected Average Daily Water Use (Million	76	81	84
Total Per Capita Water Use (Gal/Person/Day)	125	125	125
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	118	109	101

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community

  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
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- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

– Compliance with Safe Drinking Water Act standards

– Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

– Issues identified in Minnesota Department of Health Source Water Assessments

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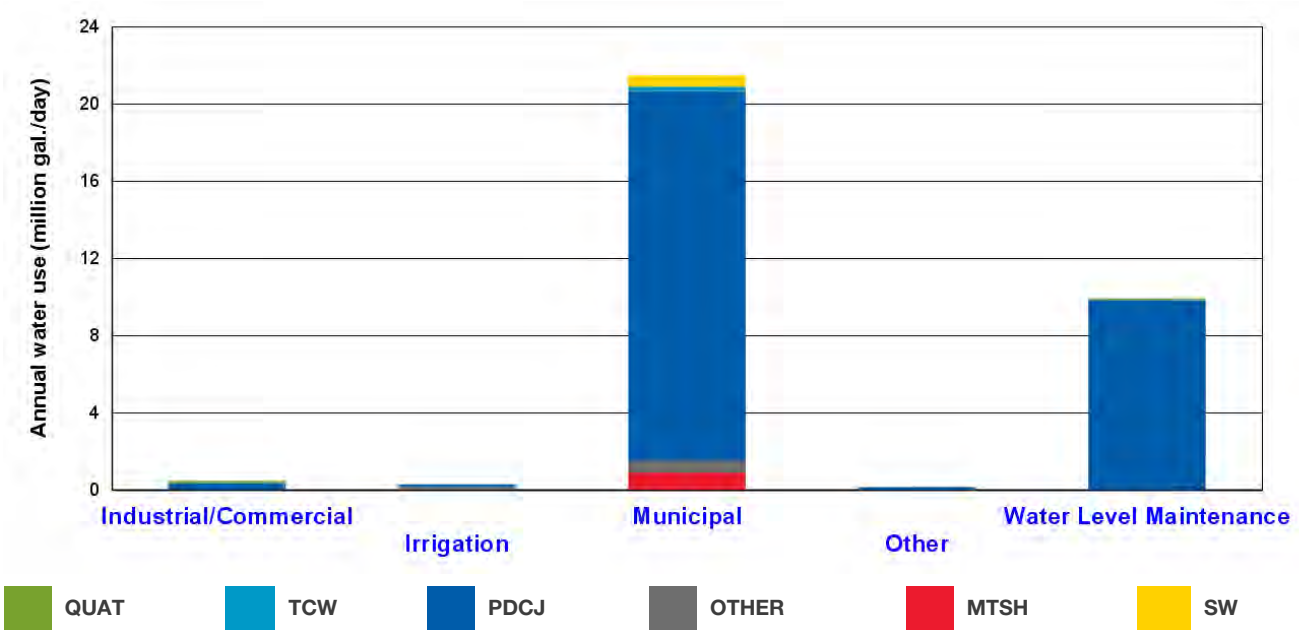
BLACK DOG Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	280,794	305,492	324,690
Total Population	281,504	306,202	325,400
Projected Average Daily Water Use (Million Gal/Day)	34	37	39
Total Per Capita Water Use (Gal/Person/Day)	116	116	116
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	117	107	102

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
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The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

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- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
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    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

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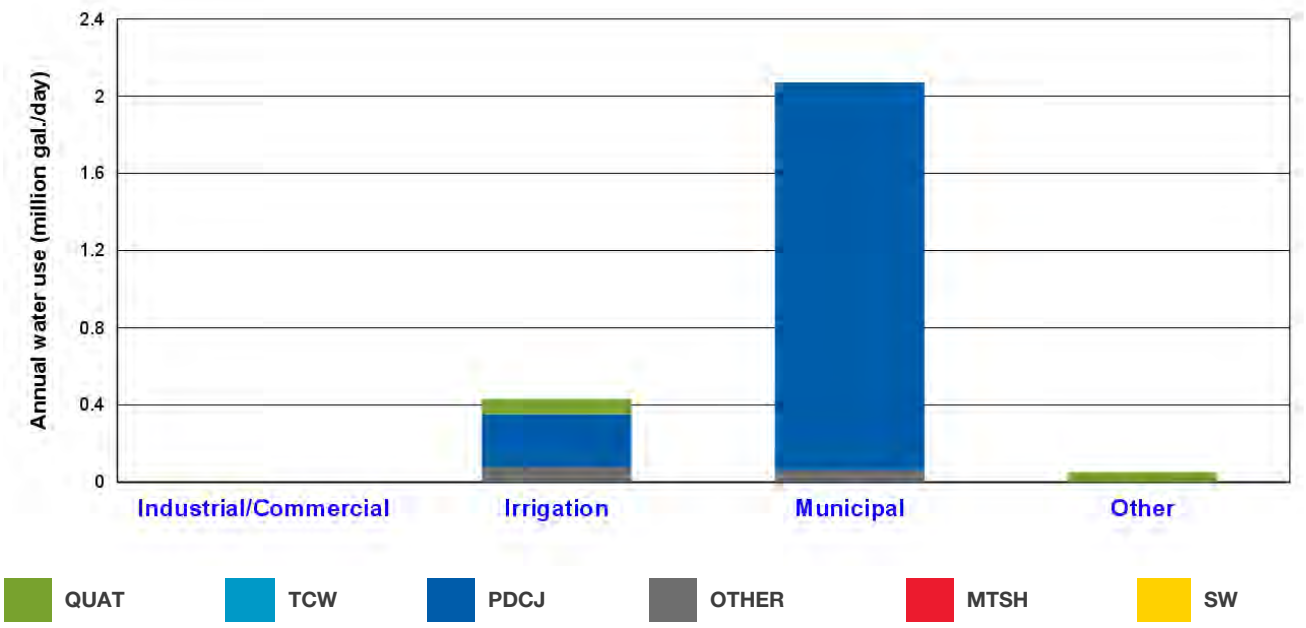
BROWNS CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	48,984	64,148	79,911
Total Population	52,100	65,100	81,300
Projected Average Daily Water Use (Million Gal/Day)	6	8	9
Total Per Capita Water Use (Gal/Person/Day)	124	124	124
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	102	80	70

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community

  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

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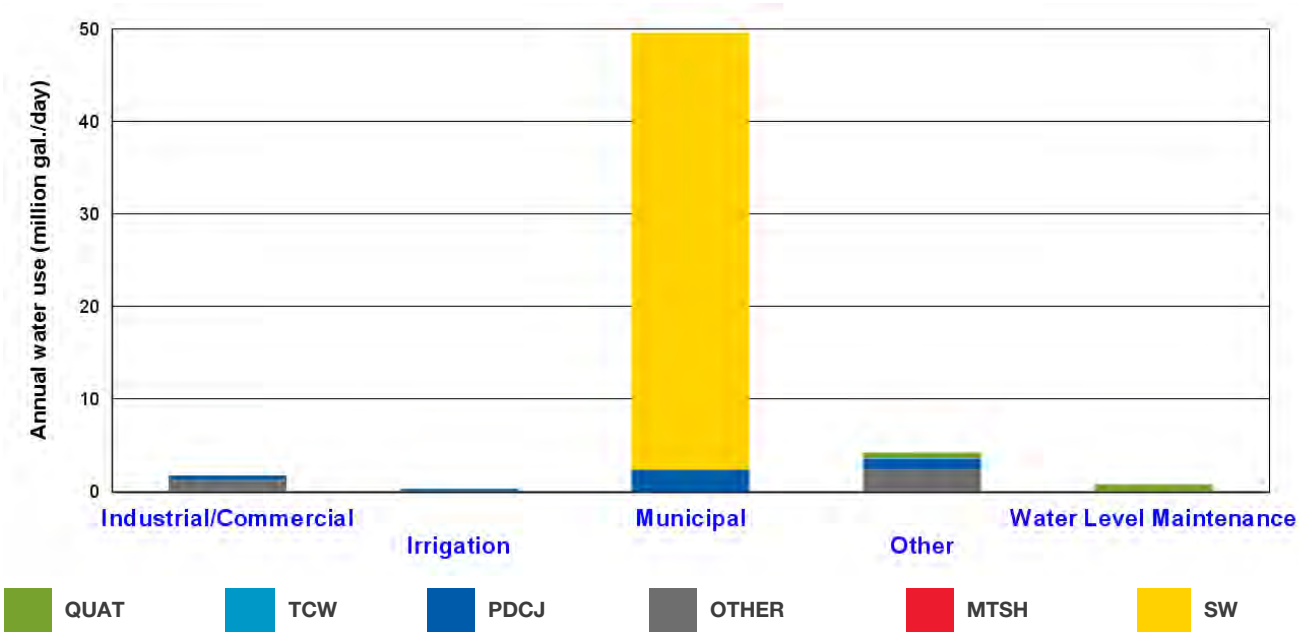
CAPITOL REGION Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	865,587	916,060	958,632
Total Population	733,300	773,600	801,100
Projected Average Daily Water Use (Million Gal/Day)	88	90	92
Total Per Capita Water Use (Gal/Person/Day)	93	93	93
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	103	97	93

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community

  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

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The following actions are recommended:

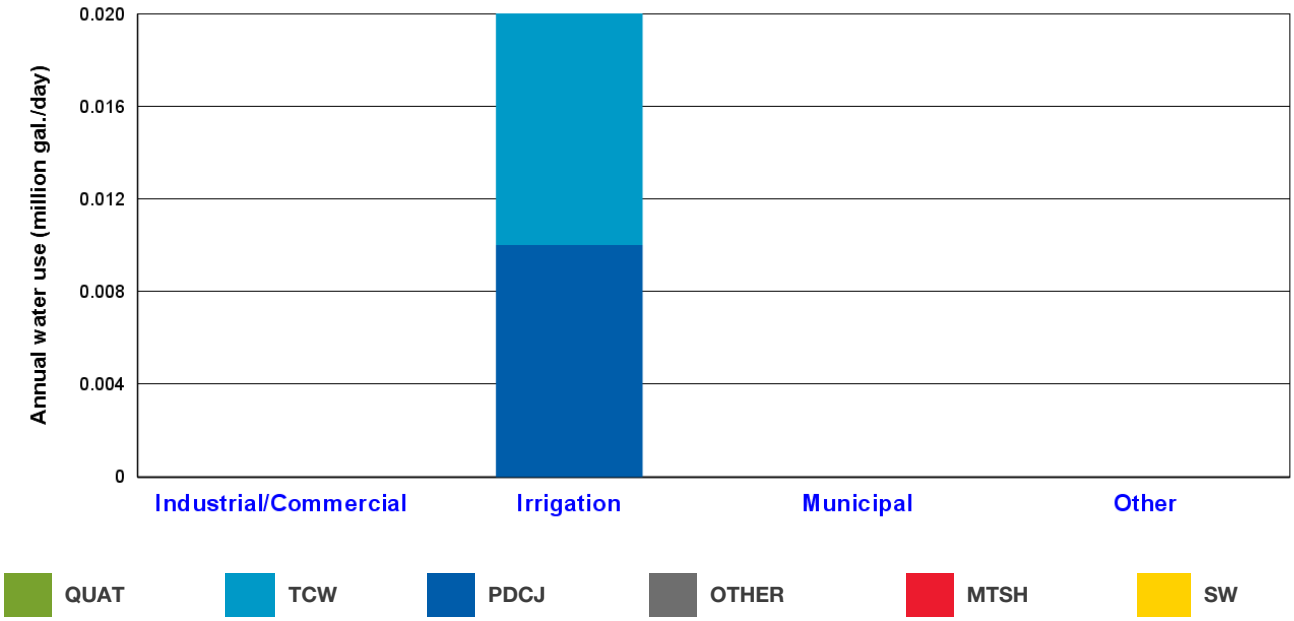
- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.

- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

CARNELIAN-MARINE-ST. CROIX Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	39,519	50,093	59,766
Total Population	37,480	45,890	56,000
Projected Average Daily Water Use (Million Gal/Day)	5	6	7
Total Per Capita Water Use (Gal/Person/Day)	109	109	109
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	80	63	55

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

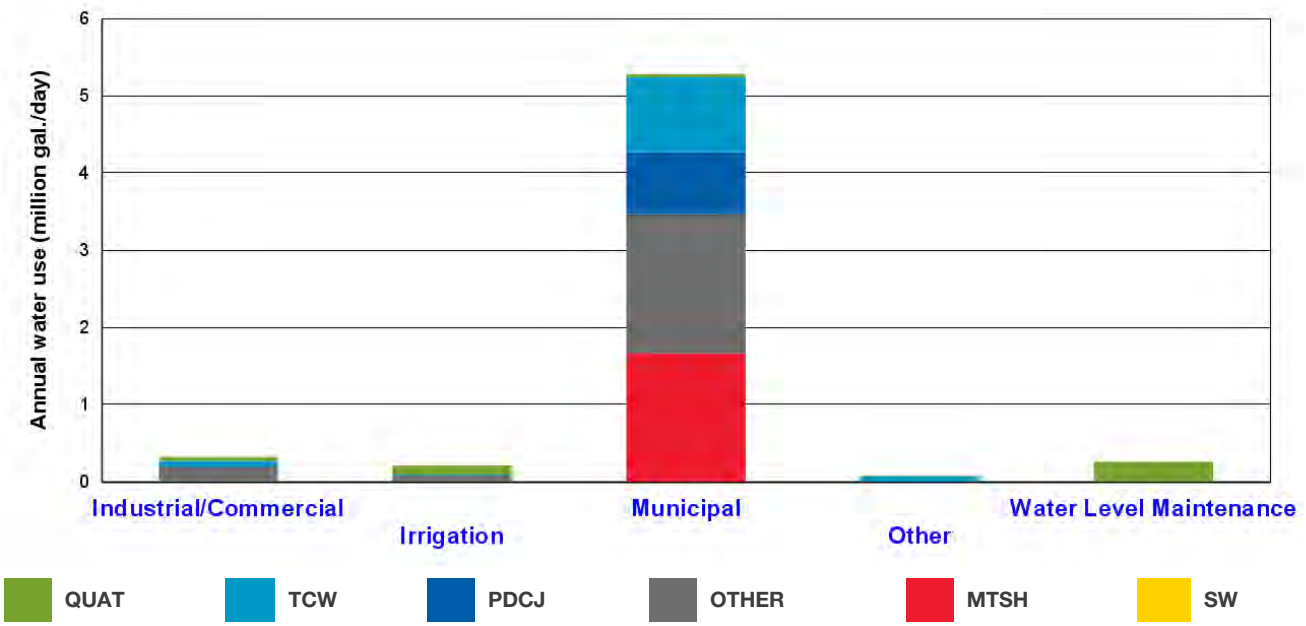
public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

CARVER COUNTY Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	101,014	127,354	167,074
Total Population	108,540	134,880	174,600
Projected Average Daily Water Use (Million	13	16	20
Total Per Capita Water Use (Gal/Person/Day)	106	106	106
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	85	67	50

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

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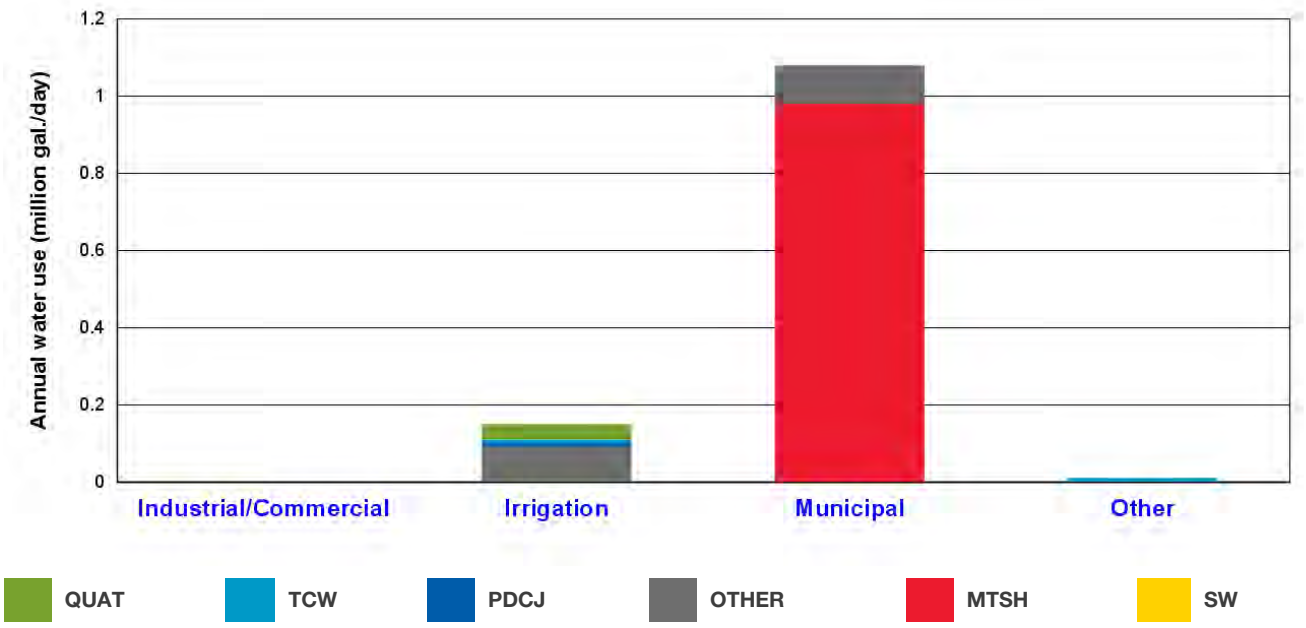
COMFORT LAKE FOREST LAKE Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	12,261	15,861	20,861
Total Population	19,700	23,300	28,300
Projected Average Daily Water Use (Million Gal/Day)	1	2	2
Total Per Capita Water Use (Gal/Person/Day)	112	112	112
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	106	82	62

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
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- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
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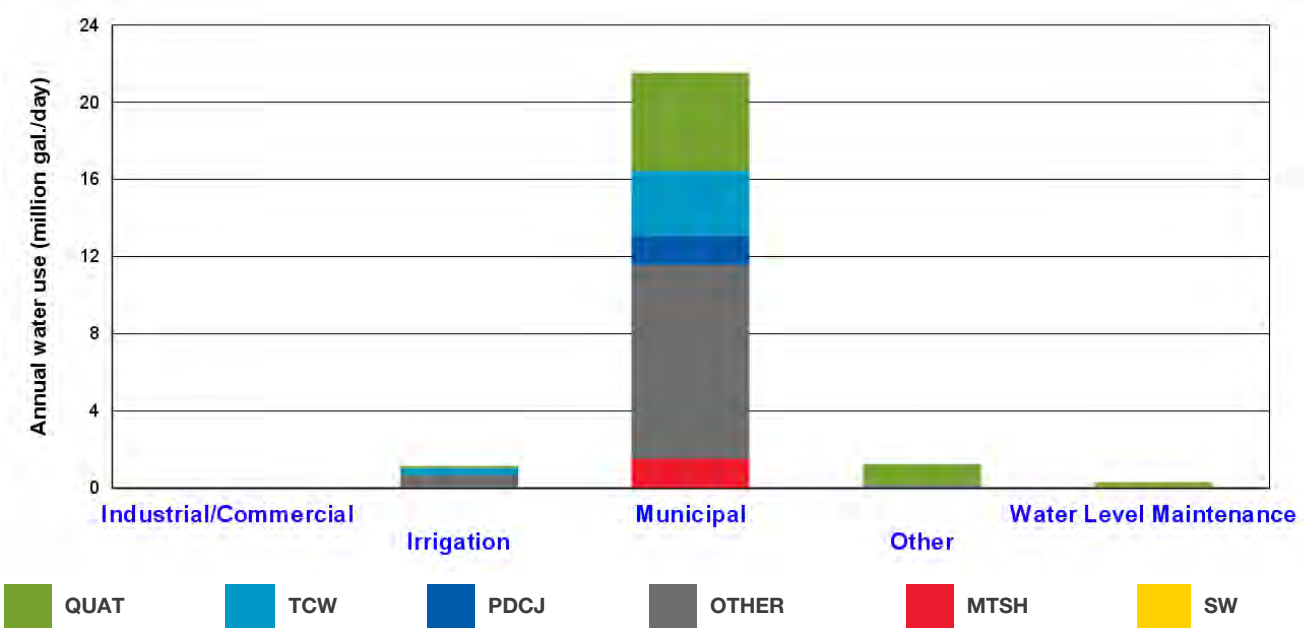
COON CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	315,135	341,285	374,865
Total Population	355,760	382,450	416,820
Projected Average Daily Water Use (Million Gal/Day)	44	47	52
Total Per Capita Water Use (Gal/Person/Day)	134	134	134
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	122	115	106

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
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- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

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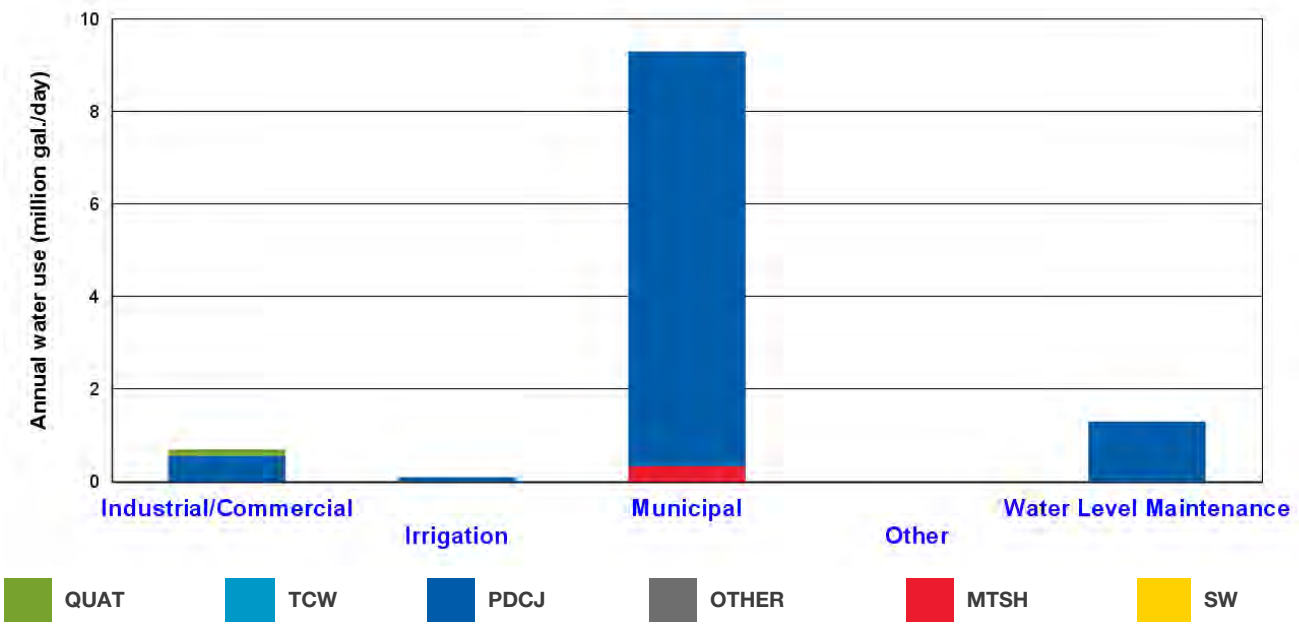
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

EAGAN-INVER GROVE Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	169,274	179,472	188,870
Total Population	166,704	176,902	186,300
Projected Average Daily Water Use (Million Gal/Day)	21	22	23
Total Per Capita Water Use (Gal/Person/Day)	116	116	116
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	117	110	105

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

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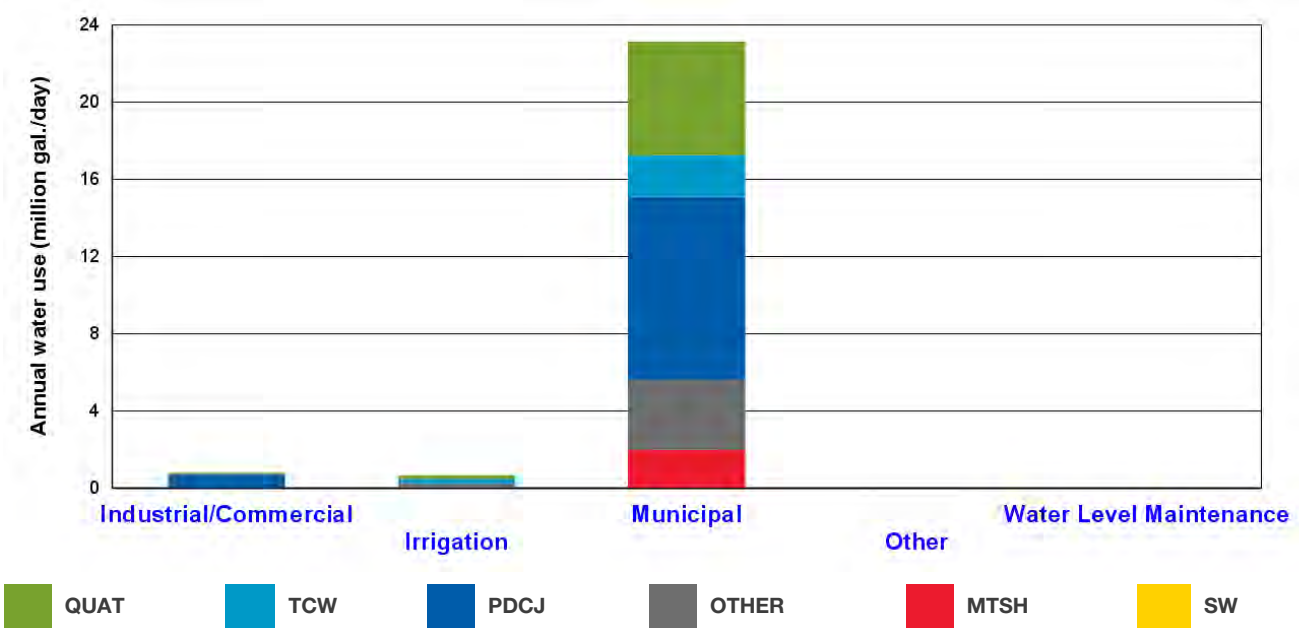
ELM CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	219,736	243,657	273,208
Total Population	241,470	265,370	296,000
Projected Average Daily Water Use (Million Gal/Day)	32	36	40
Total Per Capita Water Use (Gal/Person/Day)	142	142	142
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	118	97	83

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system

- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
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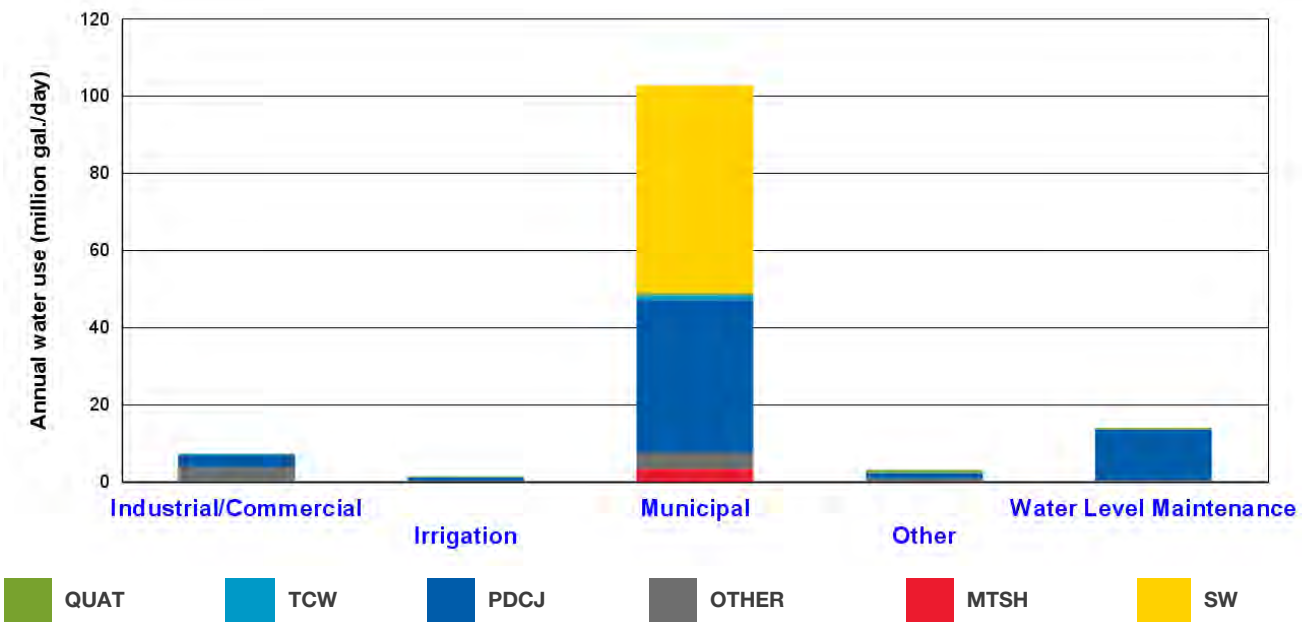
LOWER MINNESOTA RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	1,346,210	1,444,481	1,534,551
Total Population	1,217,804	1,305,902	1,380,900
Projected Average Daily Water Use (Million	149	157	165
Total Per Capita Water Use (Gal/Person/Day)	116	116	116
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	114	102	93

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
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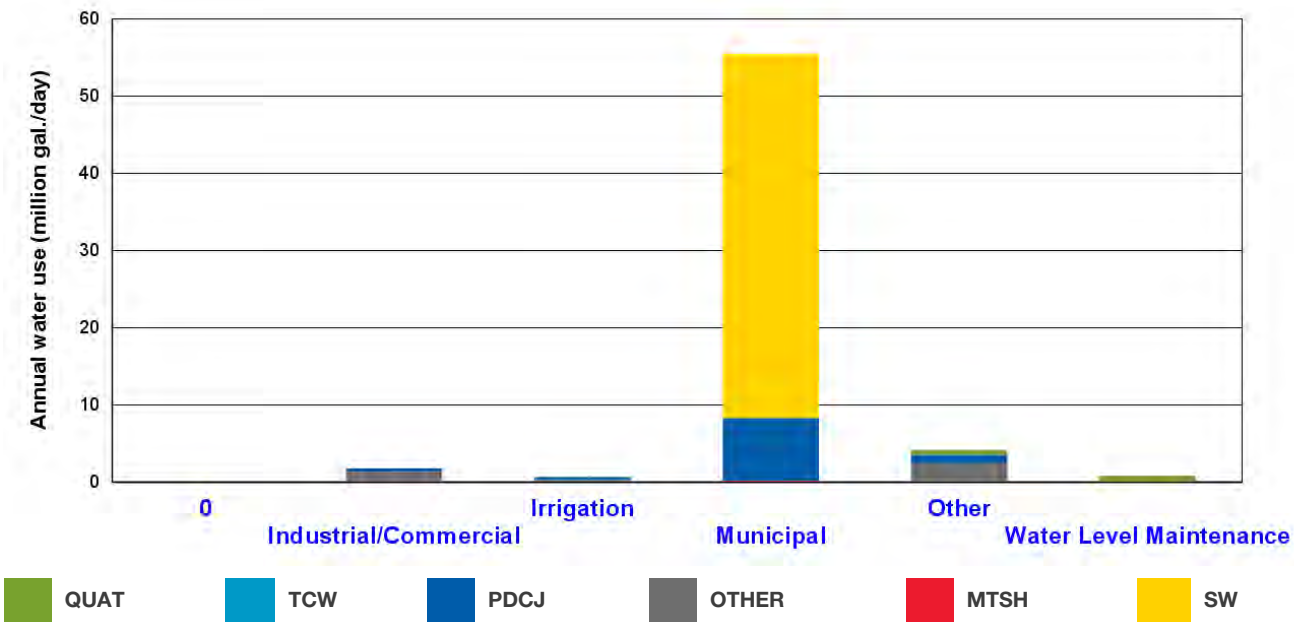
LOWER MISSISSIPPI RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	637,768	684,739	732,679
Total Population	505,234	542,032	574,900
Projected Average Daily Water Use (Million Gal/Day)	70	72	74
Total Per Capita Water Use (Gal/Person/Day)	112	112	112
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	110	99	90

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

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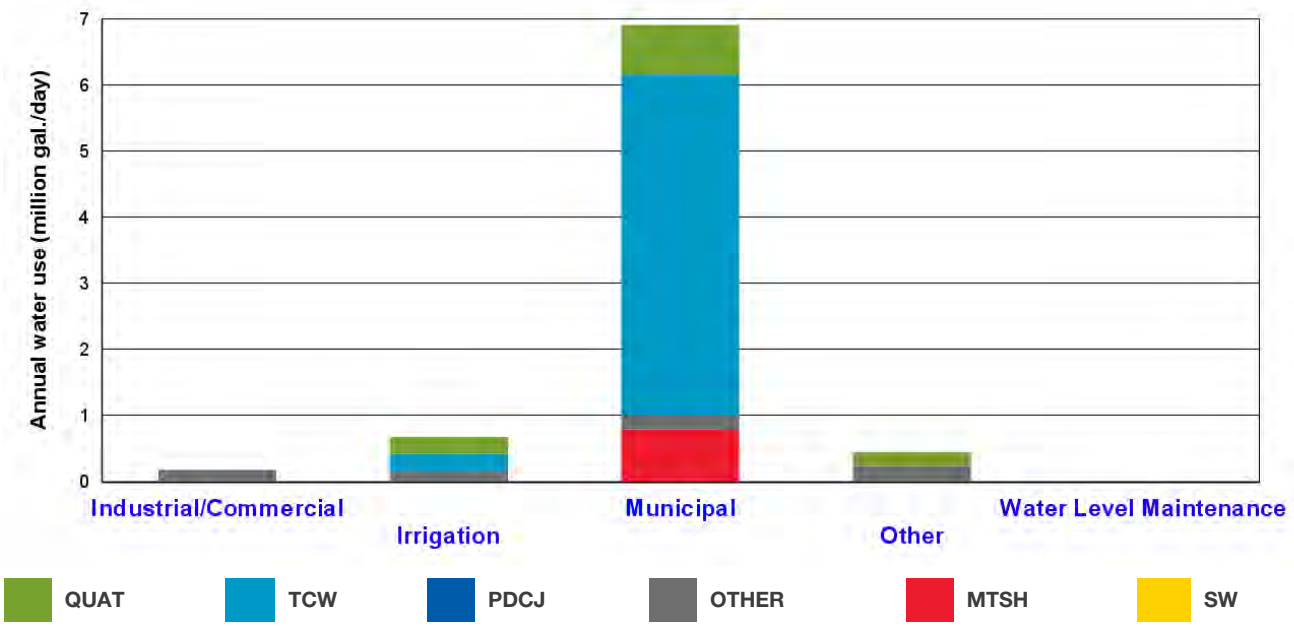
LOWER RUM RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	147,258	158,006	174,854
Total Population	183,200	195,200	212,400
Projected Average Daily Water Use (Million Gal/Day)	20	22	24
Total Per Capita Water Use (Gal/Person/Day)	136	136	136
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	98	90	80

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system

- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
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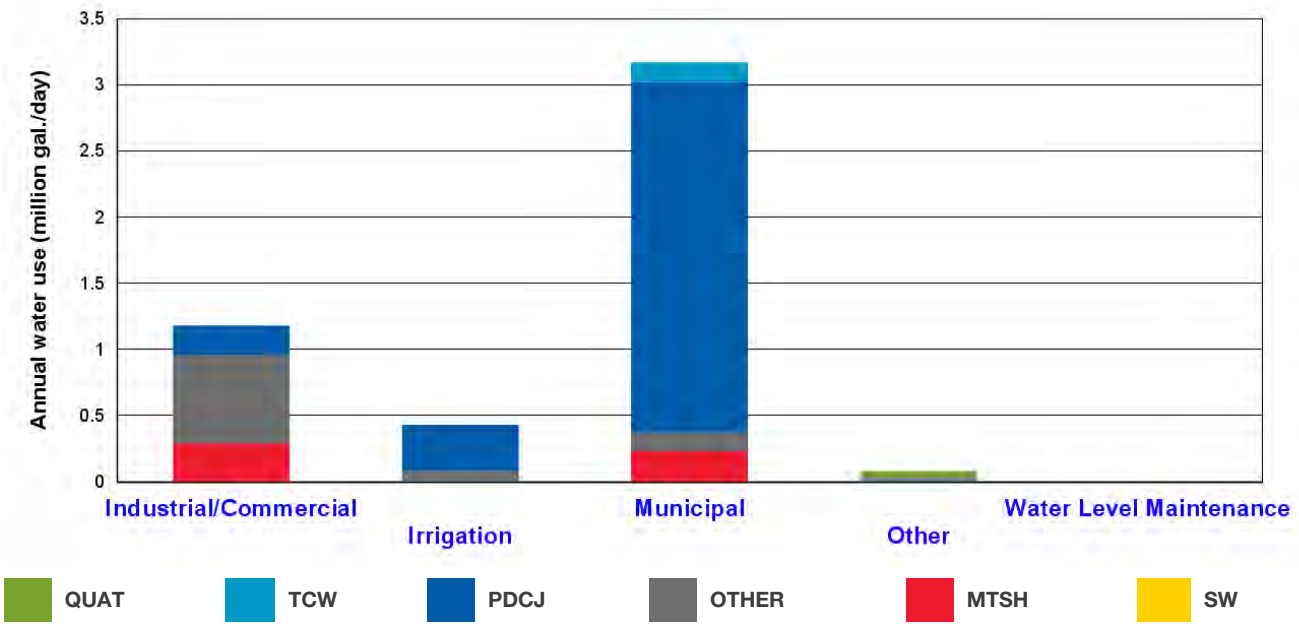
MIDDLE ST. CROIX RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	30,507	33,126	34,424
Total Population	30,794	33,304	34,494
Projected Average Daily Water Use (Million Gal/Day)	4	4	4
Total Per Capita Water Use (Gal/Person/Day)	119	119	119
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	105	97	93

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community

  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
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- Significant uncertainty about aquifer productivity and extent
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  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
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MINNEHAHA CREEK Water Supply Profile

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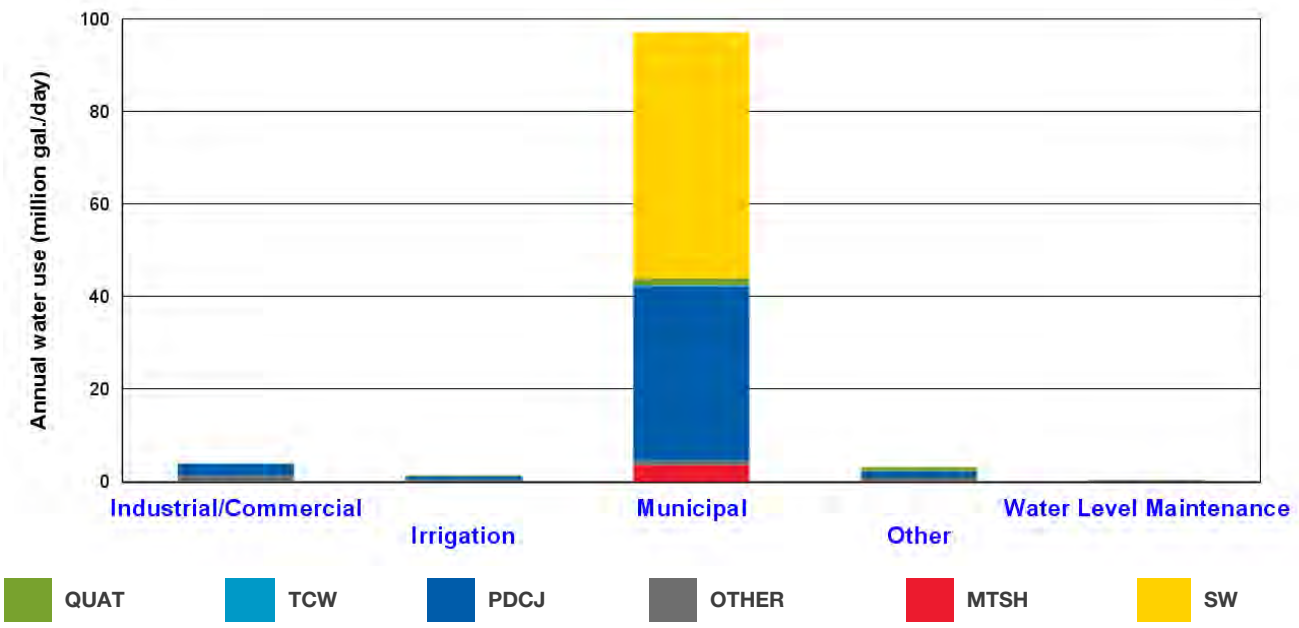

Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	1,422,702	1,511,598	1,596,751
Total Population	1,312,390	1,394,220	1,465,110
Projected Average Daily Water Use (Million Gal/Day)	159	167	175
Total Per Capita Water Use (Gal/Person/Day)	132	132	132
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	122	112	103

The following should to be addressed as water plans are updated:

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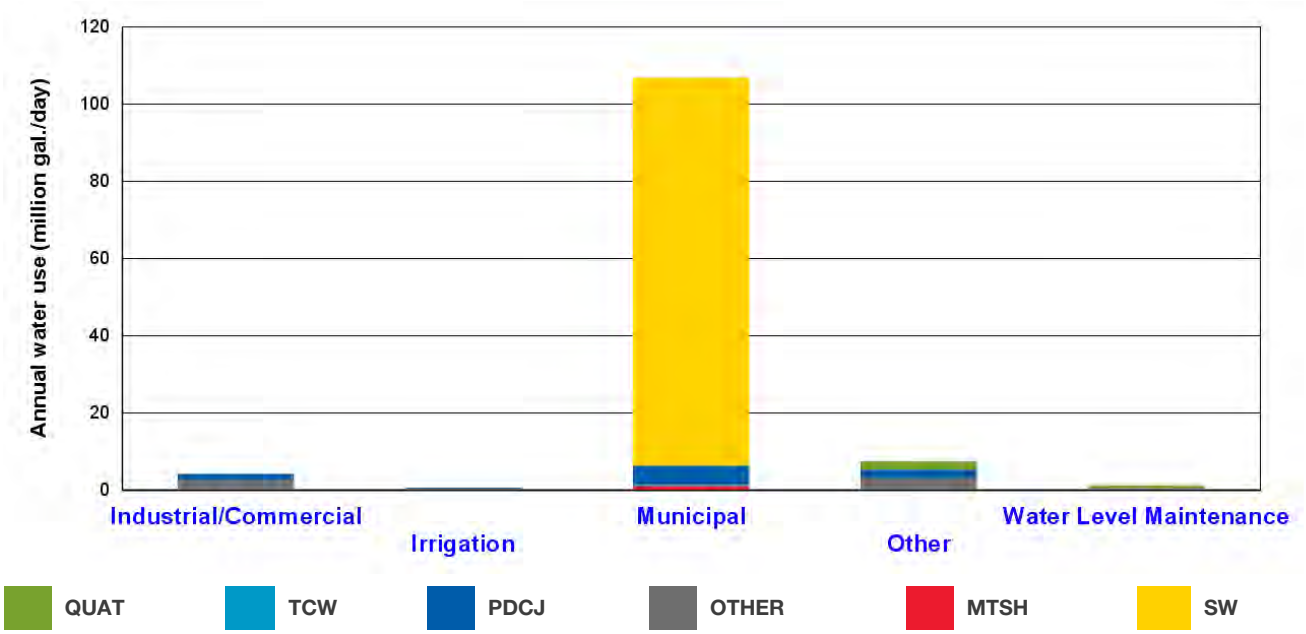
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

MISSISSIPPI Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	1,060,961	1,124,414	1,176,806
Total Population	929,500	982,780	1,020,100
Projected Average Daily Water Use (Million	112	116	119
Total Per Capita Water Use (Gal/Person/Day)	115	115	115
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	103	97	92

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community

  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

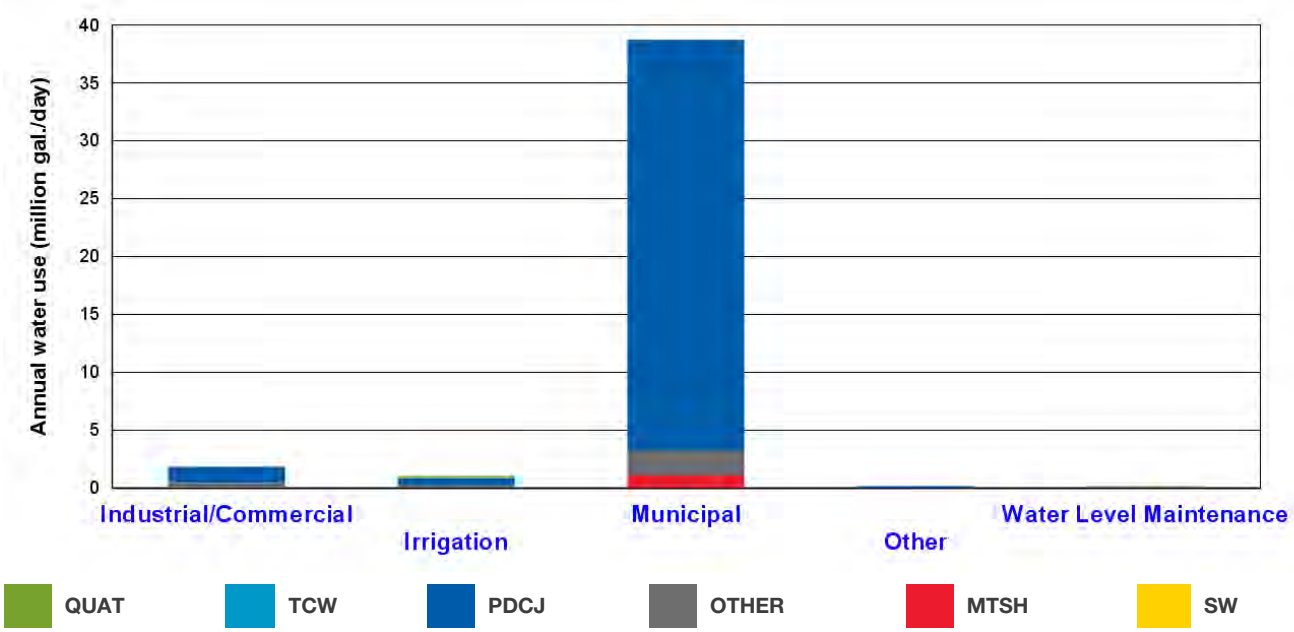
- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.

- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

NINE MILE CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	319,485	340,341	356,496
Total Population	321,800	343,400	358,000
Projected Average Daily Water Use (Million Gal/Day)	44	47	49
Total Per Capita Water Use (Gal/Person/Day)	134	134	134
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	125	118	113

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate

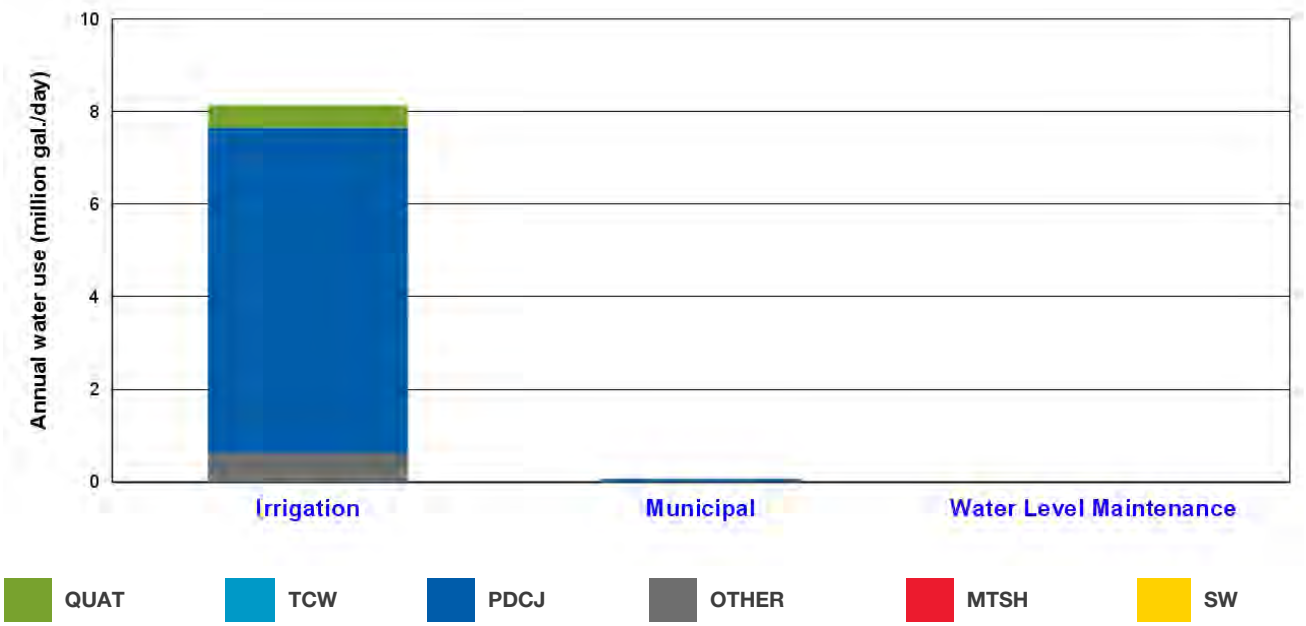
public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

NORTH CANNON RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	570	590	590
Total Population	570	590	590
Projected Average Daily Water Use (Million Gal/Day)	0	0	0
Total Per Capita Water Use (Gal/Person/Day)	111	111	111
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	165	168	168

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

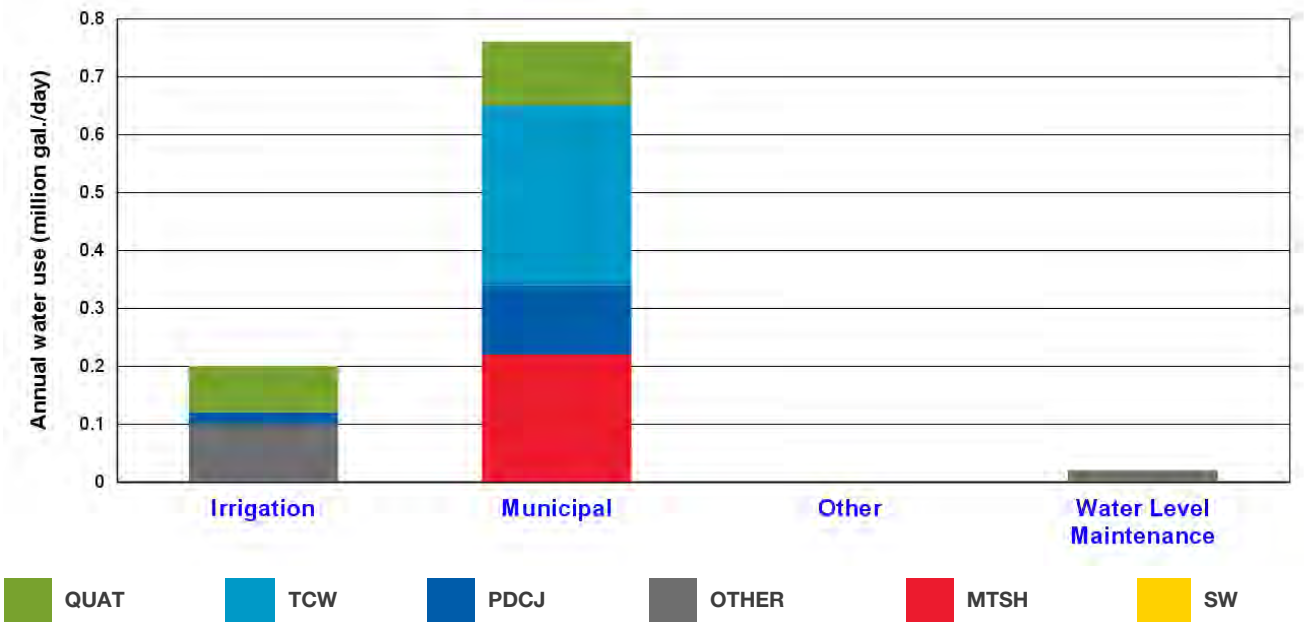
- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

PIONEER-SARAH CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	10,814	15,034	21,074
Total Population	18,810	23,030	29,070
Projected Average Daily Water Use (Million Gal/Day)	2	2	3
Total Per Capita Water Use (Gal/Person/Day)	135	135	135
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	107	77	62

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system

- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

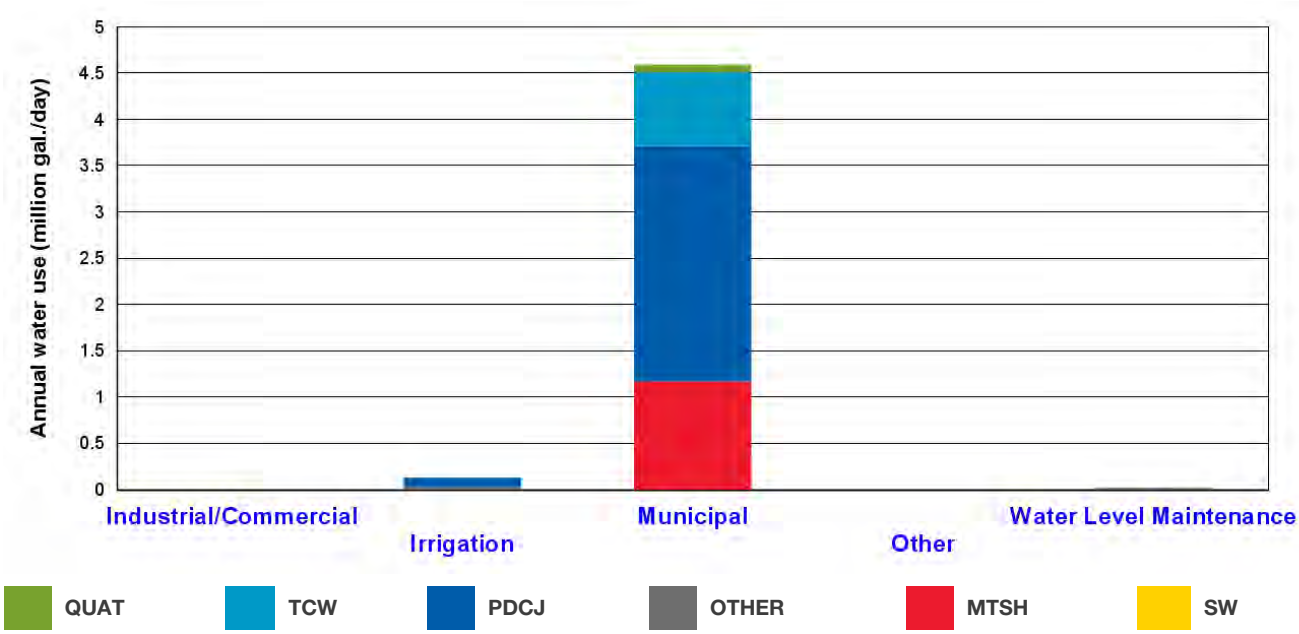
The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

PRIOR LAKE-SPRING LAKE Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	97,103	113,203	130,803
Total Population	101,200	117,300	134,900
Projected Average Daily Water Use (Million Gal/Day)	10	12	14
Total Per Capita Water Use (Gal/Person/Day)	104	104	104
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	109	93	80

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

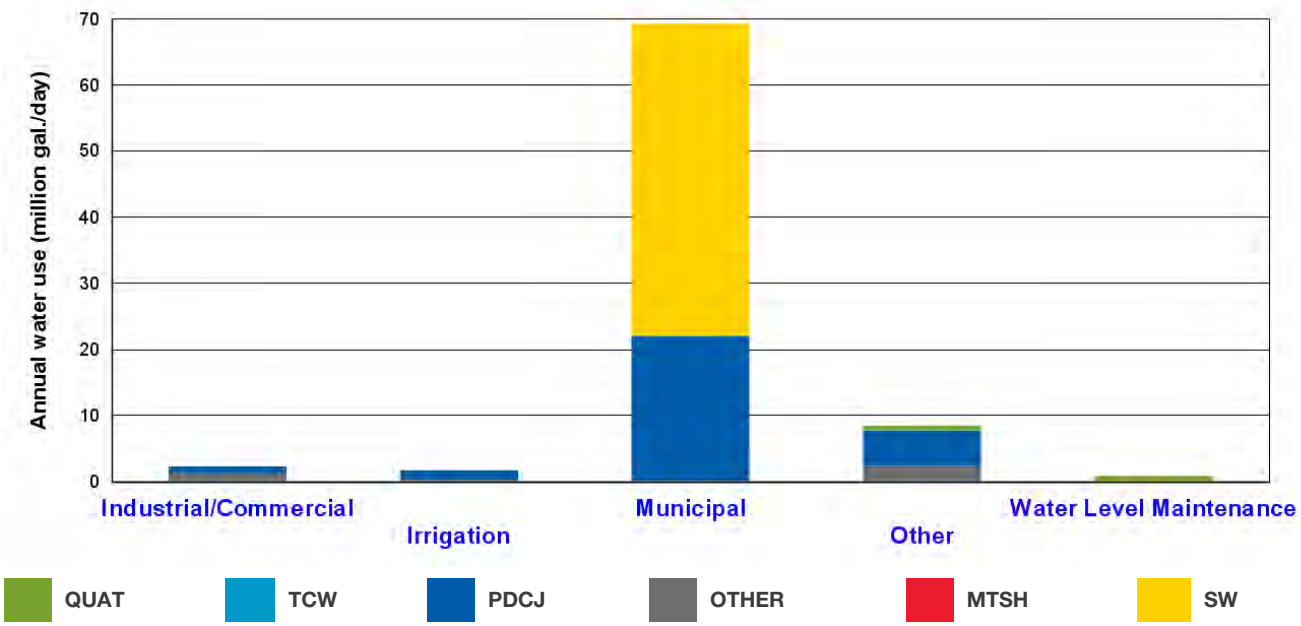
MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

RAMSEY-WASHINGTON METRO Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	654,557	697,820	731,402
Total Population	523,680	556,770	575,280
Projected Average Daily Water Use (Million	72	74	75
Total Per Capita Water Use (Gal/Person/Day)	114	114	114
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	109	102	98

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
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- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer

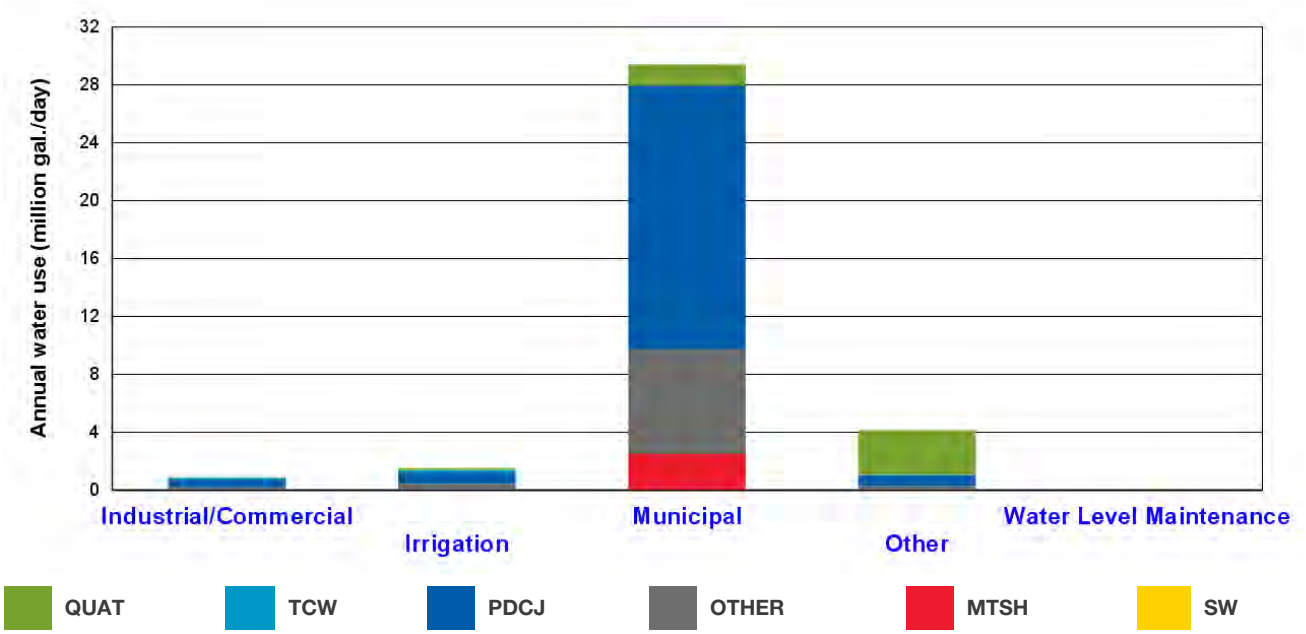
withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

RICE CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	797,626	859,670	916,943
Total Population	819,080	879,500	938,000
Projected Average Daily Water Use (Million Gal/Day)	89	96	103
Total Per Capita Water Use (Gal/Person/Day)	116	116	116
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	104	97	91

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

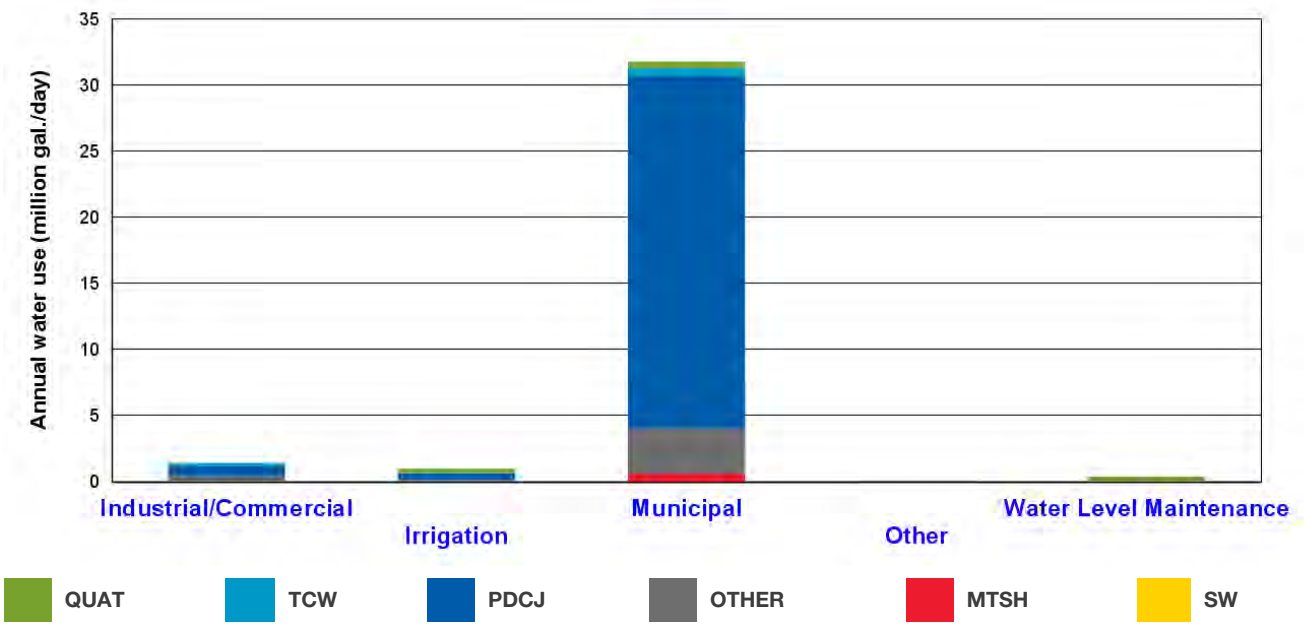
flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

RILEY-PURGATORY-BLUFF CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	265,202	290,358	314,013
Total Population	273,700	299,600	321,700
Projected Average Daily Water Use (Million Gal/Day)	38	41	45
Total Per Capita Water Use (Gal/Person/Day)	142	142	142
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	136	125	115

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

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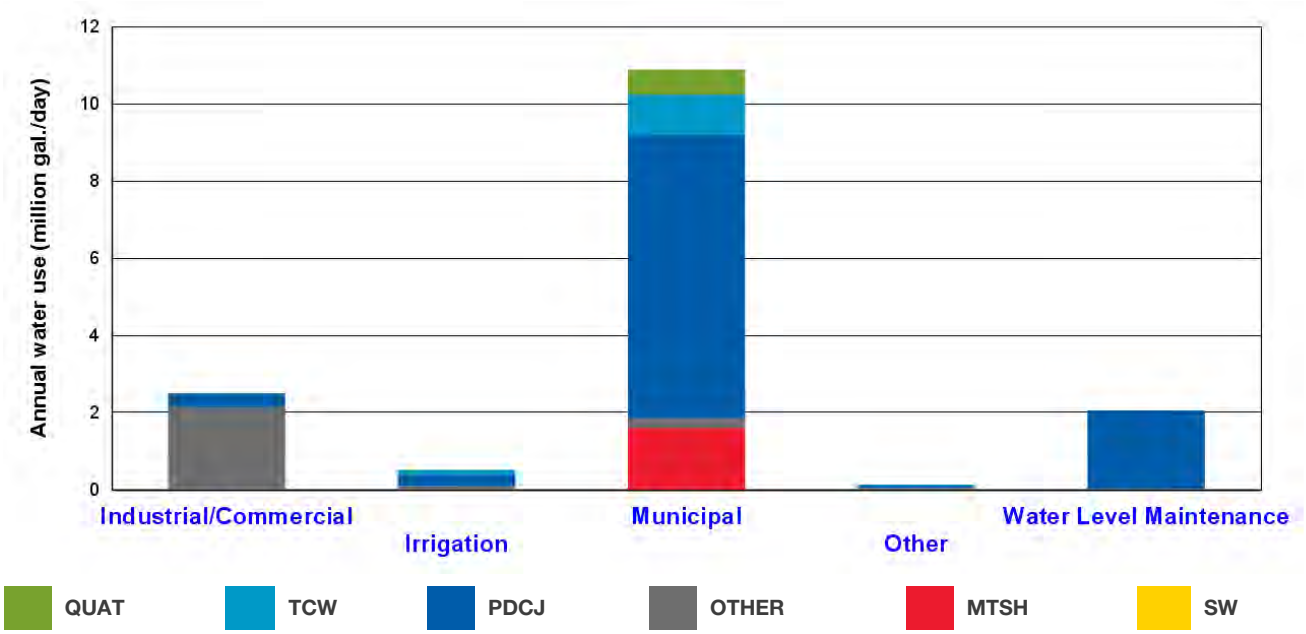
SCOTT Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	246,329	283,729	329,829
Total Population	252,200	289,600	335,700
Projected Average Daily Water Use (Million Gal/Day)	28	32	37
Total Per Capita Water Use (Gal/Person/Day)	103	103	103
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	95	80	66

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with

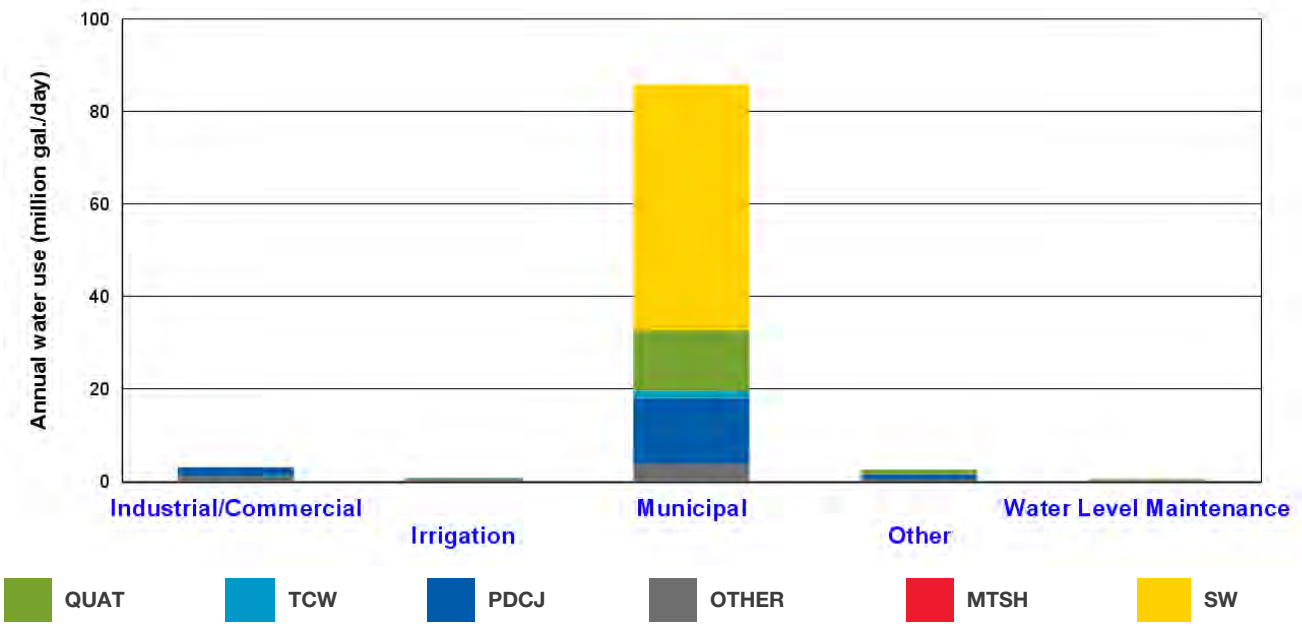
MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.

- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

SHINGLE CREEK Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	835,252	887,056	927,559
Total Population	837,000	888,300	930,400
Projected Average Daily Water Use (Million	91	97	102
Total Per Capita Water Use (Gal/Person/Day)	124	124	124
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	117	111	105

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community

  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
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- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community’s source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.

– Compliance with Safe Drinking Water Act standards

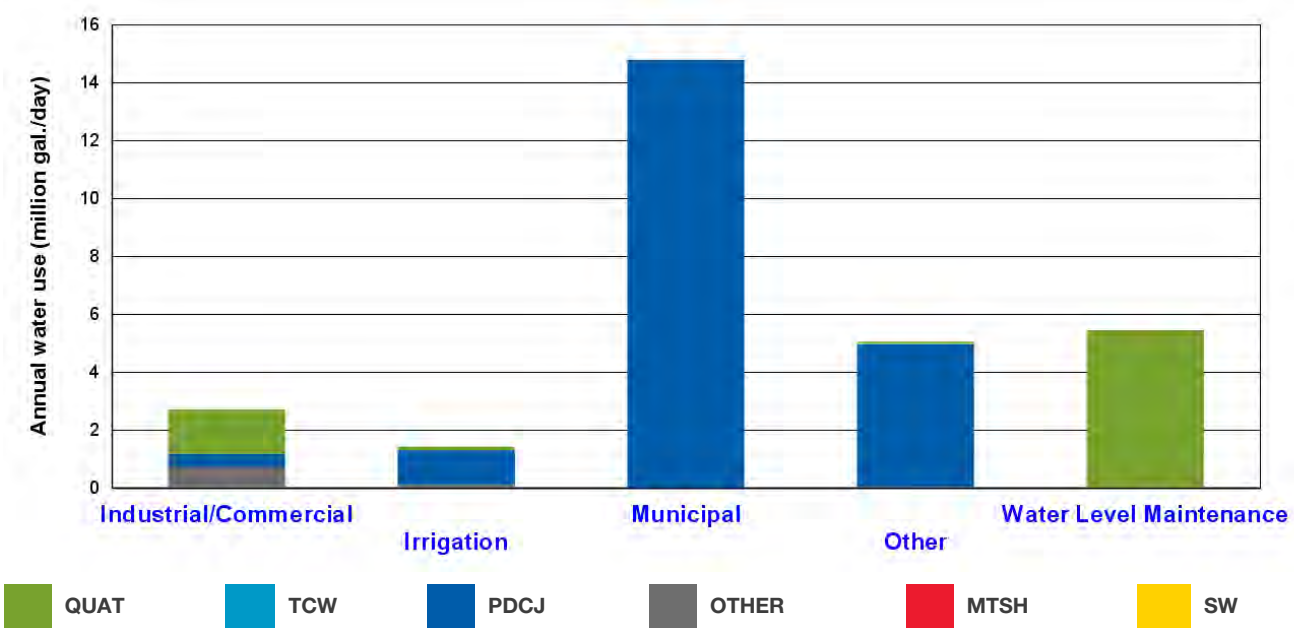
– Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources

– Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

SOUTH WASHINGTON Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	671,540	729,113	782,255
Total Population	549,930	597,330	635,400
Projected Average Daily Water Use (Million Gal/Day)	73	76	79
Total Per Capita Water Use (Gal/Person/Day)	111	111	111
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	106	92	83

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
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- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water

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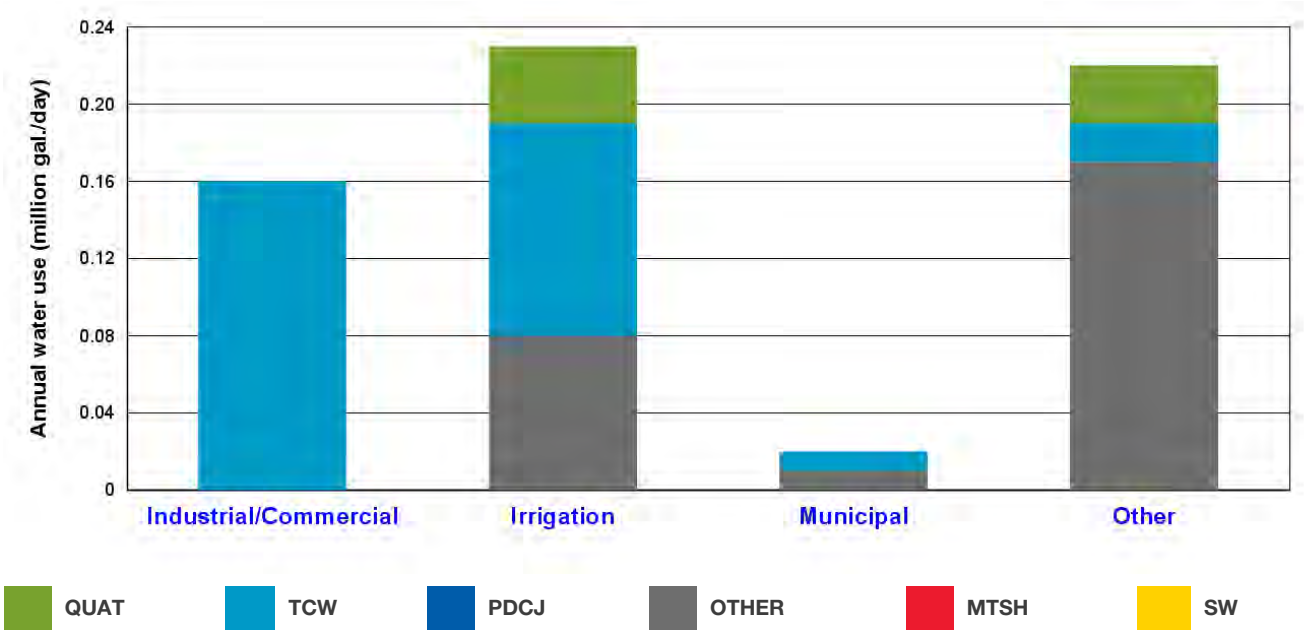
- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

SUNRISE RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	13,222	18,722	27,822
Total Population	35,870	41,910	51,800
Projected Average Daily Water Use (Million Gal/Day)	2	3	4
Total Per Capita Water Use (Gal/Person/Day)	116	116	116
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	106	82	62

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system
- Significant vulnerability to contamination
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
- Before requesting water appropriations, water users in this areas should evaluate the need to address water conflict and well interference including a) an inventory of all active domestic and public water supply wells near proposed well locations and b) an anlysis of existing water level/water withdrawl data to identify where future drawdowns could affect domestic wells.
- Due to the potential for significant decline in aquifer levels, before requesting water appropriations, conduct a basic evaluation of the likelihood for significant decline in water levels (i.e. exceeding 50% drawdown in available head in confined aquifers or continued decline in unconfined aquifers). The analysis should be determined in consultation with DNR and can vary from a graphical comparison of water levels to local groundwater flow modeling. If this analysis suggests future declines are likely to be unacceptable, a management plan should be developed and include additional water level and pumping rate monitoring, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
- Due to the risk of impacting surface waters by groundwater pumping, consult with DNR to review existing information about groundwater withdrawals, water level, surface water flow, climate, and projected withdrawals and wells to predict the likelihood of a connection between aquifer withdrawals and surface water features. If a connection is likely, a management plan should be developed and include aquifer testing, monitoring water levels and pumping rates and surface water flow, triggers and actions to protect aquifer levels, a schedule for periodic analysis of data to identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.
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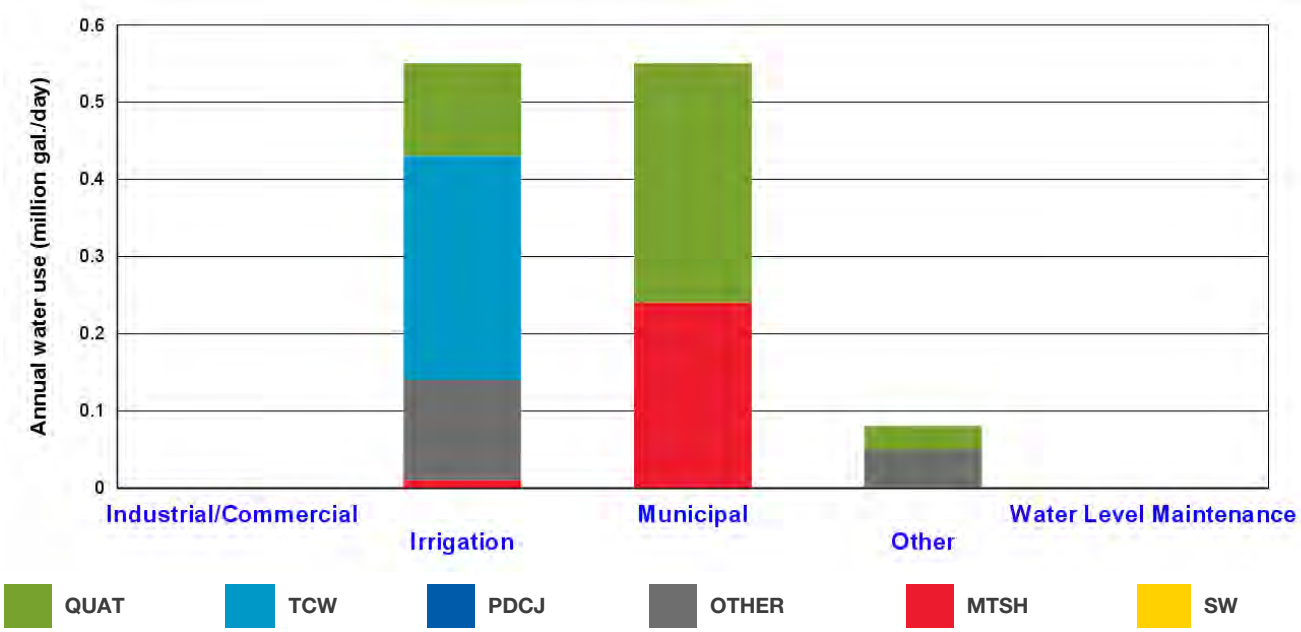
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

UPPER RUM RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	41,331	48,462	66,492
Total Population	87,600	95,500	114,400
Projected Average Daily Water Use (Million Gal/Day)	6	7	10
Total Per Capita Water Use (Gal/Person/Day)	144	144	144
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	100	86	65

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - Surface waters in the community may be directly connected to regional groundwater system

- Significant vulnerability to contamination
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
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- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
  - Compliance with Safe Drinking Water Act standards
  - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
  - Issues identified in Minnesota Department of Health Source Water Assessments

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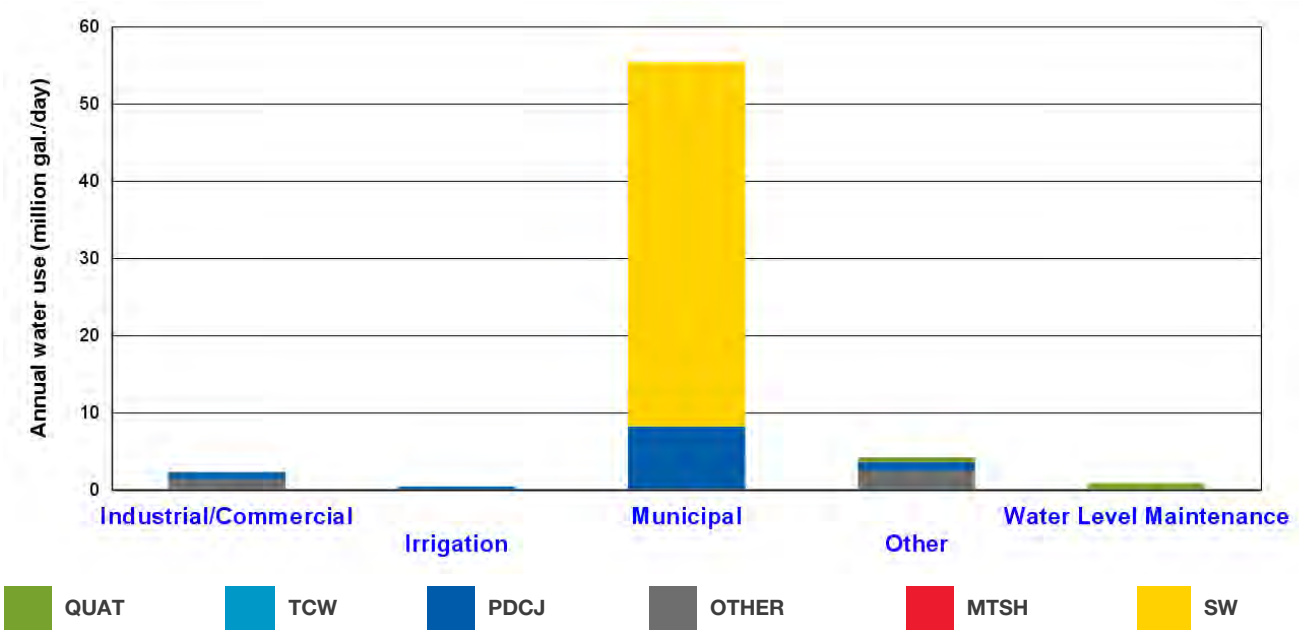
VADNAIS LAKE AREA Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	92,744	99,634	106,874
Total Population	97,050	103,940	111,180
Projected Average Daily Water Use (Million Gal/Day)	11	12	13
Total Per Capita Water Use (Gal/Person/Day)	117	117	117
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	112	104	99

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
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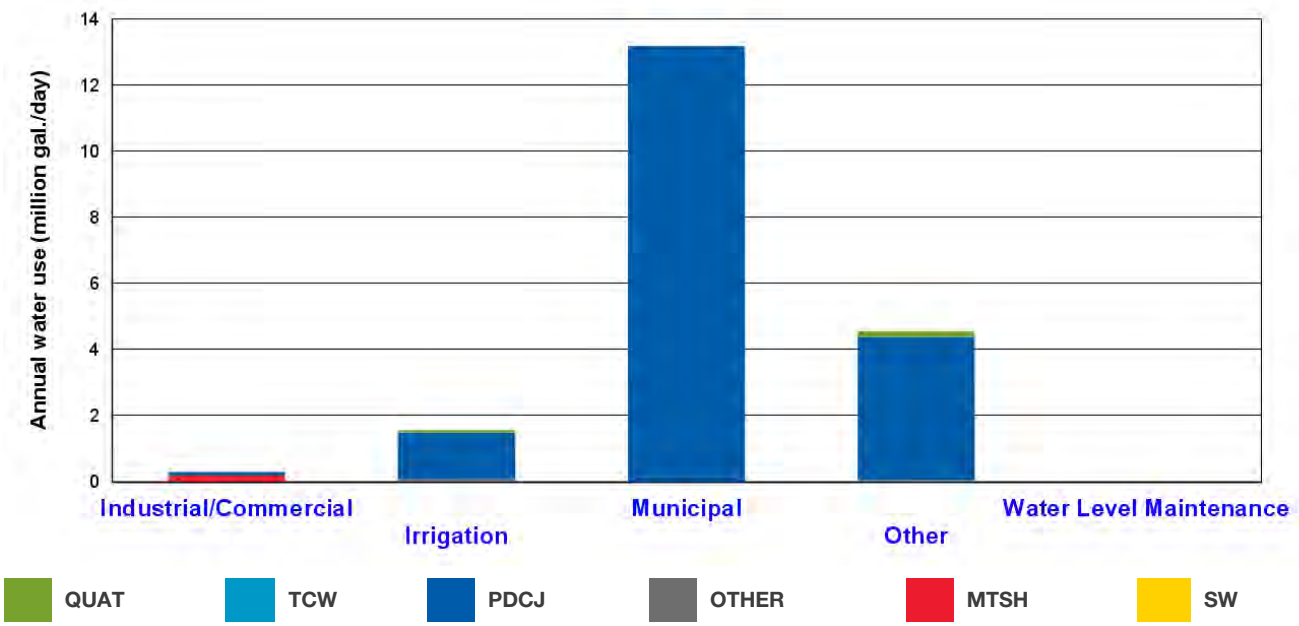
identify the need for action to mitigate impacts, and a schedule for periodic and timely reporting to DNR.

- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
- Due to uncertainty regarding aquifer productivity and extent, partner with agencies and neighbors to collect data as feasible.
- Due to regulatory considerations, partner with DNR and neighboring water users to use water in accordance with that plan.
- Include analysis of water supply alternatives in your comprehensive water supply system plan and budget.
- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

Guidance provided in the local water supply plan template and the Local Planning Handbook, and Metropolitan Council water supply planning staff are available to provide additional assistance.

VALLEY BRANCH Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	157,601	176,300	188,748
Total Population	164,344	182,934	195,274
Projected Average Daily Water Use (Million	18	21	22
Total Per Capita Water Use (Gal/Person/Day)	113	113	113
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	104	93	88

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - A Special Well and Boring Construction Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

- Acknowledge the issues above in local water supply plans and water appropriation permit applications, including a plan to monitor.
- Explore and support water demand (water conservation) programs such as incentives, ordinances, education and outreach, rates and other approaches. The Metropoliatn Council Water Conservation Toolbox can support these efforts.
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- Due to the risk of contamination, consult with MDH about local actions to prevent the spread of contamination. The community's source water protection plan should include measure to mitigate public health risks due to potential contamination sources, which may include cooperating with MDH to increase monitoring of contaminants regulated under the Safe Drinking Water Act. Where significant contamination exists, MDH will continue enhanced monitoring, and public water suppliers may need to implement treatment processes to meet Safe Drinking Water Act requirements and manage pumping to better control the extent and magnitude of the contaminant plume.
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- Work with neighbors to identify opportunities for reducing duplicate work, sharing information, partnering on projects.
    - Compliance with Safe Drinking Water Act standards
    - Conditions identified on existing and future water appropriation permits issued by the Minnesota Department ofNatural Resources
    - Issues identified in Minnesota Department of Health Source Water Assessments

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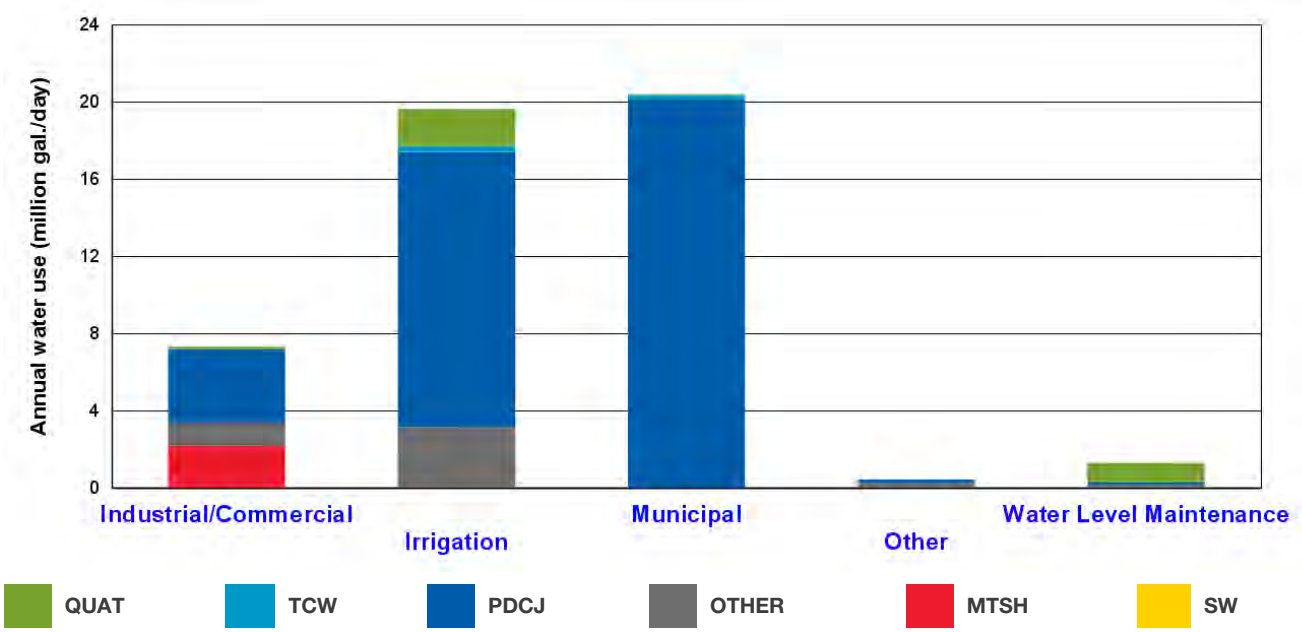
VERMILLION RIVER Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	363,507	407,105	451,983
Total Population	365,114	408,462	453,090
Projected Average Daily Water Use (Million Gal/Day)	44	49	54
Total Per Capita Water Use (Gal/Person/Day)	112	112	112
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	105	92	83

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
- Potential for significant decline in aquifer water levels
  - A nearby DNR observation well documents a declining trend in aquifer water levels

  - Regional groundwater modeling indicates significant aquifer decline under pumping rates that meet the projected range of 2040 demand
- Potential for impacts of groundwater pumping on surface water features and ecosystems
  - A state-protected calcareous fen is located within 5 miles of the community
  - A state-designated trout stream is located within 5 miles of the community
  - Surface waters in the community may be directly connected to regional groundwater system
  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A sinkhole (karst) has been mapped in or nearby the community
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
  - Parts of the community may not be represented by a Minnesota Department of Health aquifer test
  - The county geologic atlas is more than twenty years old
  - Parts of the community may not be represented by a Minnesota Department of Natural Resources observation well
- Regulatory considerations
  - A Groundwater Management Area has been designated within the community

The Metropolitan Council's Local Planning Handbook contains interactive maps of all of these issues, and they are also summarized in Chapter 5 of this Master Water Supply Plan.

The following actions are recommended:

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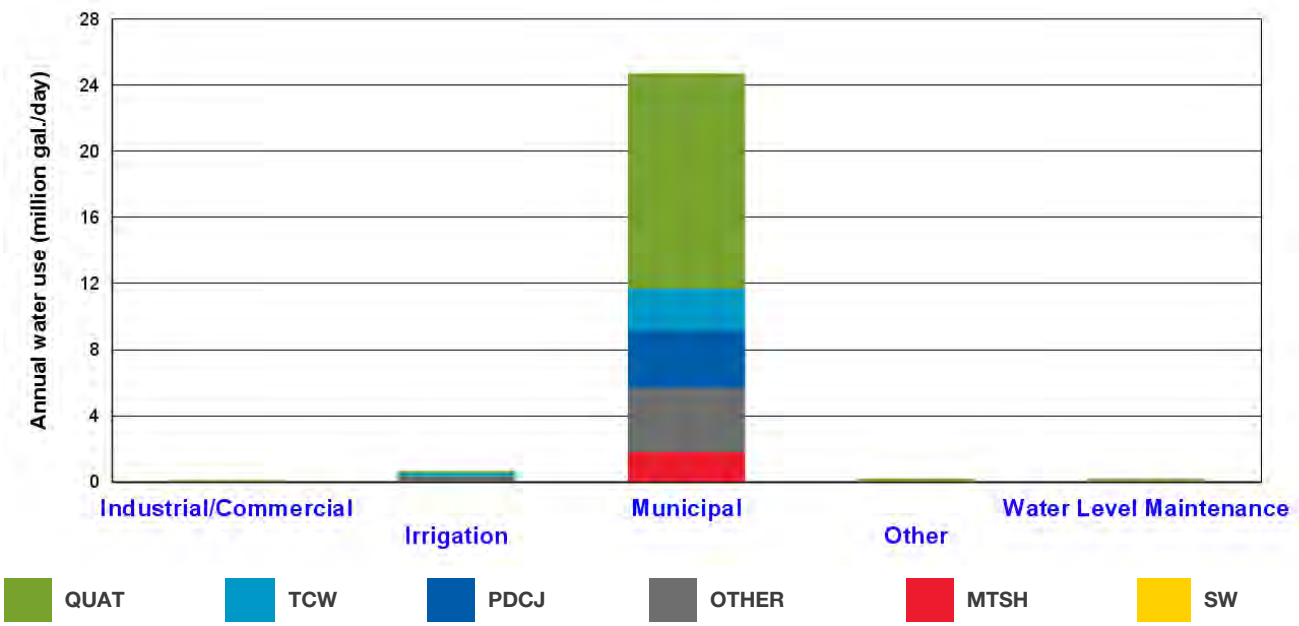
WEST MISSISSIPPI Water Supply Profile

Average annual water use by permitted users between 2003 and 2012, in key water use categories:



Available options to meet water demand:

1. Conservation
2. Groundwater sources
3. Stormwater reuse
4. Surface water sources
5. Enhanced recharge
6. Reclaimed wasterwater

	2020	2030	2040
Population Served	748,799	799,983	839,168
Total Population	752,800	801,600	839,500
Projected Average Daily Water Use (Million Gal/Day)	87	93	98
Total Per Capita Water Use (Gal/Person/Day)	127	127	127
Total Per Capita Water Use, Assuming Total Water Use Remains at 2011 Levels	112	104	99

The following should to be addressed as water plans are updated:

- Potential for water use conflicts and well interference
  - Due to the pervasiveness of private wells in the metro area, there exists a potential water use conflict and well interference of all appropriators
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  - Surface waters in the community may be directly connected to regional groundwater system

  - A spring has been mapped in or nearby the community
- Significant vulnerability to contamination
  - A vulnerable Drinking Water Supply Management Area has been designated within the community
  - Travel time from land surface to bedrock aquifers is estimated to be less than 50 years
- Significant uncertainty about aquifer productivity and extent
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Water Demand Projections

DATE: February 13, 2015

TO: Twin Cities Metropolitan Area Water Suppliers

FROM: Metropolitan Council Water Supply Planning Unit

SUBJECT: Water Demand Projection Methodology and Preliminary Results

This memorandum provides a summary of the methods used to project water demand for the public water supply systems in the Twin Cities Metropolitan Area. This work is being done in support of the regional Master Water Supply Plan update that is currently in progress. Presented are the data sources used, and assumptions made, in projecting water use through 2040 for each water system in the region.

Generally speaking, the method used is a per capita unit use coefficient approach for each of the municipal water utilities in the seven-county metropolitan area. This approach calculates a per capita water use for each community, based on historical water use, population data, and input received from community public water suppliers. Future water demand projections are obtained by multiplying future population projections by the estimated per capita unit use coefficient:

(Projected Water Use) = (Projected Population) X (Per Capita Water Use)

The discussion that follows describes the method used to calculate initial projections for each community. Input was also received from communities on draft projections that were distributed in October 2014. A second draft was distributed in January 2015, and a second round of comments were incorporated into the version that was used for running the regional groundwater flow model for the draft Master Water Supply Plan. Local forecasts were used in lieu of Metropolitan Council forecasts when they were provided by communities.

Historical Water Use Data

Water use data for annual use was obtained from the Minnesota Department of Natural Resources (DNR) water use database (SWUDS). The annual use data was taken from data published on the DNR website for each year between 2000 and 2010:

http://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/wateruse.html

Historical Population Data

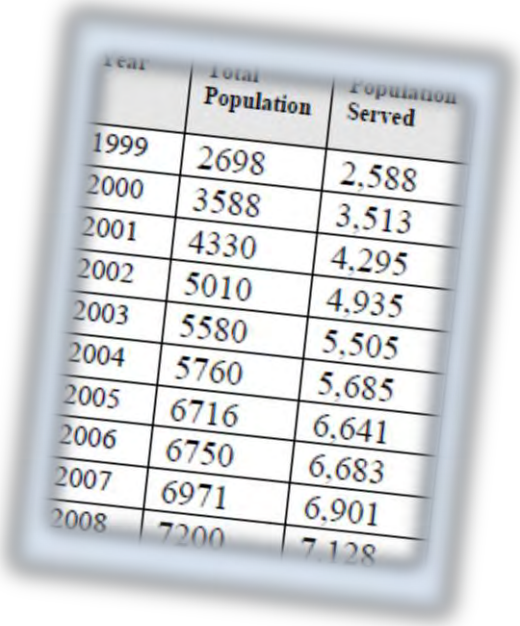
Total Population

Total population for each community was obtained from US Census data for 2000 and 2010. Total population was interpolated linearly between 2000 and 2010. Metropolitan Council population estimates were used for 2011 and 2012.

METROPOLITAN COUNCIL

Population Served

In many communities, there is a difference between total population and population served by the public water system. Data on population served by the public water system in each community were obtained from Water Supply Plans submitted to the DNR by each community. Those plans require public water suppliers to report estimates for total population of the community and population served by the water system for each of the ten years prior to plan submittal. For each year with complete data in the Water Supply Plan for each community, the population not served by the water system was calculated as the difference between the reported total population and population served. This unserved population was averaged over the number of years with complete data.



Year	Total Population	Population Served
1999	2698	2,588
2000	3588	3,513
2001	4330	4,295
2002	5010	4,935
2003	5580	5,505
2004	5760	5,685
2005	6716	6,641
2006	6750	6,683
2007	6971	6,901
2008	7200	7,128

Figure 1. Example of Population Reporting from Local Water Supply Plan

Following the calculations of average unserved population, the data were manually reviewed for inconsistencies and outliers. Adjustments were also made based on local input.

The average unserved population was used to calculate an estimated population served for each year between 2003 and 2012. The estimated population served was set equal to the interpolated census total population minus the average unserved population for each community. In this way, the estimated population served is tied to the recorded census population for each community.

(Population Served) = (Interpolated Census Population) – (Average Unserved Population)

Per Capita Water Use Calculation

Total per capita water use for each community was calculated for each year between 2003 and 2012 by dividing the reported water use by the estimated population served. The per capita water use was then averaged over this ten-year period. The average per capita water use based on population served is reported in this way for each community.

(Water Use Per Person) = (Total Water Use) / (Population Served)

This value represents the total water use per capita for each community. This includes all water use in the community, including commercial, industrial, institutional, and other uses. Therefore, it is not necessarily indicative of the amount of water used in each household. This is an important distinction since a community may have a large amount of water-intensive industry that drives up the total water use per capita. Therefore, the total per capita use by itself may not be an accurate indicator of the effectiveness of conservation programs for example.

Population Forecasts

Water demand projections were based in part on population forecasts from Thrive MSP 2040, the Metropolitan Council's updated regional development framework. These forecasts are derived from macroeconomic models, and more details can be found on the Metropolitan Council website:

http://metrocouncil.org/Data-and-Maps/Data/Census,-Forecasts-Estimates.aspx

Unless otherwise specified by a community, forecasted population served by municipal water systems was calculated by subtracting the average population not served, as previously described, from the total population forecast for each community. It is assumed by this method that the population currently not served by the public water system in each community will remain unserved through 2040. It is also assumed that future population growth and development will be served by the public water system.

In some cases, the unserved portions of a community will become served as a water system expands its service area. This would result in a projected population served that is too low by the current method. In other cases, future population growth and development could occur in areas that are not served by a public water system. This would result in a projected population served that is too high. Therefore, these potential inaccuracies for each community should be taken into account by local planners when utilizing these projections for water system planning purposes, and local knowledge should be used to adjust these projections where possible.

Water Demand Projections

Unless otherwise specified by a community, the projected population served was multiplied by the historical average per capita water use to calculate the water demand projection for each community. This method assumes that the historical average per capita water use, as estimated for each year between 2003 and 2012, is representative of future per capita water use.

Actual per capita water use is likely to fluctuate around an average value, depending primarily on weather, but also on economic factors. Therefore, actual water use could be higher or lower than the average values calculated by the method described in this memorandum. In addition to annual fluctuation in per capita water use, there are also long-term trends in per capita water use that are emerging in some locations and within specific water use categories.

For example, the Water Research Foundation and the US Environmental Protection Agency jointly commissioned a study in 2010 to investigate trends in residential water use[1]. This work found that newer homes tend to use less water indoors, and that older homes are reducing indoor water use over time through the retrofitting of older plumbing fixtures with newer water conserving fixtures. In communities with newer development, the reduction in water use indoors may be offset by other factors such as larger lots and automatic lawn irrigation systems.

There appears to be a trend toward lower per capita water use in many communities in the metro area. This is illustrated in Figure 2, which shows the trend in per capita use between 1990 and 2012 for the City of Richfield. Similar trends can be found for many communities in the region.

[1] Coomes P, Rockaway T, Rivard J, Kornstein B (Center for Infrastructure Research, University of Louisville, Louisville, KY). North America Residential Water Usage Trends Since 1992. Denver, CO: Water Research Foundation: 2010.

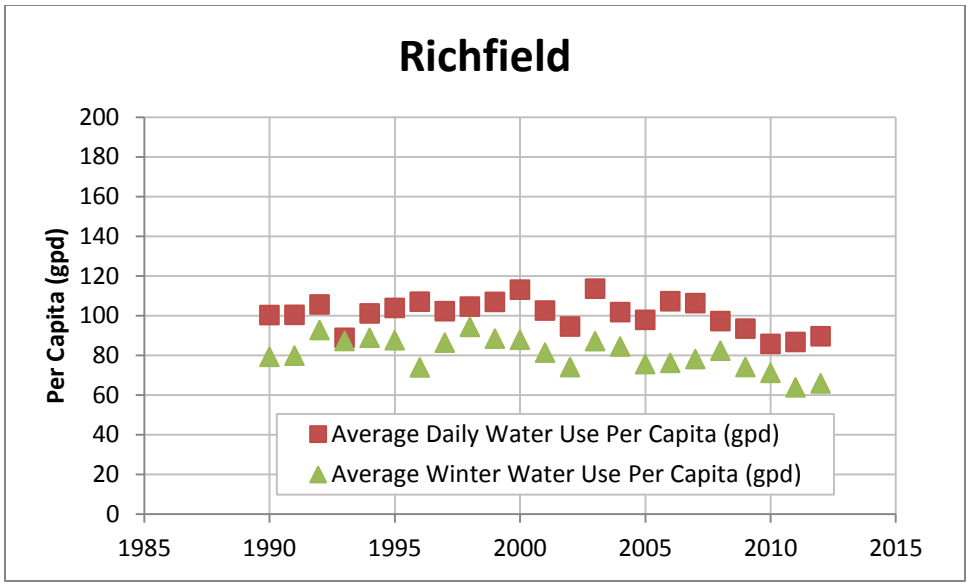


Figure 2. Historical Per Capita Water Use, 1990 – 2012, City of Richfield

While there appears to be a downward trend in this data for many communities in the region, the trend is not obvious for many other communities. Figure 3 shows the same series of data for Maple Grove, where the trend in per capita water use is not as apparent. The causes of the downward trend in some communities are not clear currently, though it could be related to more effective water conservation, economic drivers (especially in commercial water use), and/or climate. The observed trends in water use warrant further study in order to understand the causes and how they could impact future water use.

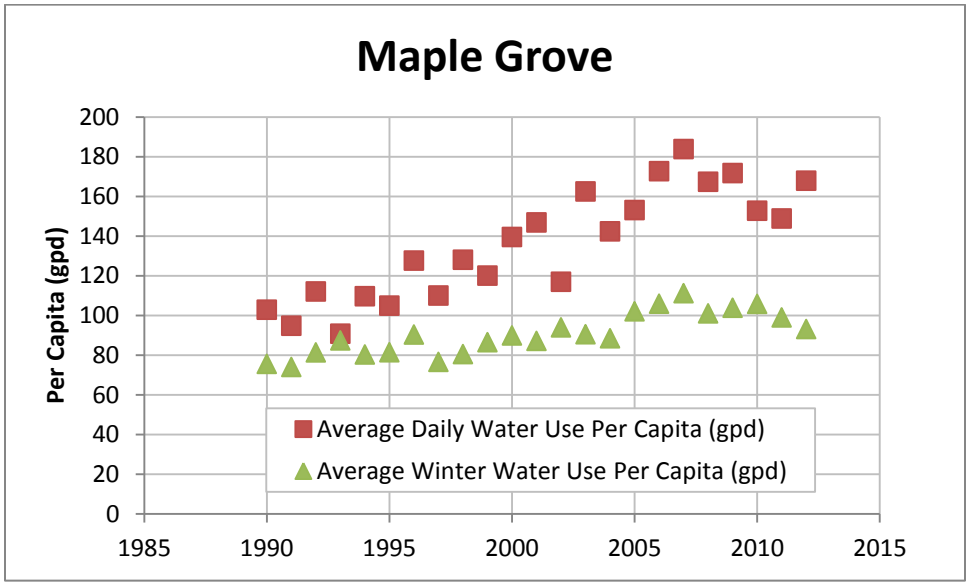


Figure 3. Historical Per Capita Water Use, 1990 – 2012, City of Maple Grove

The regional per capita water use is presented in Figure 4. As a region, there is not a significant trend in per capita water use between 1990 and 2012. However, the winter water use per capita (representing indoor water use) is declining. This has been accompanied by an increase in outdoor water use over the same time period on a per capita basis. Since 2007, there could

be a downward trend in per capita water use for the region, though it is not a significant trend in the data at this point. Communities have reported that per capita water use has continued to decline through 2013 and 2014, and that mandatory tiered rate structures that have been implemented over the last couple of years may be the cause.

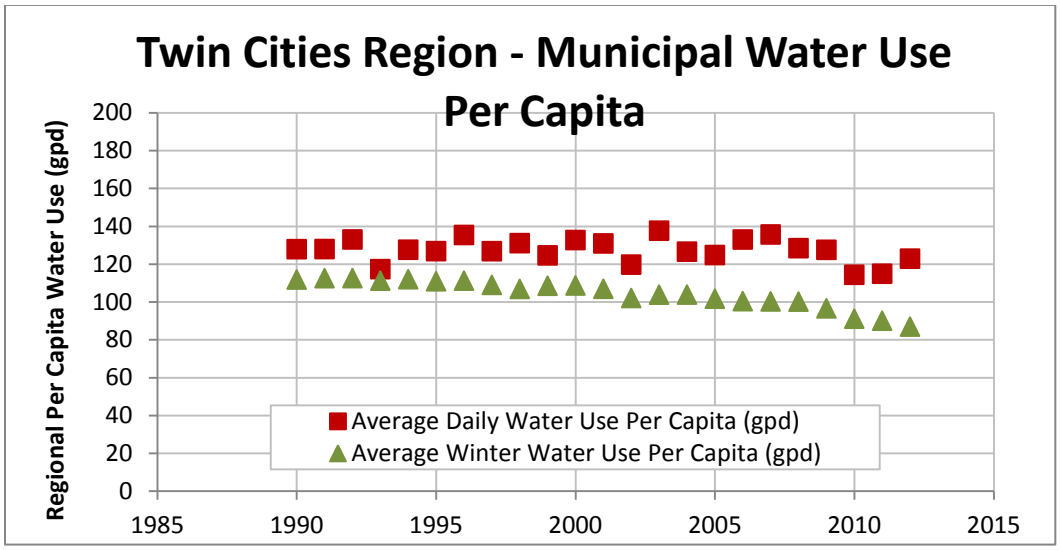


Figure 4. Historical Per Capita Water Use, 1990 – 2012, Twin Cities Metropolitan Area Public Water Systems

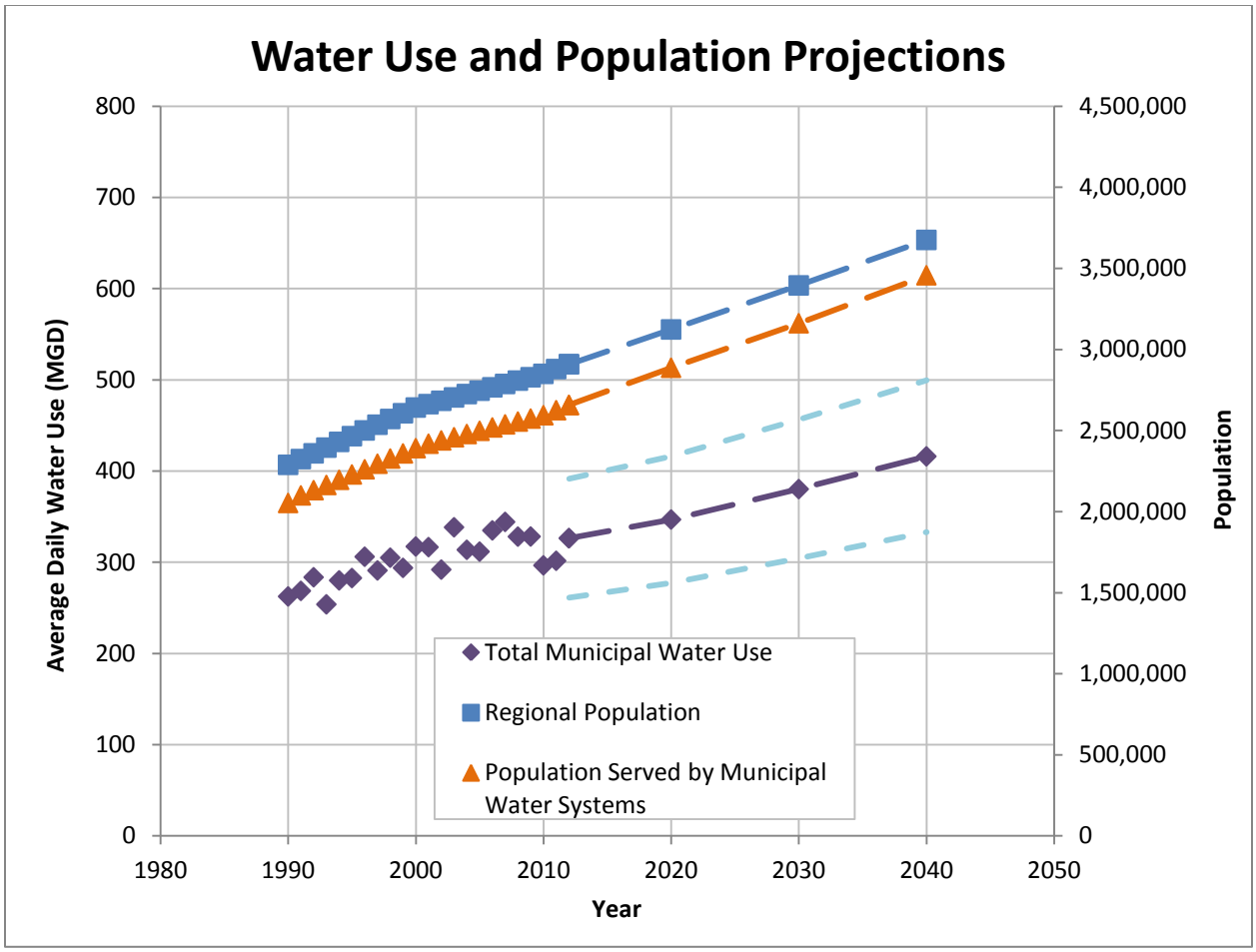
Use of Projections

The Metropolitan Council is developing these water use projections in support of the update to the regional Master Water Supply Plan, currently in progress. This information will help us to understand the magnitude and distribution of future water use in the region. The projections also serve as an input to our modeling efforts to predict resource constraints under future scenarios.

For the purpose of groundwater flow modeling, an average value of water use is appropriate. This is especially true with steady state modeling scenarios, where annual fluctuations in well pumping are not taken into account. For local water system capacity planning, it is important to plan for higher use conditions in order to avoid water shortages. Therefore, the projections presented in the Master Water Supply Plan generally should not be used for local water system capacity planning purposes.

Results

The results of the water demand projections for each public water supplier, as calculated by the methods described in this memorandum are attached. The overall demand projection for the region is presented in Figure 5. The light blue dashed lines above and below the projection indicate a +/- 20% uncertainty in our projections. The regional groundwater model will be run with a range of conditions to understand the sensitivity of model results to demand projection inaccuracy.


Water Use and Population Projections
Average Daily Water Use (MGD)
Population
Year
800
700
600
500
400
300
200
100
0
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
1980
1990
2000
2010
2020
2030
2040
2050
Total Municipal Water Use
Regional Population
Population Served by Municipal Water Systems

Metro Model 3 Application: Evaluating 2040 Water Demand

DATE: March 18, 2015

TO: Water Supply Planning Unit, Metropolitan Council

FROM: Anneka Munsell, Environmental Scientist

SUBJECT: Metro Model 3 Application: Evaluating 2040 Water Demand

Metro Model 3 (MM3) was developed and calibrated to help the Metropolitan Council evaluate the effects of current and future groundwater withdrawals and land use on groundwater levels and the base flows of streams at a regional scale. These types of model predictions are useful for interpreting hydrogeologic data, informing future data collection, and for evaluating alternatives to enhance sustainable use of water resources in the metropolitan area.

Metro Model 3 is also available for others to use as starting point for more subregional or localized analyses. For example, with refinement, it can be used for well impact evaluations, capture zone analysis, evaluation of surface water impacts, or to explore the impact of land use changes on recharge.

Benefits of this revision of the Metro Model include:

- Incorporation of new information,
- Implementation of newer and better-supported software,
- Enhanced methods to understand parameter sensitivities and uncertainty in model predictions,
- Improved representation of Quaternary unconsolidated sediments and their influence on the groundwater-flow system,
- The ability to simulate seasonal effects of climatic and pumping stresses, and
- An expanded model domain (Barr, Metropolitan Council 2014).

Objectives and Application

Metro Model 3 was designed to help address a broad range of regional planning questions and to be as flexible as practical in order to accommodate new questions or scenarios, while still incorporating the best available data. Some examples of questions the model is intended to help address include:

- Given projected water demands, what impacts may be expected on groundwater levels and groundwater-dependent surface-water features?
- What combinations of source aquifers, well locations, and withdrawal rates can be used to achieve sustainable water consumption?
- How will projected water demand affect groundwater levels in each aquifer across the metropolitan area?

In its current design, MM3 successfully answers these questions. However, interpretation of the model results must recognize that any model is a simplification of a complex system and accuracy is limited by naturally variable geologic conditions and human error in measurements. For more information on MM3

please see the *Twin Cities Metropolitan Area Groundwater Flow Model Version 3.0* (Barr, Metropolitan Council 2014).

2040 Regional Scenarios

Regional scenarios were run using the model to evaluate the effects of forecasted groundwater withdrawals to the region's aquifer system.

Assumptions

Population and Population Served

The 2040 population for the communities within the seven-county metropolitan area are the population forecast values developed by the Metropolitan Council. Communities that disagree with the Council population forecasts and are actively changing the population forecasts with the Council; the community supplied population forecast is being used. New growth is assumed to be served by the municipal system. For a more detailed explanation of population served please see Appendix 2 of the Master Water Supply Plan (*Water Demand Technical Memorandum)*

Water Demand

Municipal water demand was projected to 2040 water use using 2002-2012 data and community input. For more information of water demand please see the *Water Demand Technical Memorandum*. Between 1988 and 2012 water use for industrial, agricultural, and commercial use has been fairly consistent when compared to municipal demand. Therefore, these uses are assumed to remain constant through 2040.

Water Sources and Well Locations

Sources for municipal use were assumed to remain the same as current sources. Communities were contacted and asked to comment on well locations and sources. Communities fell into four categories:

- Communities served by surface water or by another community
- Communities who do not plan to drill any more wells
- Communities who plan to drill more wells and provided the locations and aquifers
- Communities where locations and sources were the same as in Metro Model 2. For more information please see *Metro Model 2 Technical Report 2010 Master Water Supply Plan Appendix E* (Metropolitan Council 2010)

See the table below for a list of communities and the category where they fell. Projected water use in excess of 2003-2011 average water use was evenly distributed among future wells. When a community did not plan to drill future wells the excess water use was evenly distributed among the existing wells.

Community	Supplied by Another Community	No Wells Planned	Locations and Sources Updated	Locations and Sources Same as Metro Model 2
Andover			X	
Anoka				X
Apple Valley			X	
Arden Hills	X			

Community	Supplied by Another Community	No Wells Planned	Locations and Sources Updated	Locations and Sources Same as Metro Model 2
Bayport				X
Belle Plaine		X		
Birchwood	X			
Blaine				X
Bloomington				X
Brooklyn Center		X		
Brooklyn Park			X	
Burnsville		X		
Carver			X	
Centerville		X		
Champlin		X		
Chanhassen			X	
Chaska			X	
Circle Pines			X	
Cologne				X
Columbia Heights	X			
Columbus		X		
Coon Rapids				X
Corcoran	X			
Cottage Grove			X	
Crystal	X			
Dayton			X	
Deephaven	X			
Eagan			X	
East Bethel				X
Eden Prairie				X
Edina		X		
Elko New Market			X	
Empire Township			X	
Excelsior		X		
Farmington				X
Falcon Heights	X			
Forest Lake			X	
Fridley				X
Golden Valley	X			
Greenfield				X
Hamburg				X
Hampton				X

Community	Supplied by Another Community	No Wells Planned	Locations and Sources Updated	Locations and Sources Same as Metro Model 2
Hastings			X	
Hilltop	X			
Hopkins		X		
Hugo			X	
Inver Grove Heights			X	
Jordan				X
Lake Elmo			X	
Lakeland				X
Lakeland Shores	X			
Lake St. Croix Beach	X			
Lakeville			X	
Lauderdale	X			
Lexington				X
Lilydale	X			
Lino Lakes			X	
Little Canada	X			
Long Lake		X		
Loretto		X		
Mahtomedi		X		
Maple Grove			X	
Maple Plain			X	
Maplewood	X			
Marine On St Croix				X
Mayer				X
Medina				X
Mendota	X			
Mendota Heights	X			
Minneapolis				
Minnetonka		X		
Minnetonka Beach				X
Minnetrista			X	
Mound		X		
New Brighton		X		
New Germany		X		
New Hope	X			
New Prague				X
New Trier				X
Newport			X	

Community	Supplied by Another Community	No Wells Planned	Locations and Sources Updated	Locations and Sources Same as Metro Model 2
Northfield				X
North Oaks	X			
North St. Paul				X
Norwood Young America				X
Oak Grove			X	
Oak Park Heights				X
Oakdale				X
Orono				X
Osseo	X			
Plymouth			X	
Prior Lake		X		
Ramsey		X		
Randolph				X
Richfield		X		
Robbinsdale			X	
Rockford				X
Rogers		X		
Rosemount				X
Roseville	X			
Savage		X		
Shakopee			X	
Shoreview				X
Shorewood				X
South St. Paul			X	
Spring Lake Park		X		
Spring Park				X
St. Anthony				X
St. Bonifaceous				X
St. Francis				X
St. Louis Park				X
St. Paul				X
St. Paul Park		X		
Stillwater		X		
Sunfish Lake	X			
Tonka Bay		X		
Vadnais Heights				X
Vermillion				X
Victoria				X

Community	Supplied by Another Community	No Wells Planned	Locations and Sources Updated	Locations and Sources Same as Metro Model 2
Waconia			X	
Watertown			X	
Wayzata			X	
West St. Paul	X			
White Bear Lake				X
White Bear Twp.		X		
Willernie	X			X
Woodbury			X	
Woodland	X			

Business as Usual

This scenario was designed to test the hypothesis that, given projected demands, metropolitan area communities can continue to use water and develop supplies using the traditional assumption of aquifer availability. Due to uncertainty regarding future population, the effectiveness of conservation practices, and climate a 20% increase of municipal water use and a 20% decrease of municipal water use was included in the "Business as Usual" scenario. The 20% increase and decrease was applied to all existing and future municipal wells in the seven-county metropolitan area.

Model Uncertainty

Groundwater models are used to make decisions, to analyze risk, and to manage water systems. While no model can be 100% correct, when properly constructed and evaluated, a model can be a useful and informative tool. Evaluating the uncertainty that exists within a model reinforces the output from the model and makes it more useable to the end user.

Sources of Uncertainty

Model uncertainty comes from four main factors:

1. *Conceptual framework*
2. *Model parameter*
3. *Calibration*
4. *Predictive*

In the Metro Model 3, key contributors to *conceptual framework and model parameter uncertainty* include old geologic atlases. While the geology hasn't changed in the past 20 years, we are now able to better map the geology of the area. Our evolving understanding about fault systems is one example of uncertainty in our conceptual framework. The following county geologic atlases are over 20 years old:

- Dakota
- Hennepin
- Ramsey
- Washington

Key contributors to *calibration uncertainty* include the quality of data in the County Well Index (CWI). CWI was weighted less than other more certain datasets, such as observation wells, but where

observation wells are sparse CWI drives head during calibration. While broad spatially, CWI data are uncertain due to the following:

- Inaccurate water-level measurements
- Inaccurate well location
- Inaccurate elevation
- Unstable water level at the time of measurement
- Misidentification or incorrect assignment of hydrostratigraphic units in databases
- Seasonal pumping affects of water levels
- Long-term changes in water levels due to climate or growing water demand

The single biggest contributor to *predictive uncertainty* is uncertainty in future water demand. We do not know for sure how many people will live in the metro, where they will live, how much water they will use, or if sources of water will remain the same. This is where input from City Administrators and Engineers comes in. We recognize that no one knows the city and its water supply better than the city or utility staff. Therefore, we have been asking for input on population, population served, per capita water use, water sources, and well locations.

It is hard to predict water use given all the variables, but historically water use has been in about a +/- 20% range, which is why we are presenting results with this range.

Calibrated MM3

The steady-state Metro Model 3 model estimates average water levels between 2003 and 2011, within a range (plus or minus) about 17 feet.

Because it is a steady-state model, it does not represent water levels for a specific day and time. Instead, it is intended to illustrate where aquifer water levels will come to equilibrium under a given water budget (recharge, pumping, baseflow). In other words, it illustrates where things will ultimately end up.

In general the model uncertainty is spread fairly evenly throughout the model. Areas where model uncertainty appears to be concentrated are:

- Northwest Hennepin County
    - Areas of faulting
    - Geologic atlas updated in 1989
    - Few observation wells
- Eastern Scott County
    - Areas of faulting
- Rice County (directly to south) geologic atlas updated 1995
    - Few observation wells
- Le Sueur County (note: not in 7 county metro, directly south of Scott County)

- Geologic atlas updated in 1991
- Few observation wells

Model Application

We know that MM3 has an average error of +/- 17 feet and we know the sources of the error. What does this mean for the way the model is applied?

The Metropolitan Council recognizes the error in the model compared to the real world. This error can be minimized when comparing model output to model output. Drawdown shows you the change between two conditions, the starting and ending place doesn't matter as much as the difference between the two conditions.

Table 1: Uses for "out of the box" MM3

Acceptable	Marginally Acceptable*	Not Acceptable
Compare regional scenarios	General well field placement	Localized well field optimization
Compare sub-regional scenarios	Estimate groundwater/surface water connections	Site specific evaluations
Identify areas where more information is needed	Wellhead protection plans	Predicting time dependant water table elevations
Identify possible problem areas		

*The model can be used as a "back of the envelop calculation" giving the user an idea of a starting place for further analysis.

Calculations using Metro Model 3

MM3 is currently used by the Metropolitan Council for two specific calculations:

1. Drawdown
2. Available Head

These two calculations are visible in the drawdown figures provided in the Master Water Supply Plan.

Drawdown Calculations

The drawdown is the difference in head between two points in time. The drawdown $(\mathrm{D_d})$ is calculated as the difference between the model head at 2010 pumping rates $(\mathrm{H_{2010}})$ and the model head at 2040 pumping rates $(\mathrm{H_{2040}})$. The model resulting from the 2010 pumping as reported in SWUDS was designated as the initial condition. This means areas with drawdown are showing an increase in pumping from 2010 pumping conditions.

$$D_d = H_{2010} - H_{2040}$$

The 2040 projected drawdowns are relative to the modeled 2010 pumping as reported in DNR SWUDS. This has been a point of discussion and the idea that the most people felt comfortable with is modeling the 2010 pumping as reported in SWUDS to use as a baseline condition. This links the model to a

particular year and allows updates of the model to always use the same year so that there is not a moving baseline for calculating drawdown.

Available Head Calculations

Available head is not measured it is calculated using the model. The available head is the difference between the water level and the upper bedrock surface of the aquifer.

$$H_{available} = Elevation_{Model\ 2010\ pumping} - Elevation_{top\ of\ geologic\ formation}$$

If the calculated available head ($H_{available}$) is greater than 10 feet then the aquifer is considered confined and the 50% head analysis takes place.

$$If\ H_{available} > 10\ feet\ then:$$

The elevation of the top of the geologic formation ($Elevation_{top\ of\ geologic\ formation}$) is added to 50% of the calculated available head ($H_{available}$) to calculate the 50% head elevation ($H_{available\ elevation}$).

$$H_{available\ elevation} = Elevation_{top\ of\ geologic\ formation} + \frac{1}{2} * H_{available}$$

If the modeled head ($Elevation_{Model\ 2040\ pumping}$)is less than the 50% head elevation ($H_{available\ elevation}$) then that cell is flagged.

$$If\ H_{available\ elevation} < Elevation_{Model\ 2040\ pumping}$$

The 2010 pumping data from the DNR SWUDS database is input into MM3 and the output is used to define the water level. The cumulative reported 2010 pumping is divided by 365 days to get average daily pumping which is then input into the model. Note: If an area has 10 feet of head or less it is considered unconfined and removed from the analysis Also MM3 is a steady-state model and does not account for seasonal or operational variation.

Modeling Technical Memos

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Technical Memorandum

To: Lanya Ross, Anneka LaBelle, Ali Elhassan
From: Evan Christianson, Ray Wuolo
Subject: Metro Pumping Optimization 3
Date: April 2, 2015
Project: 23/62-1087.01

1.0 Introduction

This technical memorandum describes the optimization of pumping in the seven-county metropolitan area. The goal of the optimization was to maximize total pumping from existing permitted wells while meeting constraints on baseflow, hydraulic head, flow direction, and flux to/from surface water features as specified by the Metropolitan Council. The optimization uses the steady-state version of the Twin Cities Metropolitan Area Groundwater Flow Model, Version 3.0 (Metro Model 3; Metropolitan Council, 2014)

Optimizations described in technical memorandums dated August 15, 2014 and October 13, 2014 (Barr, 2014a and Barr, 2014b), herein referred to as Optimization 1 and Optimization 2, are similar and complimentary to the optimization described in this technical memorandum, herein referred to as Optimization 3.

2.0 Optimization Software, GWM-VI

The Groundwater Management (GWM) Process for MODFLOW, developed by the USGS (Ahlfeld et al., 2000), was used for the optimization. The version used was GWM-VI (Banta and Ahlfeld, 2013) which allows for parallel processing. No changes were made to the source code of GWM-VI for implementation of this project. All optimization algorithms described in Banta and Ahlfeld (2013) and Ahlfeld et al. (2005) are implemented with no change. However, several pre- and post-processing steps were used to overcome hardwired limitations on the type of constraints available with the standard GWM-VI implementation and are discussed in Section 2.3. Optimizations utilizing GWM-VI require two main inputs: decision variables and constraints; each is discussed below.

2.1 Decision variables

Decision variables are quantifiable controls that are to be determined by the GWM-VI optimization algorithms (Ahlfeld et al., 2000). Decision variables for both Optimizations 1, 2, and 3 were identical and were provided to us by Metropolitan Council. They include existing permitted wells in the seven-county metropolitan area open to any aquifer, except the Mt. Simon Hinckley aquifer, and with use codes from

the SWUDS database shown in Table 1. A total of 2,074 wells were included in the optimization. The goal of the optimization was to maximize the objective function, which is essentially the sum of the pumping from all decision variable wells.

Table 1. SWUDS use codes for decision variable wells included in the optimization

Use Code	Description	Use Code	Description
211	Municipal	248	Non-metallic processing
212	Private waterworks	249	Industrial processing
213	Commercial and Institutional	263	Quarry dewatering
215	Fire protection	264	Sand/gravel pit dewatering
229	Power generation	266	Dewatering
232	Institutions	271	Pollution containment
241	Agricultural processing	277	Sewage treatment
242	Pulp and paper processing	289	Non-crop irrigation
246	Petroleum-chemical processing, ethanol	290	Major crop irrigation
247	Metal processing		

2.2 Constraints

Constraints impose restrictions on the values that can be taken by the decision variables (Ahlfeld et al., 2000). Three types of constraints were used: hydraulic head, flux between groundwater and surface-water features (baseflow and basin leakage and/or gain), and groundwater flow-direction. In general, Optimization 3 and Optimization 2 are constrained significantly less than Optimization 1. A summary of constraints imposed for each optimization is shown in Table 2 and details describing each constraint type are presented below.

Table 2. Comparison of constraints between Optimization 1, 2, and 3

Constraint Type	Optimization 1	Optimization 2	Optimization 3
Drawdown from available head for confined bedrock aquifers above the Mt. Simon-Hinckley	75%	75%	50%
Drawdown in the Mt. Simon-Hinckley aquifer	1 foot	1 foot	1 foot
Drawdown at groundwater dependent surface-water features (cancerous fens)	1 foot	1 foot	1 foot
Change in net baseflow to trout streams	-10%	-10%	-10%
Change in net baseflow to other river reaches	Not included	-15%	-15%
Change in net baseflow to the Mississippi River	Not included	-15%	-25%
Change in net groundwater flux for high and outstanding biodiversity	Not included	-15%	-15%
Change in net groundwater flux to potentially vulnerable lakes with wide littoral zone	Not included	-10%	-10%
Change in net groundwater flux for remaining lakes at grouped by Township	Not Included	-15%	-15%
Change in flow directions at site of groundwater contamination	10 degrees	10 degrees	10 degrees

Optimization 1 constrained the flux between groundwater and surface water for trout streams only. As described in more detail below, Optimizations 2 and 3 constrained the flux between groundwater and surface water for all lakes, streams, and wetlands simulated by Metro Model 3 within the seven-county metropolitan area.

2.2.1 Hydraulic Head Constraints

Hydraulic head constraints were used to impose three conditions on the optimization: 1) hydraulic head in confined bedrock aquifers can't drop below a "safe yield" threshold, 2) hydraulic head in the Mt. Simon–Hinckley aquifer can't drop more than 1 foot from the baseline condition, and 3) hydraulic head at groundwater dependent surface-water features (e.g. calcareous fens) can't drop more than 1 foot from the baseline condition. Hydraulic head, representing "safe yield" thresholds, were defined as:

$$Safe\ Yield\ Head = (H_b - Z) * 0.50 + Z$$

Where:

H_b is the base head condition for the aquifer, defined using pumping from the Metro Model 2;
Z is the elevation of the top of the aquifer

The base condition from which drawdown for the Mt. Simon-Hinckley aquifer and groundwater dependent surface-water features were determined was the hydraulic head from the steady-state version of the Metro Model 3.

Hydraulic head constraints representing "safe yield" and limits on drawdown of the Mt. Simon-Hinckley aquifer were implemented at the cell location (row and column) of all pumping wells in the seven-county metro area. Including these head constraints in every model cell is not practicable as it would dramatically increase the total run time for the optimization. These head constraints are more likely to be violated at the location of high pumping stress, compared to distances far from the wells. Vertically, at each cell location, constraints were included only for model layers representing bedrock aquifers being pumped and layers above these aquifers. For example, if the Prairie du Chien is being pumped and lower aquifers are not being pumped, "safe yield" constraints were only included for the Prairie du Chien and St. Peter aquifer, not the deeper aquifers.

2.2.2 Flux between groundwater and surface-water features

All surface-water features in the Metro Model 3 are simulated using the River Package for MODFLOW. The River Package simulates the exchange of water between groundwater and surface water. River Package boundary cells were compiled into groups and the water fluxes into or out of the boundary cells were tracked and summarized for each group. Constraints were imposed to limit the change in flux from the baseline condition resulting from increased pumping. The baseline condition used was the flux simulated with the steady-state version of Metro Model 3.

Groundwater flux to all streams (baseflow) in the seven-county metropolitan area was constrained for the optimization (Figure 1). Each stream was divided into reaches approximately 5 miles in length. Baseflows for trout stream reaches are not allowed to be reduced by more than 10 percent from the baseline conditions. Baseflows for all other reaches, with the exception of the Mississippi River, are not allowed to be reduced more than 15 percent from baseline conditions. Baseflows for the Mississippi River were allowed to be reduced up to 25 percent. A total of 13 trout stream baseflow constraints and 79 non-trout stream baseflow constraints were imposed for the optimization.

River boundary cells that intersect sites of high and outstanding biodiversity identified by the Minnesota County Biological Survey (2013) were grouped together (Figure 1). The groundwater flux into these features was not allowed to decrease more than 15 percent and/or flux out of these features was not allowed to increase more than 15 percent from the baseline simulation. A total of 108 biodiversity area constraints were imposed.

River Package boundary cells that represent lakes identified as being potentially vulnerable to groundwater pumping and having a wide littoral zone (Barr, 2010) were grouped together (Figure 1).

Lakes are considered to have a wide littoral zone if they are less than five feet deep over more than 20 percent of the total surface area. These lakes have a greater potential of being negatively impacted by reductions in stage. For these lakes (68 in the seven county metropolitan area), the water flux out was not allowed to increase more than 10 percent and/or the groundwater flux into these lakes was not allowed to decrease more than 10 percent.

All remaining River Package boundary cells that were not included in groups described above were grouped based on the public land survey township they are located in (Figure 1). This resulted in an additional 103 constraints. For these grouped boundary cells, the total groundwater flux in was not allowed to be reduced by more than 15 percent and/or total water flux out was not allowed to increase more than 15 percent. Grouping these River Package cells, rather than imposing constraints on individual cells or surface water features, was necessary to help keep the total number of constraints to a manageable level to maintain reasonable solution times for the optimization algorithm.

2.2.3 Flow Direction Constraints

Flow direction constraints for Optimizations 1, 2, and 3 are identical and were included for areas of existing groundwater contamination provided by the Metropolitan Council. The flow direction in the vicinity of these contamination areas was not allowed to deviate from the baseline condition by more than 10 degrees. The baseline condition used was the flow direction simulated with the steady-state version of Metro Model 3.

2.3 Substitution of MMProc

GWM-VI uses a stand-alone executable, *MMProc.exe*, to write MODFLOW input files, execute MODFLOW, and extract head and cell-by-cell flow values from MODFLOW output files. *MMProc.exe* is hardwired to only read output from a small number of MODFLOW packages. Two major limitations of *MMProc.exe* necessitated the development of a separate and much more flexible pre- and post-processor: inability to read/write data for the River Package, and implementation of groundwater flow-direction constraints. Pre- and post-processing for Optimization 2 and Optimization 3 are identical. Pre- and post-processing Optimization 1 involved less constraints associated with River Package boundary cells. Description of the pre- and post-processing steps described in the technical memo from August 14, 2014 and is repeated below for completeness.

A python script, *pyMMProc.py*, was developed to handle the capabilities of *MMProc.exe* while being more flexible and allowing use of the River Package and flow-direction constraints. A comparison of how *MMProc.exe* and *pyMMProc.py* interact with GWM-VI and MODFLOW is shown on Figure 2a and Figure 2b.

The source code for this script is provided with the project deliverables and is documented internally. A brief description of how the script works is provided below for those not familiar with the python programing language.

GWM-VI creates a file called *MMProc.in.jtf* at the start of an optimization run that acts as a template file for well pumping rates. Throughout the optimization, GWM-VI (or a runner program called *jrunner* if running in parallel mode) uses *MMProc.in.jtf* to create a file called *MMProc.in* which contains pumping rates for MODFLOW to use. Updated pumping rates are pulled from *MMProc.in* and used by *pyMMProc.py* to generate a new Well (WEL) Package and Revised Multi-Node Well (MNW2) Package files for MODFLOW. *pyMMProc.py* then executes MODFLOW.

After MODFLOW is completed, *pyMMProc.py* extracts hydraulic head and river flux data from MODFLOW output files associated with the head and river observation packages. Selected hydraulic head data are used to calculate groundwater flow-directions by solving a three-point problem. The deviation in groundwater flow direction from a provided base condition is then determined. The change in river flux from the base condition is also calculated. All hydraulic head, change in flow direction, and change in river flux are written to a file called *Simulated_Values.out* which is read directly by GWM-VI.

pyMMproc.py also checks to make sure that MODFLOW converged and that no pumping rates were reduced by the MNW2 or Upstream Weighting (UPW) Package. Convergence status and pumping rate status are written to a file called *modflow.status* which is read directly by GWM-VI.

The use of pyMMproc.py necessitates slight modifications on how GWM-VI input files are set up that may not be initially intuitive. Input files were set up to treat all constraints, including baseflow and flow-direction constraints as head constraints. All constraint types are included in the head constraints (HEDCON) input file. This was necessary due to GWM-VI only supporting the Stream Package, whereas the Metro Model 3 uses the River Package. If GWM-VI input files were set up using the stream constraints (STRMCON) input file, GWM-VI would expect to find a Steam Package, which does not exist for Metro Model 3.

2.4 Limitations of GWM-VI

During the course of this optimization several hindrances were encountered that relate to the GWM-VI software. We have notified the developers of GWM-VI about these issues; however, there is currently no timeline for fixing them. A discussion of these issues and current workarounds to each are described below.

1.) **Solving of the linear program (LP) is not optimized or parallelized**. The SLP solver used by GWM-VI has two main phases: 1) calculation of the response matrix, which requires MODFLOW to

be run once for every decision variable and 2) solving the LP. Previous versions of GMW (prior to GWM-VI) were not able to run is a parallel or distributed fashion. So, calculation of the response matrix was by far the most time consuming phase of solving the optimization problem. With the introduction of parallel processing in GWM-VI, calculation of the response matrix can be completed in a fraction of the time previously required, given that enough processors are available. During this project, we used up to 75 processors for calculating the response matrix. Solving the LP is not parallelized and must be completed on a single processor. The solution time for a single LP problem is roughly proportional to the number of constraints cubed.

2.) **Pumping from multi-node wells being reduced.** Wells simulated with the MNW2 Package can have their pumping rate automatically reduced if the head in the well or surrounding aquifer drops to levels that would not be able to supply the specified pumping rate for a well. This is an unfavorable occurrence for the GWM-VI algorithms because constraints may be met only because the pumping was automatically reduced by MODFLOW. GWM-VI overcomes this issue by checking information in the *modflow.status* file written by MMproc (or pyMMproc). If any wells have their pumping reduced it is indicated in the *modflow.status* file and GWM-VI automatically reduces pumping rates for all wells based on equation 73 in Ahlfeld (2005) and attempts an additional MODFLOW simulation. This continues iteratively until all MNW2 wells pump at the specified rates. The problem with this approach is that all wells have their pumping reduced if just a single MNW2 well is causing a problem. So, if many iterations of reducing pumping from all wells are required to prevent a single MNW2 well from pumping at a rate less than specified there is very little change in the total pumping.

Overcoming this issue required stopping GWM-VI at each iteration of the SLP solver and adjusting pumping rates wells that were causing problems. Implementing this process dramatically increased progress of the optimization. The process of adjusting pumping rates was automated for Optimization 2 and Optimization 3 but still required manually stopping and restarting GWM-VI at each iteration.

3.0 Results of Optimization

3.1 Pumping Rates

Total optimized pumping from the wells included in the optimization is 374 million gallons per day (MGD). This represents a 43-percent increase in the base pumping of 261 MGD, which is the pumping from the steady-state version of the Metro Model 3 and represents average pumping from 2003 to 2011. A comparison of optimized total pumping rates for Optimizations 1, 2, and 3 is shown in Table 3.

Table 3. Comparison of results from Optimization 1, 2, and 3.

Optimization	Total optimized pumping (MGD)
1	743
2	368
3	374

Further analysis of the optimized pumping is beyond the scope of this project but it is our understanding that it will be completed by the Metropolitan Council. However, we have tried to provide the Metropolitan Council with some insight, based on what we learned during the optimization process and a cursory inspection of the results. A discussion is provided in Section 4.0 below.

3.2 Binding constraints and shadow prices

While 5,237 constraints were imposed for the optimization, only a subset actually controls the formulation of an optimal solution. These constraints are said to "bind" the solution because they prevent decision variables (well pumping) from taking values that would further improve the optimization. Each binding constraint has a "shadow price" which reflects how sensitive the optimization is to the constraint. For additional discussion of binding constraints and shadow prices the reader is referred to Ahlfeld et al. (2005) pg. 51. Binding constraints and associated shadow prices calculated by GWM-VI during the last iteration of the optimization are presented in Attachment A. A total of 184 (out of 5,237 total) constraints were found to be binding. Overall, baseflow constraints (trout and other streams) were the most sensitive, constituting 12 of the top 30 constraints with the largest shadow price. Change in flux on the township and range scale constituted 9 of the top 30 constraints with the largest shadow price. Table A2 summarizes binding constraints by constraint type. Figure 3 shows the spatial distribution of binding constraints.

4.0 Discussion

Analysis of the optimization results are not part of the scope of this project and it is our understanding that such analysis is planned to be completed by Metropolitan Council staff. However, the following observations were noted during this project and may warrant further review, discussion, or follow-up optimization.

1.) Optimization 1 showed large increases in pumping sustained by induced leakage from River Package boundary cells. Significantly increasing the constraints imposed on River Boundary cells for Optimization 2 greatly reduced these issues, and hence reduced the total optimized pumping volumes. Optimization 3 imposed strictor constraints regarding safe yield (50% available head vs.

75% available head) and less restrictive constraints on baseflow to the Mississippi River. Overall Optimization 3 resulted in slightly more pumping than Optimization 2, primarly because the optimization is very sensitive to constraints imposed on baseflow of the Mississippi River. There may still be areas where induced leakage may be occurring beyond sustainable levels but are highly local and smaller than the scale to which we can impose constraints.

2.) Many of the constraints with the largest shadow price (see Section 3.2) are reaches of the Mississippi River. A constraint imposing no more than a 25 percent reduction in baseflow from baseline conditions was used for these reaches. Because these reaches are major groundwater discharge zones for the region, many wells, particularly in the deeper aquifers, affect baseflow to these reaches by capturing flow that would go to the river under lower pumping conditions. It should be noted that the constraint imposed does not represent a 25 percent reduction in total flow; the vast majority of flow comes from upstream. Allowing for a greater reduction in baseflow to these reaches would result in a higher optimized pumping volume, potentially significantly higher given the magnitude of the shadow price for these constraints.
3.) For some communities, the optimized pumping scheme results in municipal pumping being reduced to nearly zero. The reality and feasibility of such a scenario is uncertain.
4.) This type of optimization is very non-linear and typically non-unique. It is very likely that different distributions may result in nearly identical total pumping. We believe the addition of more constraints for Optimizations 2 and 3 has helped move toward the more unique solution. However, the level of uniqueness has not been quantified.

Limitations of the model, optimization, and choice of wells and constraints should be carefully considered when using these results for long-term planning. The optimization was limited to only existing wells and assumes that conditions have reached steady-state. New wells, added in undeveloped areas or aquifers, would certainly increase the total pumping of the region while still meeting imposed constraints. Also, in certain areas local concerns such as well interference or impacts to surface waters not accurately simulated at the scale of the Metro Model 3 may be deemed unacceptable even though all constraints imposed were met.

5.0 References

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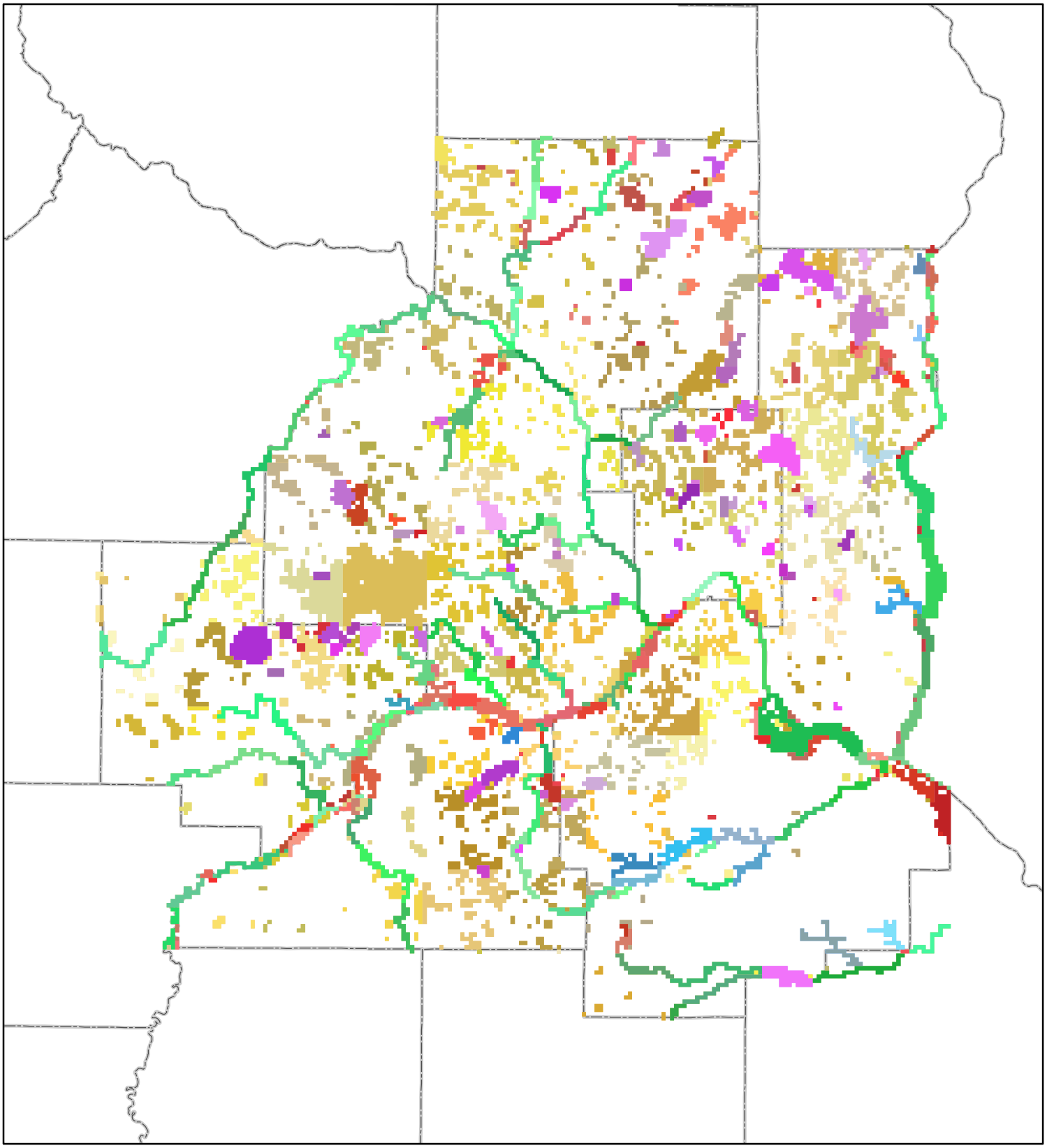


Barr Footer: ArcGIS 10.2.1, 2014-10-13 12:20 File: I:\Projects\23\62\1087\Maps\Pumping_Optimization\River_Cell_Grouping.mxd User: egc

River Packge Boundary Cell Constraints

- Biodiversity Area
- Stream/River
- Trout Stream
- Township Range Group
- Vulnerable Basin

N

Miles

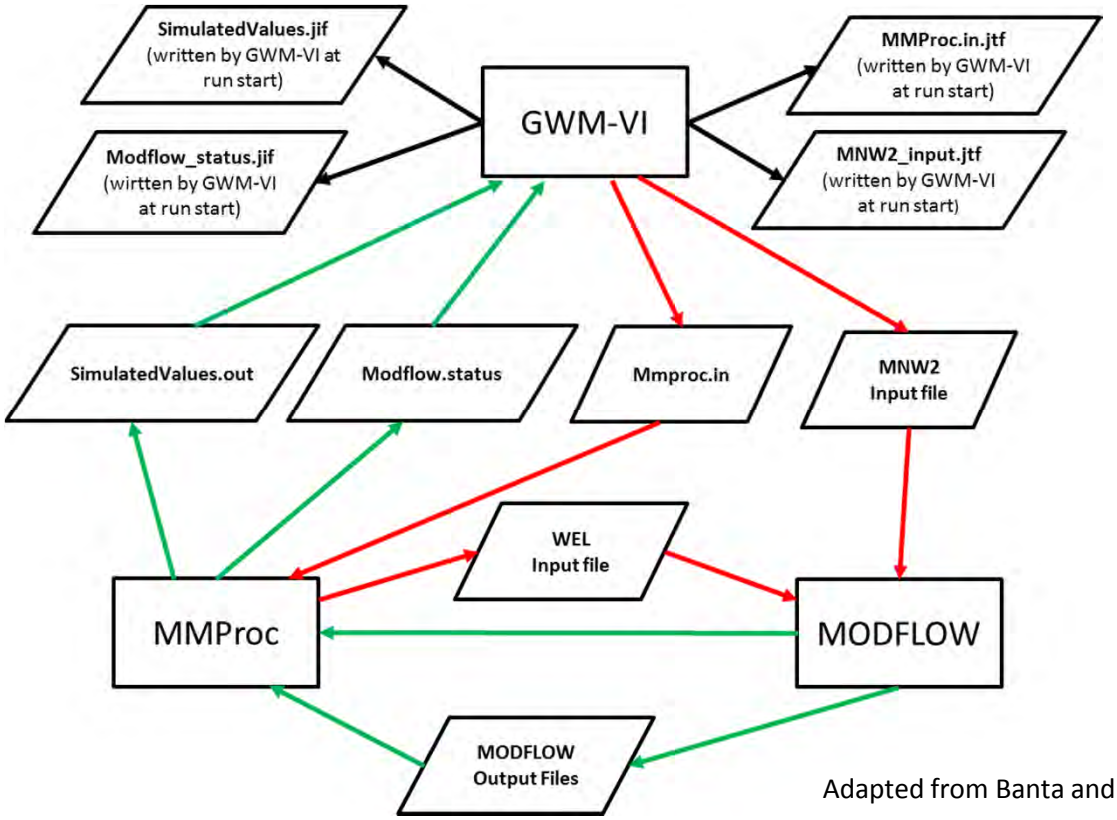
10 0

BARR

Figure 1

RIVER PACKAGE BOUNDRY
CELL CONSTRAINTS
Pumping Optimization 3
Metropolitan Council

1a. Interaction of MMProc with GWM-VI and MODFLOW



Adapted from Banta and Ahlfeld, 2013

1b. Interaction of pyMMProc with GWM-VI and MODFLOW

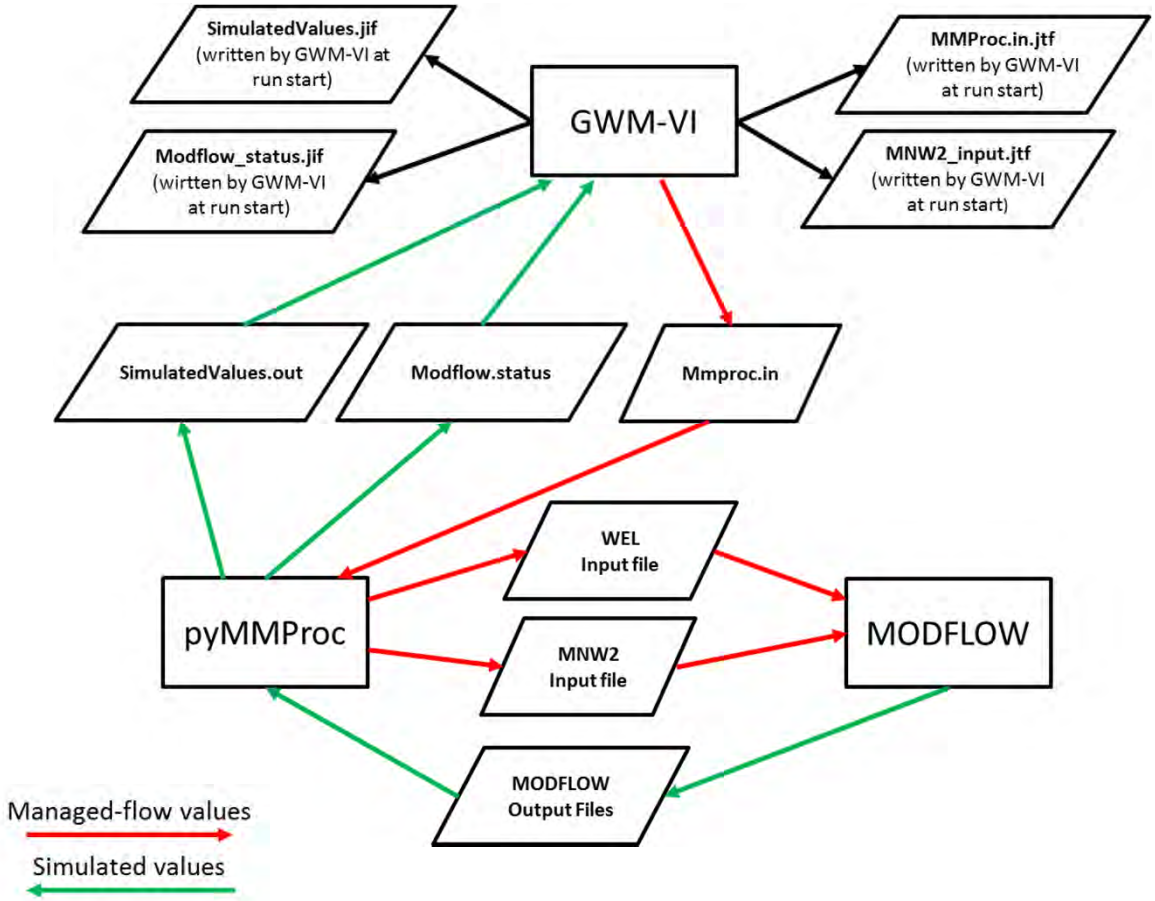
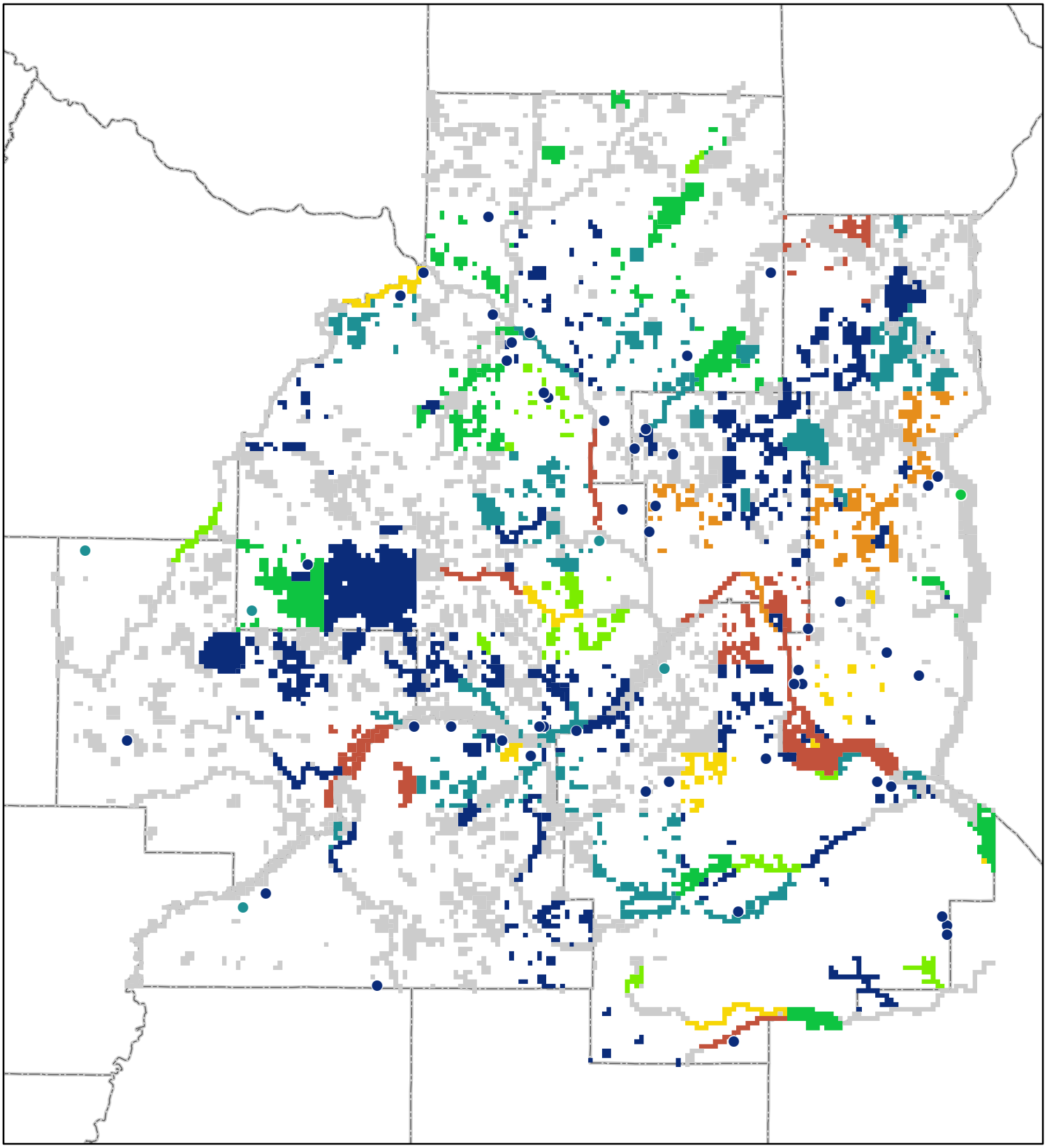


Figure 2

Comparison of MMProc and pyMMProc interaction with GWM-VI and MODFLOW
Pumping Optimization 3
Metropolitan Council



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Binding Hydraulic Head and Safe Yield Constraints

Shadow Price

- > 1.50e+008
- 1.26e+008 - 1.50e+008
- 1.01e+008 - 1.25e+008
- 7.51e+007 - 1.00e+008
- 5.01e+007 - 7.50e+007
- 2.51e+007 - 5.00e+007
- < 2.50e+007

Binding River Boundary Constraints

Shadow Price

- > 1.50e+008
- 1.26e+008 - 1.50e+008
- 1.01e+008 - 1.25e+008
- 7.51e+007 - 1.00e+008
- 5.01e+007 - 7.50e+007
- 2.51e+007 - 5.00e+007
- < 2.50e+007
- Non-Binding River Cells

N

Miles

0 2.5 5

BARR

Figure 3

BINDING CONSTRAINTS
Pumping Optimization 3
Metropolitan Council

Attachment A

Binding Constraints and Shadow Prices

Table A-1

Binding Constraints and Shadow Price

Constraint Name	Description	Row	Col	Absolute Shadow Price
Riv_016	Mississippi River (Downtown St. Paul)	--	--	3.14E+08
Riv_013	Mississippi River (N. Minneapolis, Fridley, Brooklyn Center)	--	--	2.96E+08
T28_R22	Township 28, Range 22	--	--	2.56E+08
T32_R21	Township 32 Range 21	--	--	2.04E+08
Riv_165	Mississippi River / Sping Lake	--	--	2.00E+08
T115_R23	Township 115, Range 23	--	--	1.84E+08
Riv_018	Mississippi River (S. St. Paul, Invergrove Heights, Newport, St. Paul Park)	--	--	1.81E+08
Riv_136	Cannon River (Northfield, Randolph)	--	--	1.73E+08
Vul_083	Crosby Lake	--	--	1.62E+08
Riv_120	Minnehaha Creek (Minnetonka, Hopkins, St. Louis Park)	--	--	1.57E+08
Riv_055	Minnesota River (Chaska, Carver)	--	--	1.54E+08
T29_R21	Township 29 Range 21	--	--	1.50E+08
Riv_017	Mississippi River (St. Paul)	--	--	1.48E+08
T30_R20	Township 30 Range 20	--	--	1.33E+08
T29_R23	Township 29 Range 23	--	--	1.32E+08
Riv_135	Chub Creek	--	--	1.20E+08
Vul_023	Powers Lake	--	--	1.14E+08
Trout_03	Eagle Creek	--	--	1.13E+08
T27_R21	Township 27 Range 21	--	--	1.12E+08
T115_R19	Township 115 Range 19	--	--	1.12E+08
Bio_083	Ravenna 17	--	--	1.11E+08
Riv_121	Minnehaha Creek (St. Louis Park, Edina)	--	--	1.05E+08
Riv_033	Crow River (Rogers, St. Michael)	--	--	1.04E+08
Trout_07	Trout Brook	--	--	9.39E+07
Trout_12	Vermillion River (Empire)	--	--	9.00E+07
Riv_041	Crow River (Watertown, Delano)	--	--	8.60E+07
Bio_026	Rice Lake Natural Area	--	--	8.50E+07
T119_R21	Township 119 Range 21	--	--	8.19E+07
Bio_038	Chub Lake South	--	--	8.06E+07
Vul_066	Bryant Lake	--	--	7.91E+07
T28_R24	Township 28 Range 24	--	--	7.70E+07
Bio_031	Sedil East	--	--	7.61E+07
Bio_009	Mud Hen Lake Area	--	--	7.44E+07
Riv_113	Elm Creek (Maple Grove, Champlin, Dayton)	--	--	7.42E+07
T119_R22	Township 119 Range 22	--	--	7.40E+07
T32_R23	Township 32 Range 23	--	--	7.29E+07
T114_R16	Township 114 Range 16	--	--	6.85E+07
T31_R22	Township 31 Range 22	--	--	6.78E+07
Trout_11	Vermillion River (Farmington, Empire Twp)	--	--	6.76E+07
T32_R25	Township 32 Range 25	--	--	6.69E+07
Vul_005	Coon Lake	--	--	6.65E+07
T117_R24	Township 117 Range 24	--	--	6.53E+07
Bio_068	Linwood 5 Natural Area	--	--	5.99E+07
Vul_004	Byllesby Lake	--	--	5.63E+07
T28_R20	Township 28 Range 20	--	--	5.57E+07
Vul_016	George Lake	--	--	5.33E+07
T34_R23	Township 34 Range 23	--	--	5.29E+07
CM207_296	Mt. Simon Hinckley	207	296	5.07E+07
T29_R24	Township 29 Range 24	--	--	4.71E+07
Vul_064	Centerville Lake	--	--	4.62E+07
Vul_035	Medicine Lake	--	--	4.48E+07
Bio_002	Ninninger West	--	--	4.35E+07
Vul_065	Ham Lake	--	--	4.31E+07
Riv_011	Mississippi River (Champlin, Coon Rapids, Brooklyn Park)	--	--	4.22E+07
T115_R21	Township 115 Range 21	--	--	4.11E+07
Riv_148	S. Branch Vermillion River (Castle Rock Twp.)	--	--	4.10E+07
T113_R19	Township 113 Range 19	--	--	3.88E+07
Trout_13	S. Branch Vermillion R. (Castle Rock Twp, Empire Twp., Vermillion Twp.)	--	--	3.88E+07
T120_R23	Township 120 Range 23	--	--	3.82E+07
T31_R20	Township 31 Range 20	--	--	3.74E+07
CM296_141	Mt. Simon Hinckley	296	141	3.48E+07
Vul_058	Gervais Lake	--	--	3.42E+07
Bio_007	St. Lawrence 13	--	--	3.32E+07
Trout_09	Vermillion River (Eureka Twp.)	--	--	3.29E+07
Riv_115	Rice Creek (Mounds View, Arden Hills, Shoreview)	--	--	3.26E+07
CM219_107	Mt. Simon Hinckley	219	107	3.19E+07
Bio_074	Conley Lake Backwaters	--	--	3.17E+07
Vul_003	Turtle Lake	--	--	3.13E+07
Bio_078	North Ninninger 34	--	--	3.12E+07
Trout_10	Vermillion River (Lakeville, Farmington)	--	--	3.07E+07

Table A-1
Binding Constraints and Shadow Price

Constraint Name	Description	Row	Col	Absolute Shadow Price
Vul_089	Bone Lake	--	--	3.06E+07
T31_R23	Township 31 Range 23	--	--	3.02E+07
Vul_047	White Bear Lake	--	--	2.94E+07
Vul_001	DeMontreville Lake	--	--	2.92E+07
Bio_015	Nine Mile Creek	--	--	2.85E+07
T114_R20	Township 114 Range 20	--	--	2.83E+07
CM232_143	Mt. Simon Hinckley	232	143	2.73E+07
T115_R22	Township 115 Range 22	--	--	2.72E+07
GWSW1	Gun Club Lake South	--	--	2.67E+07
Riv_126	Purgatory Creek	--	--	2.62E+07
Trout_01	Assumption Creek	--	--	2.60E+07
CM217_218	Mt. Simon Hinckley	127	218	2.60E+07
T118_R21	Township 118 Range 21	--	--	2.56E+07
Riv_132	Unnamed (Burnsville)	--	--	2.48E+07
T117_R23	Township 117 Range 23	--	--	2.40E+07
Riv_097	Carver Creek	--	--	2.30E+07
Bio_099	Empire 15	--	--	2.25E+07
Riv_150	Vermillion River (Vermillion)	--	--	2.23E+07
Vul_062	Hannan Lake	--	--	2.12E+07
T29_R22	Township 9 Range 22	--	--	2.12E+07
Bio_066	East Rosemount 18	--	--	2.11E+07
Trout_06	Pine Creek	--	--	2.03E+07
T27_R22	Township 27 Range 22	--	--	1.88E+07
Riv_118	Basset Creek (Plymouth, Golden Valley)	--	--	1.85E+07
CM260_116	Mt. Simon Hinckley	260	116	1.80E+07
T119_R24	Township 119 Range 24	--	--	1.77E+07
Vul_050	Upper Prior Lake	--	--	1.72E+07
Vul_049	Unnamed (Cottage Grove)	--	--	1.69E+07
Vul_009	Long Lake	--	--	1.68E+07
Bio_019	Dean's Lake	--	--	1.64E+07
T32_R24	Township 32 Range 24	--	--	1.61E+07
Vul_021	Big Marine Lake	--	--	1.57E+07
T114_R18	Township 114 Range 18	--	--	1.53E+07
T115_R17	Township 115 Range 17	--	--	1.51E+07
CM264_254	Mt. Simon Hinckley	264	254	1.34E+07
T116_R22	Township 116 Range 22	--	--	1.19E+07
Riv_124	Nine Mile Creek	--	--	1.19E+07
Riv_100	Sand Creek (Jordan)	--	--	1.09E+07
T114_R19	Township 114 Range 19	--	--	1.09E+07
CM159_255	Mt. Simon Hinckley	159	255	1.07E+07
Bio_097	Camp Hduhapi	--	--	1.05E+07
Riv_146	Unnamed (Empire Twp.)	--	--	9.37E+06
CM257_178	Mt. Simon Hinckley	257	178	8.48E+06
Bio_060	Pigs Eye SNA	--	--	8.25E+06
GWSW4	Savage Fen	--	--	7.92E+06
T120_R21	Township 120 Range 21	--	--	7.80E+06
T112_R17	Township 112 Range 17	--	--	7.23E+06
Bio_091	Belwin Gravel Pit	--	--	6.81E+06
Riv_102	Credit River (Credit River Twp, Savage)	--	--	6.14E+06
Vul_039	Minnewashta Lake	--	--	6.03E+06
T30_R22	Township 30 Range 22	--	--	5.85E+06
T31_R21	Township 31 Range 21	--	--	5.53E+06
Vul_014	Lake Waconia	--	--	5.33E+06
T113_R21	Township 113 Range 21	--	--	5.08E+06
OP325_247	Praire du Chein Group	--	--	4.82E+06
CM177_237	Mt. Simon Hinckley	177	237	4.59E+06
CM168_195	Mt. Simon Hinckley	168	195	4.55E+06
T112_R20	Township 112 Range 20	--	--	4.42E+06
OP257_186	Praire du Chein Group	--	--	4.21E+06
Bio_058	Black Dog Lake area	--	--	4.16E+06
CM313_170	Mt. Simon Hinckley	313	170	4.05E+06
Vul_029	Olsen Lake	--	--	3.92E+06
T27_R24	Township 27 Range 24	--	--	2.98E+06
CM222_155	Mt. Simon Hinckley	222	155	2.96E+06
Bio_107	Grey Cloud Dunes East	--	--	2.78E+06
T31_R24	Township 31 Range 24	--	--	2.78E+06
Riv_127	Riley Creek (Chanhassen, Eden Prairie)	--	--	2.60E+06
Vul_025	Lotus Lake	--	--	2.56E+06
Bio_087	Wilder Forest	--	--	2.46E+06
CM178_198	Mt. Simon Hinckley	178	198	2.35E+06

Table A-1
Binding Constraints and Shadow Price

Constraint Name	Description	Row	Col	Absolute Shadow Price
Riv_131	Unnamed (Eagan)	--	--	2.23E+06
Vul_028	Dutch Lake	--	--	1.92E+06
Vul_008	Lake Elmo	--	--	1.81E+06
Bio_076	Savage Fen, Credit River	--	--	1.75E+06
CM191_219	Mt. Simon Hinckley	191	219	1.44E+06
CJ269_278	Jordan Sandstone	269	278	1.16E+06
Vul_088	Weaver Lake	--	--	8.04E+05
CJ203_291	Jordan Sandstone	203	291	7.44E+05
Vul_011	Smetana Lake	--	--	7.12E+05
Vul_078	Pleasant Lake	--	--	6.14E+05
Vul_027	Murphy Lake	--	--	5.92E+05
CT293_146	Tunnel City	293	146	4.41E+05
Bio_072	Grey Cloud Dunes West	--	--	4.35E+05
CT159_180	Tunnel City	159	180	3.57E+05
OP236_263	Praire du Chein Group	236	263	2.94E+05
CJ205_289	Jordan Sandstone	205	289	2.87E+05
CJ246_287	Jordan Sandstone	246	287	2.82E+05
CT147_194	Tunnel City	147	194	2.74E+05
CJ270_281	Jordan Sandstone	270	281	2.70E+05
T116_R24	Township 116 Range 24	--	--	2.52E+05
CT164_175	Tunnel City	164	175	2.05E+05
FlowDir3	TCAAP Plume (St Anthony, Minneapolis)	--	--	165000.00
FlowDir2	TCAAP Plume (New Brighton)	--	--	145000.00
CJ300_293	Jordan Sandstone	300	293	1.26E+05
CJ302_293	Jordan Sandstone	302	293	9.49E+04
OP258_213	Praire du Chein Group	258	213	9.02E+04
CJ264_254	Jordan Sandstone	264	254	7.80E+04
CT172_203	Tunnel City	172	203	7.27E+04
OP257_205	Praire du Chein Group	257	205	6.08E+04
OP241_280	Praire du Chein Group	241	280	6.04E+04
OP257_206	Praire du Chein Group	257	206	5.96E+04
OP297_248	Praire du Chein Group	297	245	4.33E+04
OP269_233	Praire du Chein Group	269	233	3.57E+04
CT185_206	Tunnel City	185	206	3.13E+04
CJ298_292	Jordan Sandstone	298	292	2.09E+04
CT186_207	Tunnel City	186	207	1.88E+04
Riv_114	Rice Creek (Fridley)	--	--	1.41E+04
CJ230_270	Jordan Sandstone	230	270	1.20E+04
CT260_197	Tunnel City	260	197	9.75E+03
CT174_199	Tunnel City	174	199	7.56E+03
OP271_228	Praire du Chein Group	271	228	6.83E+03
FlowDir7	St. Paul Park Refinery	--	--	6450.00
CT279_287	Tunnel City	279	287	3.31E+03
CT186_206	Tunnel City	186	206	2.53E+03

Color Key

Trout streams baseflow constraint
Non-trout streams baselfow constraint
Groundwater dependent features hydraulic head constraint (calcerous fens)
Flow direction constraint
Mt. Simon-Hinckley aquifer change in hydraulic head constraint
Safe yield for confined bedrock aquifers constraint
Surface water flux constraint (Township and Range groups)
Vulnerable surface water features with wide litoral zone constraint
Sites of high biodiversity constraint

Table A-2

Summary of Binding Constraints by Constraint Type

Group	Sum Total Shadow Price	Percent Total Shadow Price	Number of Constraints with Shadow Price	Average Shadow Price	Rank of Average Shadow Price
Township Range	2.47E+09	33.66%	45	5.49E+07	3
Stream/River	2.39E+09	32.48%	28	8.52E+07	1
Vulnerable Surface Water Basin	9.32E+08	12.69%	29	3.21E+07	5
Biodiversity Area	7.52E+08	10.24%	22	3.42E+07	4
Trout Stream	5.13E+08	6.99%	9	5.70E+07	2
Mt. Simon Hinckley Hydraulic Head	2.41E+08	3.28%	15	1.61E+07	7
Groundwater Dependent Feature (Fen)	3.46E+07	0.47%	2	1.73E+07	6
Safe Yield for Confined Bedrock Aquifer	1.42E+07	0.19%	31	4.57E+05	8
Flow Direction	3.16E+05	0.00%	3	1.05E+05	9

Community Highlights

Rainwater Harvesting at CHS Field

CHS Field is a regional ballpark in the heart of the Lowertown neighborhood of Saint Paul, Minnesota just a few hundred feet from America's greatest river. CHS Field is home to the Saint Paul Saints minor league baseball team. The ballpark has a capacity of 7,000 spectators, will host approximately 400,000 visitors annually and will be used for a both sporting and non-sporting events.

With population on the rise, Minnesota's groundwater supplies continue to decline and stormwater runoff pollutes local lakes and the Mississippi River. Ballparks require large amounts of water for irrigation, drinking and other operational activities. To reduce consumption of potable water as well as the amount of polluted runoff flowing to the Mississippi River, the City of Saint Paul, Saint Paul Saints, Metropolitan Council and Capitol Region Watershed District collaborated to collect and store rainwater and use it for irrigation and other uses at CHS Field. Why do this? Because even in the Land of 10,000 Lakes, water is a resource we can't afford to take for granted.

Project Implementation

Source

Rooftops provide a great opportunity to collect rainwater because the water flowing off roofs is relatively clean compared to streets or parking lots. CHS Field doesn't have a lot of roof cover, but the Metropolitan Council offered the roof area of the Green Line light rail Operations and Maintenance Facility (OMF) located next door. A pipe installed between the properties allows rainwater to flow from roughly ¾-acre portion of the OMF roof to a 27,000- gallon steel cistern tank below the ballpark concourse near center field.

Treatment

Harvested rainwater at CHS Field is used to irrigate the ball field and flush toilets. Before it can be used for those purposes, water is treated to ensure it is safe. A vortex filter removes large particles such as leaves and sediment (or baseballs!) from the water before it goes to the cistern. From there, a pump pulls water from the cistern and sends it through two filters that remove smaller particles. Finally, UV light is used to disinfect the water before it is sent to the irrigation system or toilets.

Irrigation

The harvested rainwater is used to irrigate the main playing field, which includes two acres of sod. The area is watered by 115 irrigation heads and 7,000 feet of irrigation pipe.

Toilet flushing

The public toilets located behind center field include nine water closets and four urinals which are serviced by water from the cistern. The remaining 127 public toilets are located too far away to be served by the cistern, but all toilets in the park include water-saving fixtures.

Plumbing Code

The rainwater harvesting design was reviewed and approved locally under Minnesota Plumbing Code Rule 4715.0330 *"Alternative Fixtures, Appurtenances, Materials, and Methods."* Criteria within Uniform Plumbing Code Chapter 17 (*"Non-Potable Rainwater Catchment Systems"*) were used to support the review and approval. Water quality treatment standards were derived from NSF/ANSI 350 for onsite residential and commercial water reuse treatment systems.

Challenges

- Obtaining approval from the plumbing inspector for rainwater reuse inside the building (toilets)
- Constructing the rainwater conveyance piping inside an active rail facility

- Maximizing the amount of water storage in a minimum amount of space

Project Benefits

The benefits include:

- Annual potable water reduction estimated at 450,000 gallons
- Annual cost savings of more than $1,600

What may help other Communities?

Partnerships and Incentives

- The Metropolitan Council granted $100,000 to the City for the rainwater harvesting system
- Capitol Region Watershed District granted $246,500 to the City for the rainwater harvesting system
- The Metropolitan Council funded the OMF rainwater conveyance retrofit ($82,800)
- All Metropolitan Council funds are sourced from the Clean Water Land and Legacy Amendment

Lessons Learned

- Take officials on tours of similar projects to help them feel comfortable about supporting innovative stormwater reuse projects
- Pay close attention to the roof; are there HVAC units that have condensate that should be piped away from the rainwater harvesting area?
- Work closely with MDH to determine the appropriate level of water treatment

Awards and Recognitions

- 2015 Clean Water Champion Award

Contact the Community

NEED DETAILS

Savage and Burnsville: Water Supply Partnership

For the past 6 years the Cities of Savage and Burnsville have worked together to utilize quarry water that was previously discarded to the Minnesota River as part of mining operations at the Kraemer Quarry in Burnsville. Annually, via a water use agreement, Burnsville provides more than 600 million gallons of potable water to Savage, which accounts for about 79% of their annual demand. The partnership has reduced groundwater pumping between the Cities of Savage and Burnsville by 1.1 to 1.2 billion gallons per year. This reduction in pumping has resulted in rebounding water levels in the Jordan Aquifer since the project came on-line in 2009.

The $14 million project included construction of a quarry surface water intake, supply watermains and water treatment plant addition and upgrades.

Project Implementation

Prior to construction agreements and funding between Burnsville and the City of Savage, State of Minnesota and Kraemer Mining and Materials were required. As lead agency, Burnsville constructed the surface water intake which consists of two pumping stations along with connecting water system infrastructure to convey water to the existing water treatment plant. An addition was made to the plant to allow for treatment of this water. Additional improvements to enhance water aesthics made by Burnsville after completion of the initial project included a Granular Activated Carbon building, surface water drainage improvements and baffling improvements to the finished water reservoir.

The project has been operating for 6 years and annually provides 1.1 to 1.2 billion gallons of potable water. This water supplements the 2 billion gallons of ground water pumped by the City.

Challenges

The primary challenges once operations began were related to the aesthics of the new water supply. The new mixed supply was harder and had a different taste and odor. Savage and Burnsville staffs worked together on several collaborative solutions to solve these issues. Comunication, patience and cooperation were key in solving these issues. The water quality complaints related to the initial issues have virtually been eliminated in both communities.

Project Benefits

The benefits include:

- Reuse of 1.1 billion gallons of water annually
- Reduction of 1.1 billion gallons of groundwater pumping and rebounding water levels in the Jordan Aquifer
- Viable/sustainable long term source of water for the communities

What may help other Communities?

It can be done if communities are willing to work together, trust each other and collaborate. However, this type of partnership and success can't occur without state and agency help.

Partnerships and Incentives

This project would not have been possible without collaboration of Kraemer Mining and Materials, State of Minnesota, MDH, DNR and Cities of Savage and Burnsville. Below is the cost participation in the project:

- State of Minnesota $5.5 Million
- Kraemer Mining and Materials $3.0 Million
- City of Savage $2.0 Million
- City of Burnsville $3.5 Million
- Total SWTP Capital Cost $14.0 million

Community Commitment to Sustainability/Water Supply Security/Collaboration/Etc.

The potable use of 1.1 billion gallons of previously discarded quarry water has resulted in rebounding water levels in the Jordan Aquifer locally, and will help ensure sustainability of the water supply for Savage and Burnsville.

Lessons Learned

- Mixing of surface and groundwater is complicated and upfront investment in pilot results will reduce issues
- Understand potential operational issues of connected system, such as impacts to chlorine levels
- Proactive education of Public, Council and City Staff on issues such as:
  - Potential changes in water aesthetics (taste, odor and hardness etc.)
  - Water is "safe" exceeds all standards

Awards and Recognitions

2009 City Engineers of Minnesota Project of the Year – Honorable Mention

2009 Environmental Initiative Award

National League of Cities Silver Award for Municiple Excellence

2010 Finance and Commerce Top Project Award

2010 Minnesota Society of Professional Engineers Merit Award

2010 American Council of Engineering Companies Grand Award

2010 American Council of Engineering Companies National Recognition Award

Contact the Community

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Glossary

Abandoned Well	Any well (drinking water, oil and gas, etc.) which is not used for a long period of time, is not maintained properly, and/or is not properly sealed when its useful life is over.
Acre-foot	Enough water to cover an acre of land one-foot deep (i.e., 325,851 gallons, or 43,560 cubic feet).
Adaptive Management	A process for continually improving management policies and practices by learning from the outcomes of management actions.
Agricultural Area	Communities that encompass areas with prime agricultural soils that are planned and zoned for long-term agriculture. Maximum allowable density is 4 units/40 acres.
Approach	The high-level category of water supply projects that could be applied at the subregional level to improve the sustainability of the Twin Cities metropolitan area water supply. For example, water conservation is an approach. (NEEDS WORK!!)
Appropriation	Use of water permitted by the Minnesota Department of Natural Resource. Except for some exempted purposes, a water use (appropriation) permit from DNR is required for all users withdrawing more than 10,000 gallons a day or 1 million gallons per year.
Aquifer	Rock or sediment that is saturated and able to transmit economic quantities of water to wells and surface waters. Minnesota Administrative Rules 6115.0630 defines aquifer as any water-bearing bed or stratum of earth or rock capable of yielding groundwater in sufficient quantities that can be extracted.
Aquitard	A water-saturated sediment or rock whose permeability is so low it cannot transmit any useful amount of water.
Artesian Aquifer	See confined aquifer. An aquifer with a confining layer at the top, causing the groundwater to be under pressure. Minnesota Administrative Rules 6115.0630 defines artesian aquifer or a confined aquifer as a water body or aquifer overlain by a layer of material of less permeability than the aquifer. The water is under sufficient pressure so that when it is penetrated by a well, the water will rise above the top of the aquifer. A flowing artesian condition exists when the water flow is at or above the land surface.
Artesian Well	A well drilled in a confined aquifer where the elevation of the well water (i. e., potentiometric surface) is above the top of confined aquifer. If this well flows at the land surface without mechanical pumping, it is a flowing artesian well.
Available Head	An informal term to specify the amount of decline in water level that can occur in a confined aquifer before artesian conditions change to water table conditions. For the purposes of the Master Water Supply Plan, “available head” is defined as the difference in elevation between an aquifer’s long-term average water level, as predicted by the Metropolitan Council’s groundwater flow model, and ten feet above the top of the upper bedrock surface of that aquifer.

Baseflow	The amount of water in a stream, lake or wetland that is supplied by groundwater. This is also referred to as dry weather flow.
Basin	Minnesota Administrative Rules 6115.0630 defines a basin as a depression capable of containing water which may be filled or partly filled with waters of the state. It may be a natural, altered, or artificial depression.
Benchmark	A measurable water resource condition against which historic, current, and projected conditions can be compared to evaluate the sustainability of the region's water supplies.
Beneficial Use	Use of a [water] resource that includes, but is not limited to, domestic (including public water supply), agricultural, commercial, industrial, water-based recreational uses and the propagation and growth of aquatic life.
Best Management Practices	A set of recommendations pertaining to the development and maintenance of varied land uses, aimed at limiting the effects of development, such as soil erosion and stormwater runoff, on the natural environment. See the Council's *Urban Small Sites Best Management Practices Manual* for specific examples of Best Management Practices.
Calibration	The process of using historical data to estimate parameters in a groundwater model, hydrologic forecast technique, routings, and unit hydrographs.
Capita	Latin for 'person'.
Community Public Water Supply	Community public water supplies serve at least 25 persons or 15 services connections year-round, which includes municipalities, manufactured mobile home parks, etc. These systems are required to provide a safe and adequate supply of water under the federal Safe Drinking Water Act. Also known as a *public water supply system*.
Cone of Depression	A cone-shaped depression of the water table.
Confined Aquifer	An aquifer with a confining layer at the top, causing the groundwater to be under pressure. Minnesota Administrative Rules 6115.0630 defines artesian aquifer or a confined aquifer as a water body or aquifer overlain by a layer of material of less permeability than the aquifer. The water is under sufficient pressure so that when it is penetrated by a well, the water will rise above the top of the aquifer. A flowing artesian condition exists when the water flow is at or above the land surface.
Confining Unit	A hydrogeologic unit of impermeable or distinctly less permeable material bounding one or more aquifers and is a general term that replaces aquitard.
Conjunctive Use	The coordinated management of surface water and groundwater supplies to maximize the yield of the overall water resource. An active form of conjuctive use utilizes artificial recharge, where surface water is intentionally percolated or injected into aquifers for later use. A passive method is to simply rely on surface water in wet years and use groundwater in dry years.

Conservation	The management of natural resources to prevent waste, destruction or degradation.
Consumptive Use	Minnesota Administrative Rules 6115.0630 defines consumptive use or consumption as water withdrawn and not directly returned to the same waters as the source for immediate further use in the area.
Density	The number of dwelling units per net residential acre of land.
Developable Land	Land that is suitable as a location for structures and that can be developed free of hazards to, and without disruption of, or significant impact on, natural resource areas.
Diversified Rural	Communities that are home to a variety of farm and nonfarm land uses including very large-lot residential, clustered housing, hobby farms, and agricultural uses. Located adjacent to the Emerging Edge Suburban communities, the Diversifies Rural designation protects rural land for rural lifestyles today with the potential of becoming urbanized after 2040. Maximum allowable density is 1-2.5 units for existing lots, and 1 unit/10 acres where possible.
Drawdown	The lowering of the water table in and around a pumping well. It is the difference between the pumping water level and the original water level.
Drinking Water supply Management Area	A drinking water supply management area (DWSMA) is the Minnesota Department of Health approved surface and subsurface area surrounding a public water supply well that completely contains the scientifically calculated wellhead protection area and is managed by the entity identified in a wellhead protection plan. The boundaries of the drinking water supply management area are delineated by identifiable physical features, landmarks or political and administrative boundaries.
Emerging Suburban Edge	Cities, townships and portions of both that are in early stages of transitioning into urbanized levels of development. In the majority of these communities, less than 40% of the land has been developed. Parts of Emerging Suburban Edge communities are in the MUSA and all have a minimum average net density of 3-5 units/acre.
Essential Use	Nonessential use is defined by Minn. Stat. 103G.291 as water that is used for drinking, cooking, cleaning or sanitation (i.e. domestic water use).
Equity	Equity is defined in *Thrive MSP 2040* as just and fair inclusion where all can participate and prosper.
Equitable Development	Equitable development is an approach to creating healthy, vibrant, communities of opportunity. Equitable outcomes come about when smart, intentional strategies are put in place to ensure that low-income communities and communities of color participate in and benefit from decisions that shape their neighborhoods and regions.
Evotranspiration	Loss of water from the soil both by evaporation from the soil surface and by transpiration from the leaves of the plants growing on it. Factors that affect the rate of evapotranspiration include the amount of solar radiation, atmospheric vapor pressure, temperature, wind, and soil moisture.

Forecast	In *Thrive MPS 2040*, a calculation of growth in population, households and jobs based on data about current conditions (e.g., the 2010 Census) that is extrapolated into the future.
Full Build-Out	Having absolute development under the proposed future land use and the guidelines of the 2040 Comprehensive Plan Update (see Ultimate Build Out).
Geologic Formation	Rocks or unconsolidated deposits that form a unit and may be dominated by a certain type of deposit or rock, or may have some other common feature.
Greywater	Domestic wastewater that does not contain human wastes such as tub, shower, or washing machine water.
Groundwater	Water stored in the pore spaces of rock and unconsolidated deposits found in the saturated zone of an aquifer (compare to surface water). Minnesota Administrative Rules 6115.0630 defines groundwater as subsurface water in the saturated zone. The saturated zone may contain water under atmospheric pressure (water table condition), or greater than atmospheric pressure (artesian condition).
Hydrology	Science dealing with the properties, distribution, and flow of water on or in the earth.
Hydraulic Conductivity	A measure of the permeability of the porous media. It is commonly measured in feet per day (ft/day).
Hydraulic Gradient	The change in an aquifer's water level elevation over a given distance.
Impermeable	Material that does not permit fluids to pass through it.
Impervious	The ability to repel water or not let water infiltrate.
Infiltration	1. The seepage of water from land surface down below the root zone. This water may move horizontally through the soil toward nearby streams, wetlands, and lakes – becoming baseflow. Or this water may move vertically down to recharge deeper regional aquifers. 2. The seepage of groundwater into sewer pipes through cracks or joints in the pipes.
Infrastructure	Fixed facilities, such as sewer lines and roadways; permanent structures.
Integration	The incorporation of all planning aspects (e.g., land use, transportation, housing, water resources, and natural resources) into decisions about development.
Investments, Regional Investments	Investments made by the Metropolitan Council into regional infrastructure.

Karst	Topography formed over limestone, dolomite or gypsum and characterized by sinkholes, caves, and significant rapid underground drainage. The Minnesota Pollution Control Agency (MPCA) recognizes portions of southeastern Minnesota as a karst area, including all or parts of these metropolitan area counties: Dakota, Hennepin, Ramsey, Scott and Washington. In these counties, the MPCA recommends treating the following geologic units as karst aquifers: Platteville Formation, St. Peter Formation, and the Prairie du Chien Group.
Local Comprehensive Plan	Plans for local land use and infrastructure. Counties, cities and townships are required to have their local comprehensive plans reviewed by the Metropolitan Council to ensure that they are consistent with metropolitan system plans. (Compare with *comprehensive plan.*)
Local Government	Municipal units of government, such as counties, cities and townships.
Metro Model	The Twin Cities metropolitan area regional groundwater flow model. The current modeling effort builds upon the Minnesota Pollution Control Agency's 2000 *Metro Model*. The current Metro Model (version 3) is used to evaluate the groundwater impacts of current and projected groundwater withdrawals. Information provided by the Metro Model helps set regional goals, screen for future risks, and evaluate/compare the regional impact of different water supply approaches.
Metropolitan Area Water Supply Advisory Committee	The 2005 Minnesota State Legislature passed a measure that directs the Metropolitan Council to carry out planning activities addressing the water supply needs of the Twin Cities metropolitan area. To assist the Council in its planning activities, the legislature established the Metropolitan Area Water Supply Advisory Committee. The Advisory Committee, which was instrumental in the development of the Metropolitan Area Master Water Supply Plan, meets regularly to discuss plan implementation and other relevant water supply topics.
Metropolitan Development Guide	The collection of regional plans that includes Thrive MSP 2040 and the policy plans for the regional systems: transportation, wastewater and water quality, regional parks and open space.
Metropolitan Land Planning Act	Minnesota Statute 473 directing the Council to adopt long-range, comprehensive policy plans for transportation, airports, wastewater services, and parks and open space, and authorizing the Council to review the comprehensive plans of local governments.
Metropolitan Urban Service Area (MUSA)	The area, in which the Metropolitan Council ensures that regional services and facilities under its jurisdiction are provided.
Model	A model is any device that represents an approximation of a field situation. A mathematical groundwater model, such as Metro Model 3, simulates groundwater flow indirectly by means of a governing equation thought to represent the physical processes that occur in the system, together with equations that describe heads or flows along the boundaries of the model.
Multifamily Housing	Residential structure with two or more separate dwelling units.

Nitrate	Used generically for materials made of nitrogen and oxygen; sources include animal wastes and some fertilizers.
Nonconsumptive Use	Nonconsumptive use is water withdrawn and directly returned to the same waters as the source for immediate future use in the area. Compare with *consumptive use*.
Nonessential Use	Nonessential water uses defined by Minn. Stat. 103G.291 include lawn sprinkling, vehicle washing, golf course and park irrigation and other nonessential uses. Nonessential use refers to water that is not used for drinking, cooking, cleaning or sanitation (i.e. nondomestic water use). Compare with *essential use*.
Nonurban Land Uses	Residential, commercial or industrial land uses that are not found in the urban area, and where urban services are unavailable. (Compare with *urban land uses.*)
Observation Well	A non-pumping well used for observing the elevation of the water table or piezometric surface.
On-site Septic System	System for disposing and treating human and domestic waste at or near the location where the waste is generated, such as a septic tank and soil absorption system or other system, allowed by state and city when access to the municipal sewer system is not required of feasible.
Open Space	Public and private land that is generally natural in character. It may support agricultural production, or provide outdoor recreational opportunities, or protect cultural and natural resources. It contains relatively few buildings or other human-made structures. Depending on the location and surrounding land use, open space can range in size from a small city plaza or neighborhood park of several hundred square feet, corridors linking neighborhoods of several acres to pasture, croplands or natural areas and parks covering thousands of acres.
Option	Water supply project that could be applied at the subregional level to implement an approach to water supply sustainability. Options were developed as part of the Master Plan to better quantify the costs and benefits of implementing sustainable water supply approaches. (NEEDS WORK!!)
Ordinance	A law or regulation set forth and adopted by a governmental authority, usually a city or county.
Peak Use (Demand)	The maximum water demand occurring in a given period, such as hourly or daily or annually.
Per Capita Use	Water use per person.
Permeability	Ability of a rock or unconsolidated deposit to transmit water through connected spaces between grains. The size and shape of the spaces controls how easily water flows.
Pollutant	An impurity (contaminant) that causes an undesirable change in the physical, chemical, or biological characteristics of the air, water or land that may be harmful to or affect the health,

Porosity	Volume of open pore space between particles of clay, silt, sand, gravel, cobble or within rock in a geologic formation.
Prediction	Prediction quantifies the response of a system to future events.
Pressure Head	Height of the water column due to aquifer pressurization.
Projection	A projection indicates what future values for the unknown would be if the assumed patterns of change were to occur. They are not a prediction that the unknown will change in this manner. A projection simply indicates a future value for the unknown if the set of underlying assumptions occur.
Public Water System	Community public water supply systems serve at least 25 persons or 15 services connections year-round, which includes municipalities, manufactured mobile home parks, etc. These systems are required to provide a safe and adequate supply of water under the federal Safe Drinking Water Act. Also known as a *community public water supply system*.
Recharge	The natural or manmade infiltration of surface water into the zone of saturation. For the purposes of regional recharge modeling using the SWB model, recharge is the portion of infiltration that moves from the unsaturated sediment below the root zone into the underlying aquifers (saturated zone).
Recharge Area	An area where surface water from rainfall, snowmelt or other sources seeps through the soil into the saturated zone.
Redevelopment	Any proposed expansion, addition, or major façade change of an existing building, structure, or parking facility.
Regional Infrastructure	Infrastructure pertaining to any of the Council's systems: wastewater, transportation, and parks and open space (See also *regional systems.*)
Regional Systems	Systems for which the Metropolitan Council is the responsible planning and operating authority. They include wastewater services, transportation, parks and open space, and airports. (See also *regional infrastructure*.)
Reuse	1. GET DNR definition. Reuse of water already authorized by a permit is exempt to water appropriation permit requirements.
Runoff	The rainfall, snowmelt, or irrigation water flowing that has not evaporated or infiltrated into the soil, but flows over the ground surface.
Rural Centers	Local commercial, employment, and residential activity centers serving rural areas in the region. These small towns are surrounded by agricultural lands and serve as centers of commerce to those surrounding farm lands. The density is 3-5 units/acre.
Rural Residential Area	Communities that have residential patterns characterized by large lots and do not have plans to provide urban infrastructure. Maximum allowable density is 4 units/40 acres.

Safe Yield	Amount of groundwater that can be withdrawn from an aquifer system without degrading the quality of the aquifer and without allowing the long-term average withdrawal to exceed the available long-term average recharge to the aquifer system. Minnesota Administrative Rules 6115.0630 defines "Safe yield for water table condition" as the amount of groundwater that can be withdrawn from an aquifer system without degrading the quality of water in the aquifer and without allowing the long term average withdrawal to exceed the available long term average recharge to the aquifer system based on representative climatic conditions. Minnesota Administrative Rules 6115.0630 defines "Safe yield for artesian condition" as the amount of groundwater that can be withdrawn from an aquifer system without degrading the quality of water in the aquifer and without the progressive decline in water pressures
Saturated Zone	Zone with only water in the interconnected spaces.
Simulation	The imitative representation of the functioning of one system or process by means of the functioning of another, such as a computer simulation of groundwater flow.
Soil Moisture	Moisture contained in the soil above the water table, including water vapor.
Source Water Protection	Source water refers to water from streams, rivers, lakes or underground aquifers that is used for drinking. There are three primary parts to Minnesota's Source Water Protection Program, administered by the MN Department of Health: 1. Wellhead Protection 2. Source Water Assessments 3. Protection of Surface Water Intakes
Special Well and Boring Construction Area	A Special Well and Boring Construction Area is sometimes also called a well advisory. It is a mechanism which provides for controls on the drilling or alteration of public and private water supply wells, and monitoring wells in an area where groundwater contamination has, or may, result in risks to the public health. The purposes of a Special Well and Boring Construction Area are to inform the public of potential health risks in areas of groundwater contamination, provide for the construction of safe water supplies, and prevent the spread of contamination due to the improper drilling of wells or borings.
Specified Flow	Cumulative depletion of groundwater that results in greater than 15% reduction of groundwater base flow, as represented by average August flow rate.
Stormwater	Surplus surface water generated by rainfall that does not seep into the earth but flows overland to flowing or stagnant bodies of water. (See also *runoff*.) DNR defines stormwater more specifically as runoff from impervious surfaces.

Stormwater Reuse	The collection and use of stormwater runoff that is reclaimed for specific, direct, and beneficial uses. The term is also used to describe water that is collected on-site and utilized in a new application. It is also called rainwater harvesting, rainwater recycling, or rainwater reclamation. The Minnesota Department of Natural Resources more specifically defines stormwater reuse as the secondary use of water for a purpose other than what it was originally appropriated for. (GET VERIFICATION FROM DNR).
Subregion	A Metropolitan Council Water Supply Planning management area defined to ensure that technical analyses are distributed equitably throughout the region, reflect all the varied water supply conditions/environments, and that sustainability issues and approaches are distributed in a targeted way.
Suburban Area	Communities that saw their primary era of development during the 1980s and early 1990s. Suburban communities also include places that were once resort destinations along Lake Minnetonka and White Bear Lake and along the St. Croix River. Suburban communities are in the MUSA and have a minimum average net density of 5 units/acre.
Suburban Edge	Communities that have experienced significant residential growth beginning in the 1990s and continuing to the 2010s. At least 40% of the land in these communities is developed, but significant amounts of land remain for future development. Suburban Edge communities are in the MUSA and have a minimum average net density of 3-5 units/acre.
Superfund Site	A Superfund site is an uncontrolled or abandoned place where hazardous waste is located, possibly affecting local ecosystems or people.
Surface Water	Water on the earth's surface exposed to the atmosphere such as rivers, lakes and creeks. (Compare with *groundwater.*)
Sustainable Development	Development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.
Sustainable Water Use	Use of water that does not harm ecosystems, degrade water quality, or compromise the ability of future generations to meet their own needs.
Technical Assistance	Aid provided by Council staff to local governments to implement *2030 Development Framework,* including the *Master Water Supply Plan*.
Transpiration	Loss of water from a plant, mainly through the stomata of leaves.
Ultimate Build-out	Having absolute development under the proposed future land use and the guidelines of the 2040 Comprehensive Plan Update (see Full Build Out).
Unconfined Aquifer	Aquifer without a confining layer at the top and a lack of pressure that allows the water level to easily rise and fall.
Unsaturated Zone	Area below the land surface that contains a mixture of air and water.

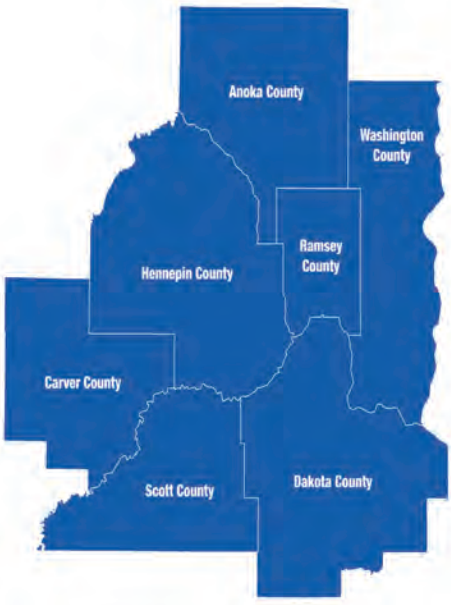
Urban Area	Communities that are adjacent to the Urban Center communities and have seen considerable development and growth along highways. Urban areas are in the MUSA and have a minimum average net density of 10 units/acre.
Urban Center	Communities that include the largest, most centrally located and most economically diverse cities of the region. Urban centers are in the metropolitan urban service area (MUSA) and have a minimum average net density of 20 units/acre.
Wastewater	Water carrying waste from domestic, commercial, or industrial facilities together with other waters that may inadvertently enter the sewer system through infiltration and inflow.
Wastewater Treatment Plant	A facility designed for the collection, removal, treatment, and disposal of wastewater generated within a service area.
Water Cycle	The path that water takes through its various states – vapor, liquid, solid – as it moves throughout the ocean, atmosphere, groundwater, lakes and streams.
Water Table	The elevation at which the pore water pressure is at atmospheric pressure.

Wellhead Protection Area	The fundamental goal of wellhead protection (WHP) is to prevent contaminants from entering public wells. To accomplish this goal, public well owners must first determine where the water supplying their well(s) is coming from—this area is called the WHP area (WHPA). It can also be thought of as the recharge area to the public well and is ultimately the area to be managed by the public water supplier, as identified in the WHP plan.
Acronyms and Initialisms	CFS – Cubic Feet per Second DNR – Department of Natural Resources (of Minnesota) DWSMA – Drinking Water Supply Management Area GPCD – Gallons per Capita (Person) per Day GPM – Gallons per Minute LPA – Local Planning Assistance department of the Metropolitan Council MAWSAC – Metropolitan Area Water Supply Advisory Committee MCES – Metropolitan Council Environmental Services division MDNR – Minnesota Department of Natural Resources MDA – Minnesota Department of Agriculture MDH – Minnesota Department of Health MGD – Million Gallons per Day MPCA – Minnesota Pollution Control Agency PCA – Pollution Control Agency (of Minnesota) PWS – Public Water System SDWA – Safe Drinking Water Act SWBCA – Special Well and Boring Construction Area WHPA – Wellhead Protection Area WHPP – Wellhead Protection Plan

The Council's mission is to foster efficient and economic growth for a prosperous metropolitan region.

Metropolitan Council Members

Susan Haigh	Chair	Edward Reynoso	District 9
Katie Rodriguez	District 1	Marie McCarthy	District 10
Lona Schreiber	District 2	Sandy Rummel	District 11
Jennifer Munt	District 3	Harry Melander	District 12
Gary Van Eyll	District 4	Richard Kramer	District 13
Steve Elkins	District 5	Jon Commers	District 14
James Brimeyer	District 6	Steven T. Chavez	District 15
Gary L. Cunningham	District 7	Wendy Wulff	District 16
Adam Duininck	District 8		

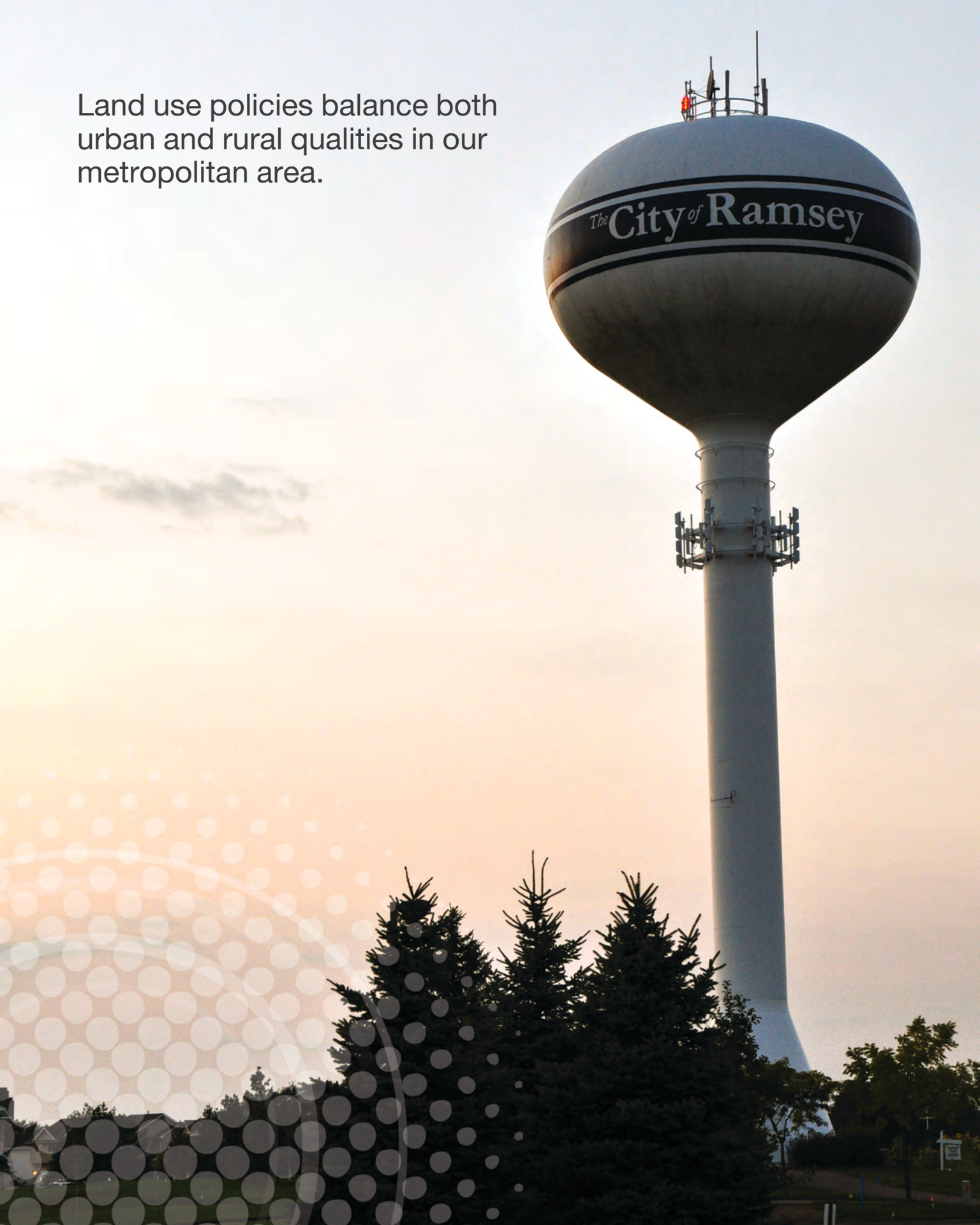


The Metropolitan Council is the regional planning organization for the seven-county Twin Cities area. The Council operates the regional bus and rail system, collects and treats wastewater, coordinates regional water resources, plans and helps fund regional parks, and administers federal funds that provide housing opportunities for low- and moderate-income individuals and families. The 17-member Council board is appointed by and serves at the pleasure of the governor.

On request, this publication will be made available in alternative formats to people with disabilities. Call Metropolitan Council information at 651-602-1140 or TTY 651-291-0904.

METROPOLITAN COUNCIL

Land use policies balance both urban and rural qualities in our metropolitan area.



390 Robert Street North
Saint Paul, MN 55101–1805
651.602.1000
TTY 651.291.0904
public.info@metc.state.mn.us
metrocouncil.org

How to Navigate the Master Water Supply Plan

The Master Water Supply Plan provides a broad base of information about the region's water supplies.

The following are some frequently asked questions and where answers may be found in the plan:

Why does the Council do water supply planning? Why does this plan exist?	Chapter 1
Are there regional goals or targets for the region's water supply?	Chapter 2
What does sustainable water supply in the region look like? What is the vision?	Chapter 2
How is water used in the region? How will water use change in the future?	Chapter 3
What role does water conservation play?	Chapter 3
What are the main water sources in the region? What are their limitations?	Chapter 4
What are some key water supply quantity and quality issues in the region?	Chapter 5
How does the plan address climate and economic variability? Model uncertainty?	Chapter 5
How will progress toward sustainability be tracked, progress measured?	Chapter 6
How can I and my partners improve sustainability? How can the Council support this?	Chapter 7
What will the Council do to support sustainable water supply management?	Chapter 7
What water supply roles and responsibilities do agencies and communities have?	Chapter 8
How does DNR support this plan?	Chapter 8
What technical and policy information supports this master water supply plan?	Annotated Bibliography
How is water used in my community? In my county? In my watershed?	Appendix 1
What water supply issues should my community plan for?	Appendix 1
How was future water demand projected?	Appendix 2
How was the regional groundwater flow model, Metro Model 3, used in this plan?	Appendices 3 & 4

METROPOLITAN COUNCIL

How to Use the

Water Supply Profiles

The Water Supply Profiles (Appendix 1 of the Master Water Supply Plan) summarize water use, sources, and potential issues for each community, county and watershed in the seven-county Twin Cities metropolitan area.

The profiles provide a useful starting place for local planning and can be used in several ways, including:

To inform community water conservation programs by helping to target large water use categories

Water use varies among communities. In some communities, the largest water use is for municipal demand. In others, the largest water use is by agriculture. The water supply profiles highlight what the largest water uses are, so that programs to promote conservation and water efficiency can be effectively targeted.

To complete *local water supply plans* in a way that considers Metropolitan Council policy

The water supply profiles can be used to complete the *local water supply plan*.

- Information from the section of the water supply profile below the heading "*The following should be addressed as water plans are updated*" can be used to complete Part 1-E and Part 4-B in the local water supply plan template.
- Information from the section of the water supply profile below the heading "*The following actions are recommended*" can be used to complete Part 1-E, Part 4-C and Part 4-D in the local water supply plan template.
- Information from the section of the water supply profile below the headings "*Average annual water use by permitted users…*" and "*Municipal Water Use*" can be used to complete Part 3 and Part 4-D of the local water supply plan template.
- Information from the section of the water supply profile below the heading "*Projected water use*" can be used to complete Part 4-A of the local water supply plan template. NOTE: The community does not need to use these demand projections, but the total population values should be consistent with the community's system statement.

To inform water supply-related permit applications and environmental review documents

The information summarized in the water supply profile is the type of information commonly requested for environmental review documents and water supply-related permits. The profiles can be useful in the preparation and review of these documents.

To provide a subregional picture of water supply-related issues in an area, such as a county or watershed

Watersheds and counties, for example, may find it useful to review the water supply profiles when developing programs to protect groundwater. Subregional work groups also may find the water supply profiles useful when discussing water supply issues and approaches that are bigger than any single community.

City of RAMSEY

7550 Sunwood Drive NW • Ramsey, MN 55303
City Hall: 763.427.1410 • Fax: 763.427.5543
www.cityoframsey.com

July 23, 2015

Attn: Lanya Ross
Metropolitan Council
390 Robert Street N
Saint Paul, MN 55101

Re: City of Ramsey Response to Draft 2015 Master Water Supply Plan

Dear Lanya:

Thank you for the opportunity to review and comment on the draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan (MWSP). The City of Ramsey offers the following responses for your consideration.

The City of Ramsey fully supports the Master Water Supply Plan's single overarching goal of achieving a sustainable water supply system for the region, both now and into the future. However, the City feels strongly that such sustainability must be achieved in an equitable manner through the development and use of regional water supply partnerships.

Considering that regional water supply partnerships can be difficult and time consuming to develop, particularly when led by local agencies, we respectfully request that the Metropolitan Council consider actively supporting an effort to analyze the viability of regional partnerships from both service and funding perspectives.

The City of Ramsey utilizes groundwater for our water supply needs, though surface water from the Mississippi River could be utilized if necessary. But as is noted in Chapter 5 of the MWSP, investing in surface water treatment plants carries a large cost. Due to the extremely high costs associated with a groundwater to surface water system conversion, cities such as Ramsey are unable to fund such improvements on our own and would require financial assistance to comply with any such requirement.

We would also like to emphasize the need to maintain existing groundwater supply systems for supplemental or emergency water supply needs, such as when pollutants have been released into surface waters triggering temporary water supply facility shutdowns.

The City supports the reduction of water consumption through further exploration and implementation of water conservation methods including irrigation reduction practices and stormwater and wastewater reuse. The City also supports promoting infiltration practices to aid in groundwater recharge.

Based on our review of the draft 2015 Twin Cities Metropolitan Area Master Water Supply Plan we did not identify any new goals or initiatives that significantly conflict with current goals or initiatives of the City of Ramsey. However, based on other recent Met Council plan reviews we question whether the draft 2015 MWSP accurately reflects population growth forecasts for the region, and therefore question the accuracy of some of the information included in the draft 2015 MWSP.

The draft 2015 MWSP also does not appear to create any new requirements for the City of Ramsey, but instead appears to expand upon existing guidelines that could ultimately result in the City needing to consider the use of surface water for some or all of our water supply needs, instead of continuing to use groundwater aquifers. Because the City of Ramsey borders the Mississippi River, the City was previously directed to explore the use of the river as a potential water supply source before any new groundwater supply wells would be permitted. In response, the City completed a study which showed that a surface water treatment facility may indeed be technically feasible, though it would not be economically feasible if the intent is to serve only our water supply needs, unless significant outside financial assistance was received. However, it could be economically feasible if multiple communities were to partner in constructing a regional surface water treatment facility to serve the needs of all partnering communities.

The City of Ramsey appreciates the opportunity to review and respond to the draft 2015 MWSP and hopes that the Metropolitan Council will continue to work with the City to address our local water supply concerns and needs. Please note that our concerns with the population forecasts are not about our future land use vision, but rather how that vision relates to current infrastructure capacities, as well as future infrastructure investments and funding opportunities.

If you have any questions on these comments, please call me at 763-433-9825, or email me at bwestby@cityoframsey.com.

Sincerely,

Bruce Westby, P.E.
City Engineer

C: Kurt Ulrich, City Administrator

CC Regular Session **7. 6.**

Meeting Date: 07/28/2015

Submitted For: Patrick Brama, Administrative Services

By: Patrick Brama, Administrative Services

Information

Title

Adopt Resolution #15-07-177 Approving Multiple Agreements Related to the Previously Approved Purchase Agreement, Site Plan Approval, and Livable Communities Grant for Sunwood Village; Case of CommonBond Communities - **Please Note: this case was moved from Consent Number 4.06 to the Regular Agenda Item Number 7.06**

Purpose/Background:

The purpose of this case is to consider multiple agreement related to the future Sunwood Village project, a 47-unit apartment building by CommonBond Communities. The site plan has been previously approved by the City Council. The purpose of this case is to approve the necessary legal documents in order to allow the project to commence to construction. The following agreements are offered for the City Council's consideration. The project is anticipated to commence in August or September of this year.

1. Amended Reciprocal Driveway and Drainage and Utility Easement (correct legal description on existing easement)
2. Amended Development Agreement
3. Amended Easement Agreement
4. Metropolitan Council Livable Communities Sub-Grant Agreement

Notification:

Notification is not required to approve these agreements.

Observations/Alternatives:

Reciprocal Driveway and Drainage and Utility Easement

This case is a "house-cleaning" item. An error occurred when an original "Reciprocal Driveway and Drainage and Utility Easement" was recorded for The Residence at The COR project (it also encumbered Outlot A, COR ONE, where Sunwood Village will be located). Specifically, an incorrect legal description of an easement. As part of the development adjacent to The Residence at The COR, Sunwood Village (Common Bond), title work/ research was completed. As part of that due diligence process, said error in the original easement was found. The amendment attached to this case is purely an administrative correction. It does not change the intent of the original easement in any way; and it does not negatively affect the City in any way. The City Attorney has reviewed this amendment.

Amended Development Agreement

CommonBond Communities has requested several revisions to the Development Agreement for the Sunwood Village project. The City Council approved the Plat, Site Plan and Development Agreement for Sunwood Village on May 12, 2015. The most significant requested revisions are:

1. Replace CommonBond Communities with CB Ramsey Housing Limited Partnership as the Permittee (CB Ramsey Housing Limited Partnership will be the owner of the Subject Property upon successfully closing on the land transaction with the City).
2. Extend the completion date out from May 12, 2016 to December 31, 2016.
3. Include a provision/mechanism to issue the Building Permit for the project prior to recording of the Plat.

Staff has reviewed the requested revisions and finds them to be reasonable. It is not uncommon for a limited partnership to be formed to act as property owner and identifying that partnership as the Permittee is acceptable. Per City Code, a developer shall complete all required improvements within twelve (12) months of the date of City Council approval of the Site Plan unless otherwise approved by City Council. Due to the delay in construction after obtaining the necessary approvals, extending the completion date out to December 31, 2016 appears reasonable. Finally, the Subject Property is currently owned by the City. Thus, the Building Permit could be issued (upon receipt of payment of the permit fee) and held in escrow with the title company until the closing on the land transaction. It is at that time that all Development Fees would be paid by the Permittee and the Plat of Sunwood Village would be recorded. This provides reasonable protection to the City to ensure that all required Development Fees are paid prior to releasing the Building Permit from escrow to the Permittee.

Easement Agreement (Sidewalk)

A portion of the public sidewalk along both Sunwood Drive and Veterans Drive will slightly encroach on the Subject Property. An Easement Agreement has been drafted to ensure public use of the sidewalks. The Easement Agreement would be recorded as part of the closing on the property. The width of both sidewalks was necessary to match the widths of existing sidewalk east of the Subject Property. As part of the Site Plan review for Sunwood Village, Staff had worked with the Applicant to ensure the new sidewalk would match that of the existing sidewalks with the understanding that an Easement Agreement would be necessary to address the encroachment on the Subject Property. The Easement Agreement has been reviewed by the City Attorney and has been found to be sufficient.

Metropolitan Council Livable Communities Sub-Grant Agreement

The project was awarded two (2) grants from the Metropolitan Council through its Livable Communities Account (LCA) for a total of $780,000. The structure of LCA funds is an agreement/relationship between the City and the Metropolitan Council. The Metropolitan Council LCA does not distribute funds directly to the Developer. Therefore, CommonBond Communities is requesting a Sub-Grant Agreement that it has used on other LCA projects. The intent of the agreement is to outline the process for distributing funds on a reimbursement basis, as required by LCA. The benefit to the Developer is assurances that funds will be properly disbursed in a timely fashion. The benefit to the City is to ensure that the Developer constructs the project in line with the approved LCA grants and eligible costs are incurred. The agreement has been reviewed by the City Attorney and has been found to be appropriate as to legal form.

Funding Source:

NA

Recommendation:

Staff recommends that the City Council adopt Resolution #15-07-177 granting approval to the following agreements for Sunwood Village.

1. Amended Reciprocal Driveway and Drainage and Utility Easement (correct legal description on existing easement)
2. Amended Development Agreement
3. Sidewalk Easement Agreement
4. Metropolitan Council Livable Communities Sub-Grant Agreement

Action:

Motion to adopt Resolution #15-07-177 granting approval to the following agreements for Sunwood Village, subject to the review by the City Attorney as to legal form.

1. Reciprocal Driveway and Drainage and Utility Easement (correct legal description on existing easement)
2. Amended Development Agreement
3. Sidewalk Easement Agreement
4. Metropolitan Council Livable Communities Sub-Grant Agreement

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Attachments

Site Location Map

Original Driveway and Drainage and Utility Easement

Amendment to Driveway Drainage and Utility Easement

Proposed Development Agreement

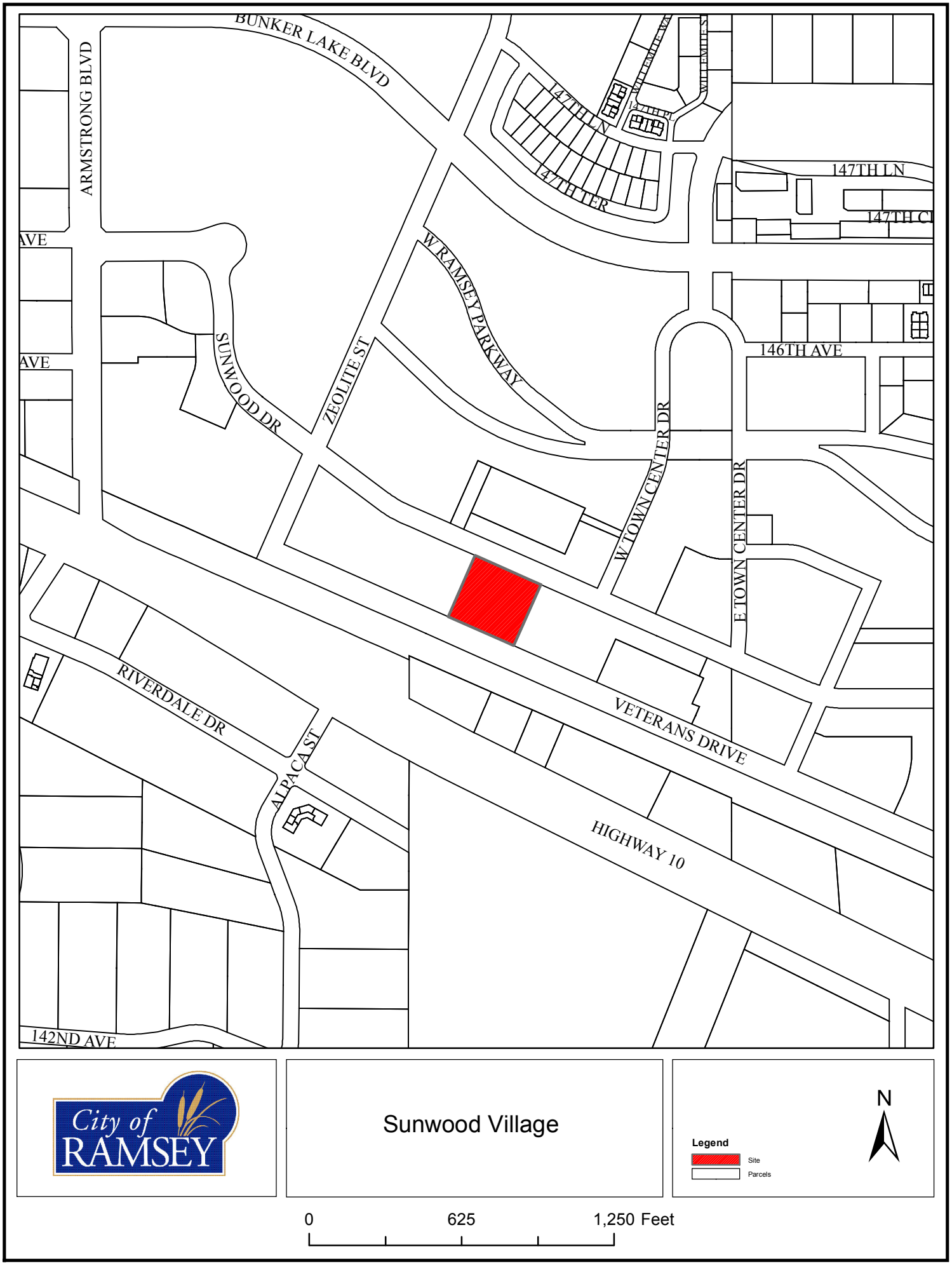
Sidewalk Easement Agreement

Sub-Grant Agreement for Metropolitan Council LCA Funds

Resolution #15-07-177

Form Review

Inbox	Reviewed By	Date
Chris Anderson	Chris Anderson	07/10/2015 10:26 AM
Patrick Brama	Patrick Brama	07/20/2015 02:42 PM
Tim Gladhill	Tim Gladhill	07/22/2015 10:53 AM
Patrick Brama	Patrick Brama	07/23/2015 09:50 AM
Kurt Ulrich	Kurt Ulrich	07/23/2015 10:39 AM
Form Started By: Patrick Brama		Started On: 07/07/2015 05:12 PM
Final Approval Date: 08/14/2015		


BUNKER LAKE BLVD
ARMSTRONG BLVD
147TH LN
147TH TER
147TH LN
147TH CT
W RAMSEY PARKWAY
SUNWOOD DR
ZEOLITE ST
146TH AVE
W TOWN CENTER DR
E TOWN CENTER DR
RIVERDALE DR
ALPACA ST
VETERANS DRIVE
HIGHWAY 10
142ND AVE
City of RAMSEY
Sunwood Village
Legend
Site
Parcels
N
0
625
1,250 Feet

Record ID 2491130

508341.013

DECLARATION OF RECIPROCAL DRIVEWAY EASEMENTS AND DRAINAGE AND UTILITY EASEMENTS

1. **Declarant**. The Housing and Redevelopment Authority in and for the City of Ramsey, a body politic and corporate under the laws of the state of Minnesota (the "HRA") makes this Declaration of Reciprocal Driveway Easements and Drainage and Utility Easements (this "Declaration") as of the date set forth in Section 2 below.

2. **Effective Date**. This Declaration is effective as of the 30th day of April, 2012.

3. **Recitals**.

3.1 Recital One. The HRA is the owner of the real property legally described as Lot 3, Block 1, COR ONE, Anoka County, Minnesota ("Lot 3") and the real property legally described as Outlot A, COR ONE, Anoka County, Minnesota ("Outlot A").

3.2 Recital Two. The HRA desires to create a reciprocal easements for driveway over and across portions of Lot 3 and Outlot A to establish common access points between those parcels and Veterans Drive (f/k/a Civic Center Drive), a dedicated public right-of-way located southwesterly of Lot 3 and Outlot A and between these parcels and Sunwood Drive, a dedicated public right-of-way located northeasterly of Lot 3 and Outlot A.

3.3 Recital Three. In addition, the HRA desires to create two easements for drainage and utility purposes over portions of Lot 3 for the benefit of Outlot A.

4. **Declaration of Reciprocal Access Easements**. The HRA hereby declares perpetual, non-exclusive, appurtenant easements over, under and across the portions of Lot 3 legally described on the attached **Exhibit A-1** and depicted on the attached **Exhibit A-2** (the "Lot 3 Easement Areas") for the construction, use, maintenance, repair and replacement of a driveway and the use such driveway by the owner of Outlot A and its employees, agents, contractors, tenants and invitees. These easements are appurtenant to Outlot A. The HRA also hereby declares perpetual, non-exclusive, appurtenant easements over, under and across the portions of Outlot A legally described on the attached **Exhibit B-1** and depicted on the attached

Commercial Partners Title, LLC
200 South Sixth Street
Suite 1300
Minneapolis, MN 55402
33274 DH (D)

Exhibit B-2 (the "Outlot A Easement Areas") for the construction, use, maintenance, repair and replacement of a driveway and the use of such driveway by the owner of Lot 3 and its employees, agents, contractors, tenants and invitees. This easement is appurtenant to Lot 3. The Lot 3 Easement Areas and the Outlot A Easement Areas are referred to herein, collectively, as the "Driveway Easement Areas."

5. **Drainage and Utility Easements**. The HRA hereby declares perpetual, non-exclusive, easements over, under and across the portions of Lot 3 legally described on the attached **Exhibit C-1** and depicted on the attached **Exhibit C-2** (the "Drainage and Utility Easement Areas") for the construction, use, maintenance, repair and replacement of below grade drainage and utility lines, pipes and other improvements.

6. **Construction of Driveway Improvements**. If the owner of Lot 3 constructs driveways on the Outlot A Easement Areas in connection with the development of Lot 3 or if the owner of Outlot A constructs driveways on the Lot 3 Easement Areas in connection with the development of Outlot A, they must do so at their sole cost and expense and they are not entitled to any reimbursement for such construction costs from the owner of the other parcel.

7. **Maintenance, Repair and Replacement of the Driveway Improvements**. The owner of Lot 3 must, at its sole cost and expense, maintain, repair and, as necessary, replace any driveway improvements constructed within the Lot 3 Easement Areas, and the owner of Outlot A must, at its sole cost and expense, maintain, repair and, as necessary, replace any driveway improvements constructed within the Outlot A Easement Areas; provided, however, neither owner is obligated to maintain, repair or replace any driveway improvements located on its property until such time as a certificate of occupancy has been issued for improvements constructed on its property. For purposes of this Section 7, maintenance includes snow removal. Notwithstanding the forgoing, the owners of Lot 3 and Outlot A may subsequently agree to jointly contract for the maintenance, repair and, as necessary, replacement of any driveway improvements constructed within the Driveway Easement Areas and to allocate the costs of such maintenance, repair and, as necessary, replacement in any manner they deem appropriate. If either the owner of Lot 3 or Outlot A fails to reasonably maintenance, repair or, as necessary, replace any driveway improvements constructed within its property as required hereunder, the other parcel owner may, after thirty (30) days written notice and the failure of the non-performing owner to perform its obligations under this Section 7, undertake such maintenance, repair and, as necessary, replacement work within the easement as it deems necessary and appropriate, but such work shall be undertaken at the performing owner's sole cost and expense.

8. **Indemnifications and Obligation to Repair**. The owner of Lot 3 and the owner of Outlot A must each indemnify and defend the other parcel owner against and hold the other parcel owner harmless from, any third party claims, including, but not limited to, mechanics liens claims, arising out of or relating to any construction, maintenance, repair or replacement work performed by or at the request of the indemnifying party within the Driveway Easement Areas. The owner of Outlot A must indemnify and defend the owner of Lot 3 against and hold the owner of Lot 3 harmless from, any third party claims, including, but not limited to, mechanics liens claims, arising out of or relating to any construction, maintenance, repair or replacement work performed by or at the request of the owner of Outlot A within the Drainage and Utility Easement Areas. Notwithstanding the provisions of Section 7, each owner is solely responsible

for the cost of repairing or, if necessary, replacing any improvements within the Driveway Easement Areas that each owner or its respective employees, agents, contractors, tenants or invitees damage.

9. **Enforcement**. The owners of all or any portion of Lot 3 or of all or any portion of Outlot A may enforce the terms of this Declaration in a legal or equitable action brought in a court of competent jurisdiction, and the prevailing party in any such action is entitled to recover from the opposing party the prevailing parties attorney's fees and costs.

10. **Run With Title**. The benefits and burdens of the covenants and easements set forth in this Declaration run with title to Lot 3 and to Outlot A and inure to the benefit of and are binding upon the owners of Lot 3 and Outlot A and their successors in title to all or any portions of Lot 3 and Outlot A.

[Signature page follows.]

IN WITNESS WHEREOF, the parties hereto have executed this Declaration of Easement on the date set forth in Section 2 above.

THE HOUSING AND REDEVELOPMENT AUTHORITY IN AND FOR THE CITY OF RAMSEY, MINNESOTA,
a body politic incorporate under the laws of the State of Minnesota

By: _____
Name: Colin McGlone
Its: Chairperson

By: _____
Name: Kurtis Ulrich
Its: Executive Director

STATE OF MINNESOTA)
) ss.
COUNTY OF ANOKA)

The foregoing instrument was acknowledged before me on this 27th day of April, 2012, by Colin McGlone and Kurtis Ulrich the Chairperson and Executive Director of The Housing and Redevelopment Authority in and for the City of Ramsey, Minnesota on behalf of the authority.

JOANN E SHAW
Notary Public
Minnesota
My Commission Expires January 31, 2015

_____
Signature of Notary Public

DRAFTED BY AND WHEN
RECORDED RETURN TO:

Briggs and Morgan, P.A. (TLB)
2200 IDS Center
80 South 8th Street
Minneapolis, MN 55402
(612) 977-8400

EXHIBIT A-1

Should be "westerly"

Legal Description of the Lot 3 Easement Areas

THE WESTERLY 13.00 FEET OF THE NORTHERLY 40.00 FEET AND THE EASTERLY 13.00 FEET OF THE SOUTHERLY 50.00 FEET OF LOT 3, BLOCK 1, COR ONE, ANOKA COUNTY, MINNESOTA.

EXHIBIT A-2

Depiction of the Lot 3 Easement Areas

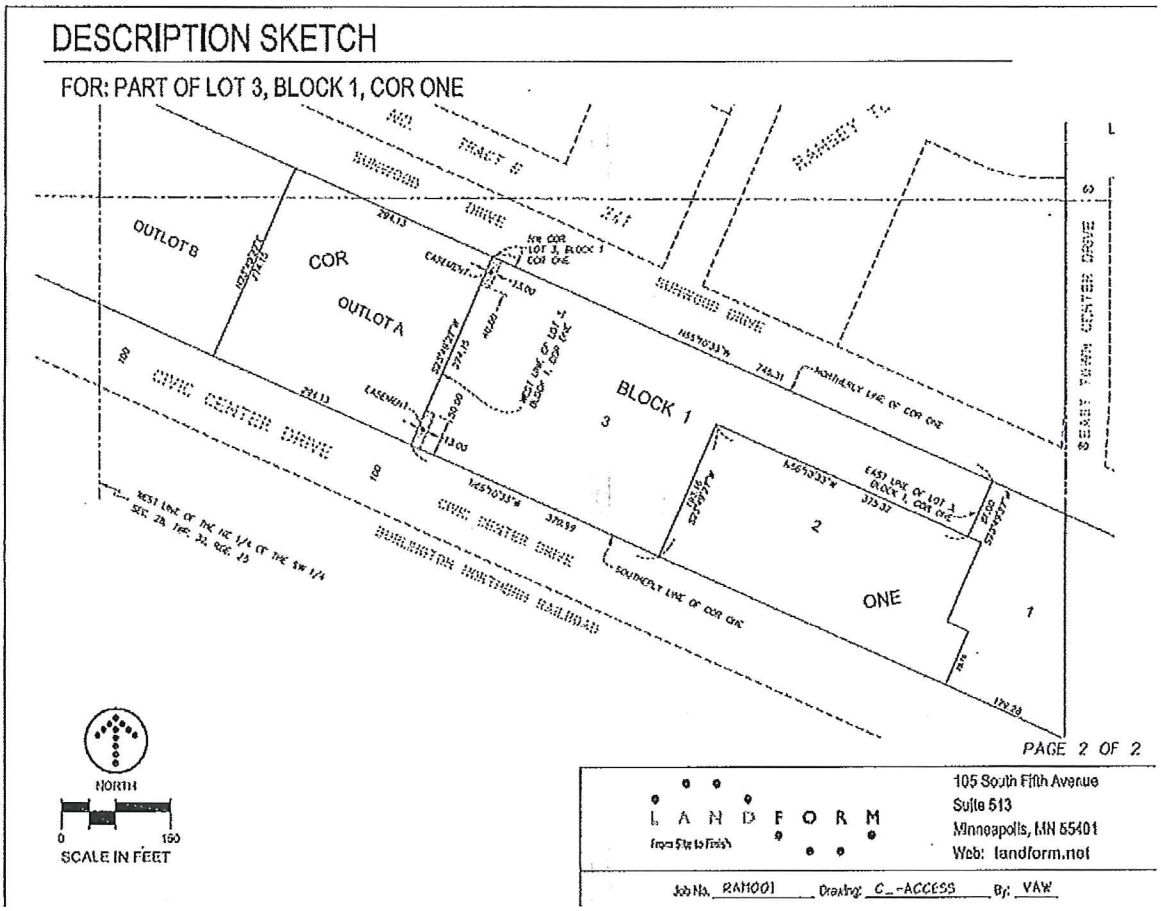


EXHIBIT B-1

Legal Description of the Outlot A Easement Areas

THE EASTERLY 13.00 FEET OF THE NORTHERLY 40.00 FEET AND THE EASTERLY 13.00 FEET OF THE SOUTHERLY 50.00 OF OUTLOT A, COR ONE, ANOKA COUNTY, MINNESOTA.

EXHIBIT B-2

Depiction of the Outlot A Easement Areas

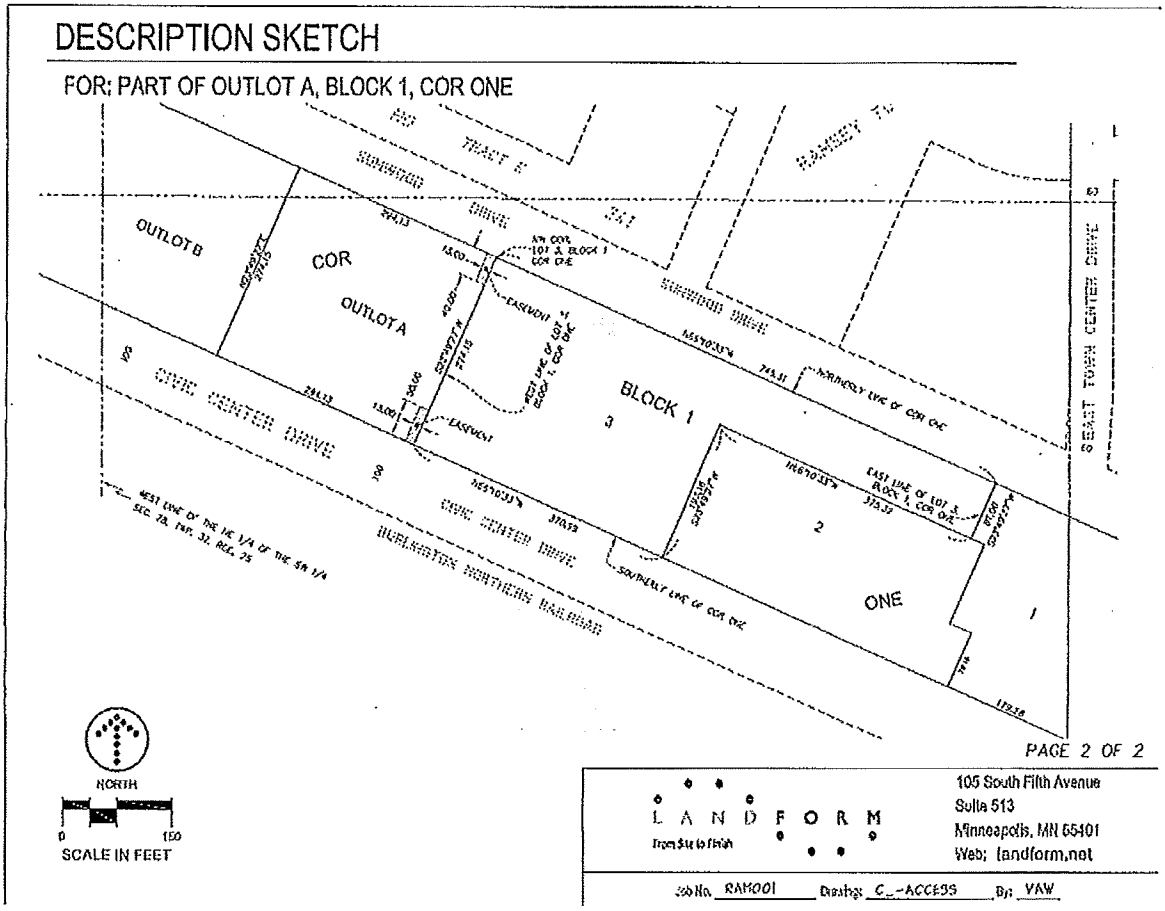


EXHIBIT C-1

Legal Description of the Drainage and Utility Easement Areas

EASEMENT 1

A 10.00 FOOT WIDE EASEMENT OVER, UNDER AND ACROSS LOT 3, BLOCK 1, COR ONE, ANOKA COUNTY, MINNESOTA, THE CENTERLINE OF SAID EASEMENT IS DESCRIBED AS FOLLOWS:

> COMMENCING AT THE NORTHWEST CORNER OF SAID LOT 3; THENCE SOUTH 66 DEGREES 10 MINUTES 33 SECONDS EAST, ASSUMED BEARING, ALONG THE NORTHERLY LINE OF SAID COR ONE, A DISTANCE OF 39.86 FEET TO THE POINT OF BEGINNING OF THE CENTERLINE TO BE DESCRIBED; THENCE SOUTH 23 DEGREES 49 MINUTES 27 SECONDS WEST, A DISTANCE OF 30.95 FEET; THENCE SOUTH 67 DEGREES 51 MINUTES 30 SECONDS WEST, A DISTANCE OF 50.18 FEET; THENCE NORTH 65 DEGREES 43 MINUTES 13 SECONDS WEST, A DISTANCE OF 4.98 FEET TO THE WEST LINE OF SAID LOT 3 AND THERE TERMINATING.

THE SIDELINES OF SAID EASEMENT ARE TO BE PROLONGED OR SHORTENED TO TERMINATE ON THE NORTH AND WEST LINES OF SAID LOT 3.

EASEMENT 2

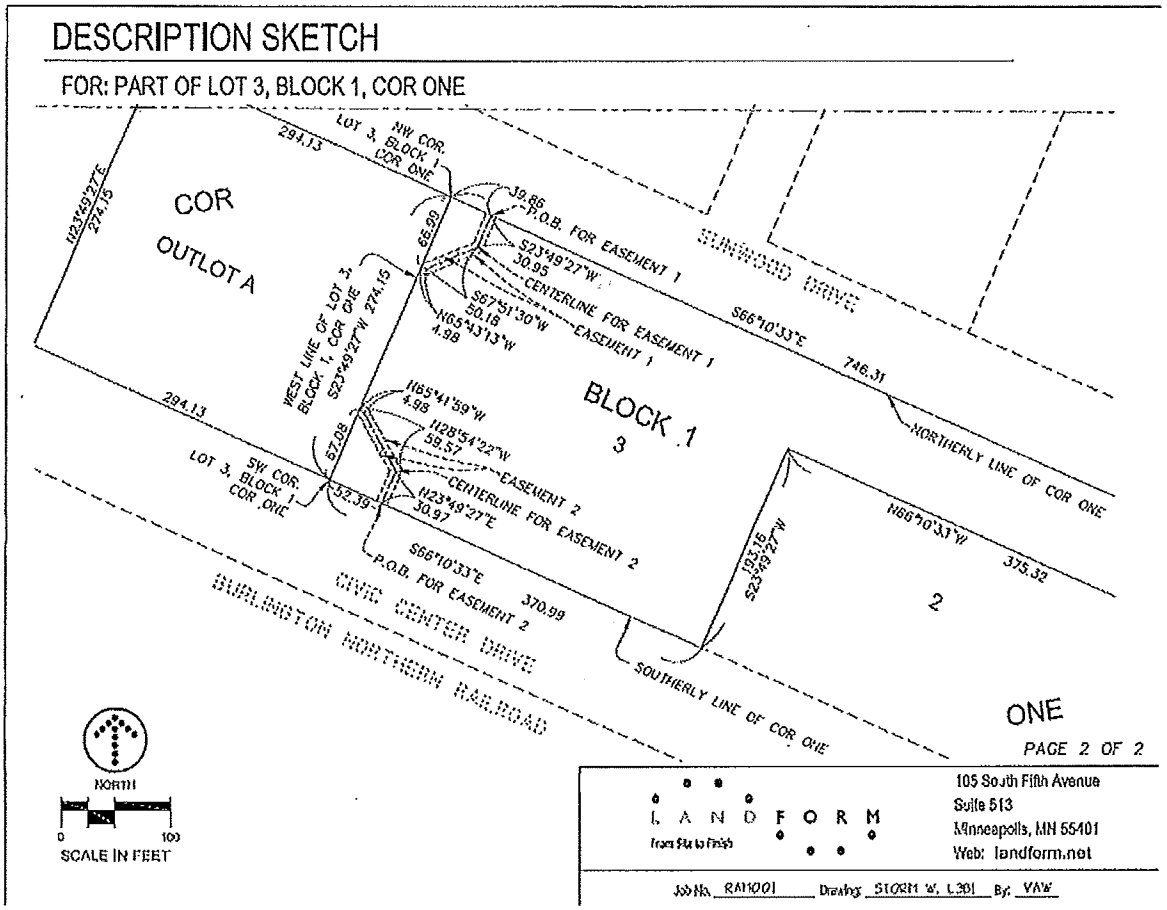
A 10.00 FOOT WIDE EASEMENT OVER, UNDER AND ACROSS LOT 3, BLOCK 1, COR ONE, ANOKA COUNTY, MINNESOTA, THE CENTERLINE OF SAID EASEMENT IS DESCRIBED AS FOLLOWS:

> COMMENCING AT THE SOUTHWEST CORNER OF SAID LOT 3; THENCE SOUTH 66 DEGREES 10 MINUTES 33 SECONDS EAST, ASSUMED BEARING, ALONG THE NORTHERLY LINE OF SAID COR ONE, A DISTANCE OF 52.39 FEET TO THE POINT OF BEGINNING OF THE CENTERLINE TO BE DESCRIBED; THENCE NORTH 23 DEGREES 49 MINUTES 27 SECONDS EAST, A DISTANCE OF 30.97 FEET; THENCE NORTH 28 DEGREES 54 MINUTES 22 SECONDS WEST, A DISTANCE OF 59.57 FEET; THENCE NORTH 65 DEGREES 41 MINUTES 59 SECONDS WEST, A DISTANCE OF 4.98 FEET TO THE WEST LINE OF SAID LOT 3 AND THERE TERMINATING SAID CENTERLINE.

THE SIDE LINES OF SAID EASEMENT ARE TO BE PROLONGED OR SHORTENED TO TERMINATE ON THE SOUTH AND WEST LINES OF SAID LOT 3.

EXHIBIT C-2

Depiction of the Drainage and Utility Easement Areas



ANOKA COUNTY MINNESOTA

Document No.: 508341.013 TORRENS

I hereby certify that the within instrument was filed in this office for record on: 05/03/2012 3:14:00 PM

Fees/Taxes In the Amount of: $46.00

LARRY W. DALIEN

Anoka County Property Tax

Administrator/Recorder/Registrar of Titles

CGT, Deputy

Record ID: 2491130 / GKE

Commercial Partners Title, LLC
200 South Sixth Street
Suite 1300
Minneapolis, MN 55402

AMENDMENT TO
DECLARATION OF RECIPROCAL DRIVEWAY EASEMENTS
AND DRAINAGE AND UTILITY EASEMENTS

THIS AMENDMENT TO DECLARATION OF RECIPROCAL DRIVEWAY EASEMENTS AND DRAINAGE AND UTILITY EASEMENTS (this "Amendment") is dated as of _____, 2015 by and between the City of Ramsey, Minnesota (the "City") and the Residence at the COR Apartments LLC, a Minnesota limited liability company (the "Lot 3 Owner").

WHEREAS, the Housing and Redevelopment Authority for the City of Ramsey, a Minnesota municipal corporation (the "HRA"), executed that certain Declaration of Reciprocal Driveway Easements and Drainage and Utility Easements (the "Original Easement") dated April 30, 2012, which was filed for record in the Office of the Anoka County Registrar of Titles on May 3, 2012, as Document No. 508341.013 against the real property described on Exhibit A hereto ("Lot 3") and the real property described on Exhibit B hereto ("Outlot A"); and

WHEREAS, the HRA subsequently conveyed Lot 3 to the Lot 3 Owner; and

WHEREAS, the City subsequently undertook the statutory process to dissolve the HRA and, as part of the dissolution process, the HRA transferred all of its real estate holdings, including, but not limited to Outlot A, to the City; and

WHEREAS, the legal description of the "Lot 3 Easement Areas," as such term is defined in the Original Easement, contains a scrivener's error, and the City and the Lot 3 Owner now desire to correct such error.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto desire to amend the Original Easement as follows:

1. The term "Lot 3 Easement Areas" as set forth in the Original Easement is amended and restated in its entirety as set forth on Exhibit C attached hereto.

2. Except as explicitly amended hereby, the remaining terms and conditions of the Original Easement shall remain in full force and effect.

[*The remainder of this page has been left blank intentionally*.]

IN WITNESS WHEREOF, the undersigned have executed this Amendment as of the date first above written.

CITY:

CITY OF RAMSEY, MINNESOTA

_____

By: Sarah Strommen
Its: Mayor

_____

By: Kurt Ulrich
Its: City Administrator

STATE OF MINNESOTA)
)ss.
COUNTY OF ANOKA)

The foregoing instrument was acknowledged before me on _____, 2015, by Sarah Strommen, Mayor, and Kurt Ulrich, City Administrator, of the City of Ramsey, Minnesota, on behalf of such city.

_____

Notary Public

LOT 3 OWNER:

RESIDENCE AT THE COR APARTMENTS LLC

_____
By: _____
Its: _____

STATE OF MINNESOTA)
) SS
COUNTY OF _____)

The foregoing instrument was acknowledged before me on _____, 2015, by _____, the _____ of Residence at the COR Apartments LLC, a Minnesota limited liability company, on behalf of such limited liability company.

_____
Notary Public

THIS INSTRUMENT WAS DRAFTED BY:
_____
_____
_____

EXHIBIT A

Lot 3 Legal Description

Lot 3, Block 1, COR ONE, Anoka County, Minnesota.

EXHIBIT B

Outlot A Legal Description

Outlot A, COR ONE, Anoka County, Minnesota.

EXHIBIT C

Legal Description of the Lot 3 Easement Areas

The westerly 13.00 feet of the northerly 40.00 feet and the westerly 13.00 feet of the southerly 50.00 feet of Lot 3, Block 1, COR ONE, Anoka County, Minnesota.

10502645v3

SUNWOOD VILLAGE
DEVELOPMENT AGREEMENT
CITY OF RAMSEY, ANOKA COUNTY, MINNESOTA

THIS DEVELOPMENT AGREEMENT, is made and entered into by and between the **CITY OF RAMSEY,** a municipal corporation under the laws of the State of Minnesota (the **"City"**), and **COMMONBOND COMMUNITIES,** non-profit corporation under the laws of the State of Minnesota, whose address is 1080 Montreal Avenue, St. Paul, MN 55116 (the **"Permittee"**).

WITNESSETH:

WHEREAS, the **Permittee** is the fee owner of the following described property situated in the **CITY OF RAMSEY**, County of Anoka, State of Minnesota, and legally described as follows:

Lot 1, Block 1, Sunwood Village, Anoka County, Minnesota

(the "**Subject Property**"); and

WHEREAS, on May 12, 2015, the **City** approved the final plat of the **Subject Property** for SUNWOOD VILLAGE (the "**Plat**"),

WHEREAS, on May 12, 2015, the **City** approved the final site plan for Sunwood Village on the **Subject Property**; and

WHEREAS, the **Permittee** intends to cause the Required Improvements to the **Subject Property** to be constructed without financial participation by the **City.**

NOW, THEREFORE, the **City** and **Permittee** agree as follows:

SECTION I
REQUIRED IMPROVEMENTS AND FINANCIAL RESPONSIBILITIES

1. **City Code Compliance.** The **City** approves the **Site Plan** conditioned on the **Permittee** developing the **Subject Property** in accordance with the applicable provisions of City Code and with the required revisions identified in the Staff Review Letter dated May 8, 2015**.**

2. **Conformance with Plan**. The **Site Plan** shall be developed pursuant to the plans consisting of Site Plan, Landscaping Plan, Grading and Drainage, Erosion Control, Utility, Storm Sewer, Lighting, Floor Plans, and Building Elevations for Sunwood Village prepared by Miller Hanson Partners and Loucks Associates, dated May 22, 2015, revised June 19, 2015.

3. **Incorporation of All City Code Requirements**. That the recitals above and the applicable provisions of the City Charter, Subdivision Code, Zoning Code and Public Improvement Code of the **City**, as amended to date hereof, are incorporated herein by reference.

4. **State Building Code Compliance**. The structures on the **Subject Property** shall be constructed in accordance with the requirements of the Building Code.

5. **Fire Lanes.** Fire lanes shall be maintained on the **Subject Property**. The exact locations of these items on the **Subject Property** shall be as directed by the Fire Chief or his/her designee. The

Permittee herein agrees to post "No Parking" signs along private streets in accordance with City Code requirements and in conjunction with the instructions of the Fire Chief or his/her designee.

6. **Building Façade.** The **Permittee** agrees to construct the building on the **Subject Property** in accordance with the site plan and architectural elevations prepared by Miller Hanson Partners and Loucks Associates, dated April 27, 2015, revised May 22, 2015, and approved by the City Council on May 12, 2015 contingent upon compliance with the Staff Review Letter dated May 8, 2015.

7. **Required Improvements.** The **Permittee** shall construct and install the following site improvements on and adjacent to the **Subject Property** in accordance with the specifications and location as shown on the **Site Plan.** The Required Improvements are as follows:

   a. Site grading in accordance with the Grading Plan prepared by Miller Hanson Partners and Loucks Associates and dated April 27, 2015, revised June 19, 2015.
   b. Private storm sewer and appurtenances.
   c. Private sanitary sewer system
   d. Private watermains and appurtenances
   e. Private trunk and lateral storm drainage facilities
   f. Bituminous driveways, parking lots, and maneuvering areas.
   g. Public and private sidewalks in accordance with the Site Plan prepared by Miller Hanson Partners and Loucks Associates and dated April 27, 2015, revised June 19, 2015.
   h. Continuous, B6/12 concrete curbing and gutter around the perimeter of all bituminous surfaces.
   i. Installation of Landscaping in accordance with the Landscape Plan prepared by Miller Hanson Partners and Loucks Associates and dated April 27, 2015, revised May 22, 2015.
   j. Irrigation metering and backflow devices shall be approved as part of the Utility Plan, and installed accordingly.
   k. Irrigation rain sensors shall be installed and appropriately placed throughout the development.
   l. Establishment of turf in areas disturbed during construction and in accordance with the Plat.
   m. Temporary and permanent erosion control
   n. Installation of survey monumentation (if not already completed).

   ("Required Improvements)".

   The **Permittee** agrees to construct the Required Improvements according to the terms and conditions of this agreement and in accordance with **Permittee's** plans submitted to the **City.**

8. **Required Improvements Completion Date**. The Required Improvements shall be completed on or before May 12, 2016.

9. **Required Improvements Financial Guarantee**. In order to ensure the installation of the Required Improvements in accordance with **City** specifications and in a timely manner, the **Permittee** shall be required to deposit with the **City** a cash escrow or letter of credit, approved as to form by the **City**, in the amount of Three Hundred Eighty Eight Thousand Two Hundred Sixteen Dollars and No Cents. (**$**388,216.00), which is 150% of the City's estimated cost of the Required Improvements. Prior to the issuance of the building permit, all financial guarantees must be provided as required herein.

   Upon completion of the construction of the Required Improvements, the financial guarantee shall be returned to the **Permittee** as soon as reasonably possible and the **Permittee** shall be required to provide the landscaping maintenance guarantee described in Paragraph 13 of this **Development Agreement**. The determination of completion of the construction of the Required Improvements shall be made by the **City**. In the event the **Permittee** fails to construct and install the Required Improvements as

required herein, within the timeframe provided herein, the City Council may order the completion of the Required Improvements with **City** day labor and/or by letting contracts for said completion and draw upon the escrow for payment. Only the City Council shall have the authority to direct completion of the Required Improvements and withdraw from the escrow account. The **Permittee** hereby grants permission and a license to the **City** and/or its contractors and assigns to enter upon the Site for the purpose of completing the construction and installation of the Required Improvements in the event of the **Permittee's** default.

10. **Inspection Fees.** The **Permittee** shall be responsible for all inspection costs incurred by the **City** related to the installation of Required Improvements. The **Permittee** shall make a cash deposit into the appropriate escrow account at the **City** and the **City** shall have the authority to draw upon these funds for the purpose of compensating for inspection services. The amount of the deposit shall be equal to five percent (5%) of the estimated cost of the Required Improvements, which equates to Twelve Thousand Nine Hundred Forty Dollars and No Cents ($12,940.00) (5% x $258,811). Upon completion of the Required Improvements to the satisfaction of the **City**, any surplus balance remaining in the **City's** escrow account shall be promptly refunded to the **Permittee**.

11. **Payment of Development Fees**. The **Permittee** must pay to the **City** the fees described on Exhibit A which may include, but are not limited to, Park Land Dedication Fees, Trail Development Fees, Sanitary Sewer Connection (Trunk) Fees, Water Connection (Trunk) Fees, Sanitary Sewer Lateral Fees, Water Lateral Fees, Stormwater Management Fees, Street Light as well as Street Light Operation and Maintenance Fees.

SECTION II
PERMITS AND OCCUPANCY

12. **Requirements for Building Permits**. No building permit for any lot on the **Subject Property** shall be issued until: (a) a Class 5 driving surface is installed to within 300 feet of the structure; (b) site plan approval is granted by the **City** and any expense incurred in giving site plan approval has been reimbursed to the **City**; (c) the Building Official has been provided with a copy of the approved **Site Plan**, signed by a registered architect or surveyor, showing all dimensions to scale; (d) the **Plat** has been recorded at Anoka County Property Records, (e) a Lower Rum River Watershed Management Organization Permit has been obtained. In addition, the **City** reserves the right to suspend all building activities upon the **City** being notified by an outside agency that the appropriate permit(s) was not obtained from the applicable agency. Approval of the building foundation requires a certificate of elevation signed by a licensed (State of Minnesota), professional land surveyor, verifying that the elevation with the approved grading plan for the Subject Property. Foundation approvals will require a certificate of elevation verifying that the actual elevation is in compliance with the approved grading and drainage plan. The lowest floor elevation shall be at least 2 feet above the 100 year elevation.

    No occupancy permit for any lot in the **Subject Property** shall be issued until: (a) vehicular access to the **Subject Property** is provided including the installation of at least one layer of bituminous surfacing; (b) all utilities are in place, operational and accepted by the **City**; (c) if slope of less than 2%, a certificate of grading, prepared by a licensed (State of Minnesota), professional land surveyor, must be provided to the **City** documenting that the flattest grade on this lot is 1% or greater.

SECTION III

LANDSCAPING

13. **Maintenance Guarantee for Landscaping**. It is herein agreed that the **Permittee** shall provide a maintenance guarantee to ensure the survival of the plantings for the **Subject Property**, in accordance with the Landscape Plan prepared by Miller Hanson Partners and Loucks Associates dated April 27, 2015, revised May 22, 2015. Said maintenance guarantee shall consist of cash or a letter of credit, approved as to form by the **City**, in the amount of Six Thousand Six Hundred and Sixty Dollars and No Cents **($6,660.00)** [# plantings (45 trees, 206 shrubs) x cost/planting ($150/tree, $75/shrub) x 30% average non-survival rate], which shall be in effect for a two-year period commencing on the date of the **City's** acceptance of said plantings as part of the Required Improvements.

    At the end of the two-year period, the maintenance guarantee shall be returned to the **Permittee**. The determination that all plantings that have been planted in accordance with the **Site Plan** have either survived or have been replaced shall be made by the Community Development Department of the **City**. In the event the **Permittee** fails to maintain the required plantings for a two-year period, the City Council may order the replacement of plantings with **City** day labor and/or by letting contracts and draw upon the escrow for payment. Only the City Council shall have the authority to direct replacement of the plantings and withdraw from the escrow account. The **Permittee** hereby grants permission and a license to the **City** and/or its contractors and assigns to enter upon the **Subject Property** for the purpose of replacing plantings in the event of the **Permittee** default.

SECTION IV
GENERAL

14. **Boulevard and Area Restoration**. The **Permittee** shall be responsible for restoring all areas disturbed by the development grading operation in accordance with the approved erosion and sediment control plan. The **Permittee** shall also be responsible for the cost of cleaning any soil, earth or debris from the wetlands within and adjacent to this **Site Plan** resulting from grading or other construction performed in the development of the land.

15. **Construction Site Maintenance**. The **Permittee** shall adhere to all **City** ordinances relating to, but not limited to, dumping of garbage, site development, construction debris, open burning, etc.

16. **Estimated Cost**. It is understood and agreed that cost amounts set forth in this **Development Agreement** as Required Improvements, unless specified as fixed amounts, are estimated. The **Permittee** agrees to pay the entire cost of said improvements including interest, engineering and legal charges.

17. **Site Plan Approval Expenses**. The **Permittee** agrees that it will pay to the **City** all **City** expenses incurred in the approval of the **Site Plan**, including, but not limited to administration expenses, engineering and legal fees. Said expenses shall be paid within fifteen (15) days of billing by the **City** and outstanding billings shall be paid prior to issuance of the building permit. Any expenses incurred after the release of the building permit shall also be paid within said fifteen (15) day billing period. Failure to pay the **City's** expenses within the fifteen (15) day billing period will permit the **City** to draw upon any of the escrows required by this contract for payment.

18. **Reimbursement to the City**. The **Permittee** agrees to reimburse the **City** for all costs incurred by the **City** in defense or enforcement of this **Development Agreement**, or any portion thereof, including court costs and reasonable engineering and attorney's fees.

19. **Invalidity of Any Section**. If any portion, section, subsection, sentence, clause, paragraph or phase of this **Development Agreement** is for any reason held to be invalid by a court of competent jurisdiction, such decision shall not effect or void any of the other provisions of this **Development Agreement**.

20. **Proof of Authority**. When the **Permittee** is a corporation, the **City** requires proof of authority by the corporation to execute this **Development Agreement**.

21. **Violation of This Permit**. If the **Permittee** fails to perform any of the terms of this **Development Agreement** in the manner required by the **City**, the **City** shall be entitled to recover, from the **Permittee** or the issuer of **Permittee** financial guarantee, the full amount of any and all financial guarantees. Breach of any of the terms of this **Development Agreement** by the **Permittee** shall also be grounds for denial of Building Permit or issuance of Certificate of Occupancy.

22. **Agreement Binding On Successors and Assigns**. The **Permittee** agrees that this **Development Agreement** shall be binding upon its successors and assigns.

23. **Impacted Public Improvements**. The **Permittee** agrees to not damage or destroy any plant, tree, or other landscape material, such as irrigation systems, sidewalk panels, and curbing, throughout construction of the project. Furthermore, **Permittee** agrees to replace any damaged materials and restore any irrigation system to working order prior to issuance of the Certificate of Occupancy.

IN WITNESS THEREOF, the parties have hereunto set their hands and seals, this _____ day of _____, 2015.

COMMONBOND COMMUNITIES

By: _____

Its: _____

CITY OF RAMSEY

By: _____

Its: Mayor

ATTEST

By: _____

Its: City Clerk

STATE OF MINNESOTA)
) ss.
COUNTY OF ANOKA)

On this _____ day of _____, 2015, before me a Notary Public personally appeared Sarah Strommen and JoAnn M. Thieling, to me personally known, being each by me duly sworn did say that they are respectively the Mayor and City Clerk of the City of Ramsey, the municipal corporation named in the

foregoing instrument, and seal affixed to said instrument is the corporate seal of said municipal corporation, and the said instrument was signed and sealed on behalf of said municipal corporation by authority of its City Council and said Sarah Strommen and JoAnn M. Thieling acknowledge said instrument to be the free act and deed of said municipal corporation.

_____
Notary Public

STATE OF MINNESOTA)
) ss.
COUNTY OF)

The foregoing instrument was acknowledged before me this ____ day of _____, 2015, by _____, the _____ of CommonBond Communities, a non-profit corporation under the laws of the State of Minnesota, on behalf of the company.

_____
Notary Public

This document drafted by:
Cityof Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

This document reviewed by:
Ratwik, Roszak & Maloney, P.A.
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

EXHIBIT A

Fees Payable to the City

1. Park Dedication. The **PERMITTEE** is responsible for satisfying applicable Park Dedication requirements. The 2015 Park Dedication Fee applicable to the Plat is $2,210 per residential unit (when there is 20+ units per acre). **PERMITTEE** must pay a Park Dedication Fee of One Hundred Three Thousand Eight Hundred Seventy Dollars and No Cents ($2,210 x 47 units = **$103,870.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

2. Trail Development Fees. The **PERMITTEE** is responsible for satisfying applicable Trail Development Fee requirements. The 2015 Trail Development Fee applicable to the Plat is $700 per residential unit. **PERMITTEE** must pay a Trail Development Fee of Thirty Two Thousand Nine Hundred Dollars and No Cents ($700 x 47 units = **$32,900.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

3. Sanitary Sewer Connection (Trunk) Fees. The **PERMITTEE** is responsible for satisfying applicable Sanitary Sewer Trunk requirements. The 2015 Sanitary Sewer Trunk Fee applicable to the Plat is $1,126 per residential unit. The **PERMITTEE** must pay a Sanitary Sewer Trunk Fee of Fifty Two Thousand Nine Hundred Twenty Two Dollars and No Cents ($1,126 x 47 units = **$52,922.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

4. Water Connection (Trunk) Fees. The **PERMITTEE** is responsible for satisfying applicable Water Trunk requirements. The 2015 Sanitary Sewer Trunk Fee applicable to the Plat is $1,597 per residential unit. The **PERMITTEE** must pay a Water Trunk Fee of Seventy Five Thousand Fifty Nine Dollars and No Cents ($1,597 x 47 units = **$75,059.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

5. Sanitary Sewer Lateral Benefit Fees. The **PERMITTEE** is constructing its own lateral service lines; therefore no sanitary sewer lateral benefit fee is due.

6. Water Lateral Fees. The **PERMITTEE** is constructing its own lateral service lines; therefore no water lateral benefit fee is due.

7. Stormwater Management Fee. The **PERMITTEE** is responsible for satisfying applicable Stormwater Trunk Fee requirements. The 2015 Stormwater Management Fee $459 per residential unit. **PERMITTEE** must pay a Stormwater Management Fee of Twenty One Thousand Five Hundred Seventy Three Dollars and No Cents ($459 x 47 units = **$21,573.00**). The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

8. Street Light Fee. The **PERMITTEE** is responsible for a Street Light Fee of $2,600 per light. **PERMITTEE** must pay a Street Light Fee of Seven Thousand Eight Hundred Dollars and No

Cents ($2,600 x 3 lights = **$7,800.00**).The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

9. Street Light Operation and Maintenance Fee. The **PERMITTEE** is responsible for a Street Light Operation and Maintenance Fee of $294 per light. **PERMITTEE** must pay a Street Light Operation and Maintenance Fee of Eight Hundred Eighty Two Dollars and No Cents ($294 x 3 lights = **$882.00**).The **PERMITTEE** acknowledges that these fees are estimates. The rate in effect when the Plat is recorded will be collected.

EASEMENT AGREEMENT

THIS EASEMENT AGREEMENT (this "Agreement") is made this ____ day of _____, 2015, by and between CB Ramsey Housing Limited Partnership, a Minnesota limited partnership (the "Grantor") and the City of Ramsey, Minnesota (the "Grantee").

Recitals

A. Grantor is the fee owner of certain real estate (the "Property") in Anoka County, Minnesota, described as follows:

Lot 1, Block 1, Sunwood Village, Anoka County, Minnesota.

B. Grantee has requested a permanent easement over a portion the Property legally described and depicted on the attached Exhibit A (the "Easement Area") for a non-exclusive, perpetual easement for pedestrian purposes in connection with the sidewalks (the "Sidewalks"), part of which are located on the Easement Area, and Grantor has agreed to grant such easement to Grantee in accordance with the terms and conditions stated herein.

Grant of Easement

NOW, THEREFORE, in consideration of the covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Easement. Grantor hereby grants, bargains, and conveys to Grantee for the benefit of the public, a perpetual, non-exclusive, appurtenant easement for sidewalk purposes by pedestrians over and across the Easement Area (the "Easement").

2. Exclusivity and Restrictions. In accordance with the terms of this Agreement, Grantor may continue to use the Easement Area for any purpose which does not unreasonably interfere with the public's use of the Easement Area for sidewalk purposes. Grantor shall not grant any rights to the Easement Area to any other party during the term of this Easement which would interfere with or jeopardize the use of the Easement Area. The Easement is subject to any and all restrictions, covenants, easements, licenses, permits, leases and other encumbrances of record related to the Easement Area and all applicable laws, regulations, ordinances and rules.

3. Easement to Run with Land. The Easement created herein shall run with the land and be binding on all parties having any right, title or interest in the Property, their heirs, successors and assigns.

4. Amendment; Modification; Termination. This Agreement may not be modified, restated, amended, or changed in any way without the prior written consent of the Grantor and Grantee.

5. Counterparts. This Agreement may be executed in any number of counterparts, all of which shall constitute a single agreement, any one of which bearing signatures of all parties shall be deemed an original.

[*The remainder of this page has been left intentionally blank*]

IN WITNESS WHEREOF, the parties have executed Agreement as of the date first above written.

GRANTOR:

CB RAMSEY HOUSING LIMITED PARTNERSHIP,
a Minnesota limited partnership

By : CB Ramsey Housing LLC
Its : General Partner

By : _____
Ellen Higgins
Its Chief Manager

STATE OF MINNESOTA)
)ss.
COUNTY OF _____)

On this ____ day of _____, 2015, before me, a notary public, personally appeared Ellen Higgins, the Chief Manager of CB Ramsey Housing LLC, a Minnesota limited liability company, the general partner of CB Ramsey Housing Limited Partnership, a Minnesota limited partnership, named in the foregoing instrument and acknowledged said instrument on behalf of the limited partnership.

_____
Notary Public

GRANTEE:

CITY OF RAMSEY, MINNESOTA

By: _____
Name: Sarah Strommen
Its: Mayor

By: _____
Name: Kurt Ulrich
Its: City Administrator

STATE OF MINNESOTA)
)ss.
COUNTY OF _____)

On this ____ day of _____, 2015, before me, a notary public, personally appeared Sarah Strommen and Kurt Ulrich, the Mayor and City Administrator, respectively, of the City of Ramsey, Minnesota, named in the foregoing instrument and acknowledged said instrument on behalf of the city.

_____
Notary Public

Drafted by:
Winthrop & Weinstine, P.A.
225 South Sixth Street, Suite 3500
Minneapolis, MN 55402-4629

Reviewed by:
Ratwik, Roszak & Maloney, P.A.
730 Second Ave. S., Suite 300
Minneapolis, MN 55402

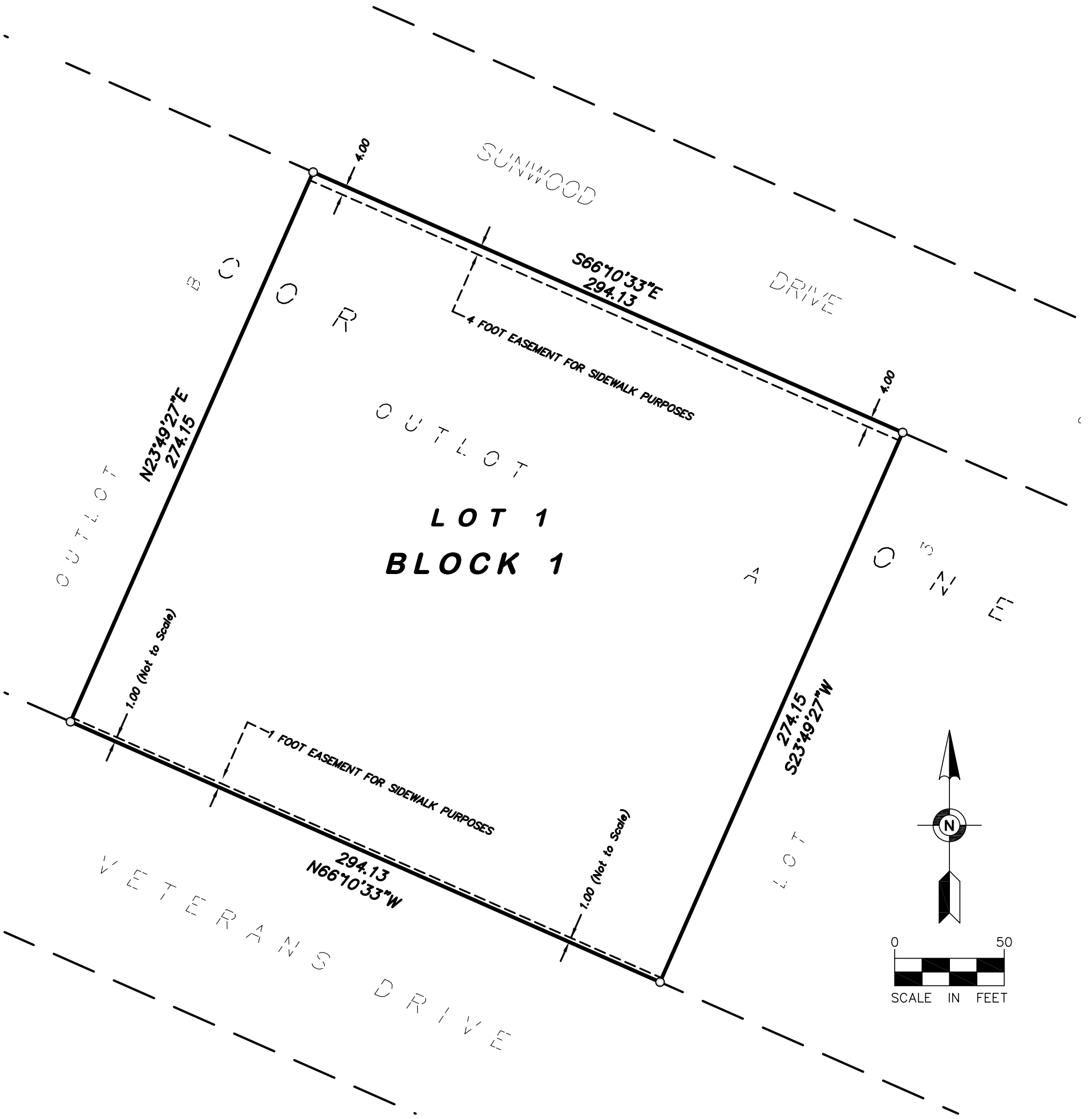
10560071v3

EXHIBIT A

DESCRIPTION AND DEPICTION OF EASEMENT AREA

(Attached)

EASEMENT EXHIBIT
FOR: COMMONBOND COMMUNITIES



EASEMENT DESCRIPTION:

An easement for sidewalk purposes over and across the northeasterly 4.00 feet and the southwesterly 1.00 feet of Lot 1, Block 1, SUNWOOD VILLAGE, Anoka County, Minnesota.

FIELD BOOK	PAGE
2870	

DRAWING NAME: 36152-EASE.dwg
JOB NO. 36152
FILE NO. 3291

FIELDWORK CHIEF:

DRAWN BY: BRP

CHECKED BY: BRP

EASEMENT EXHIBIT

COMMONBOND COMMUNITIES

Egan, Field & Nowak, Inc.
land surveyors since 1872

1229 Tyler Street NE, Suite 100
Minneapolis, Minnesota 55413
PHONE: (612) 466-3300
FAX: (612) 466-3383
WWW.EFNSURVEY.COM

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SUBGRANT AGREEMENT

THIS SUBGRANT AGREEMENT (the "Agreement") is made and entered into as of _____, 2015 (the "Effective Date") by and between the City of Ramsey, a Minnesota municipal corporation (the "City"), and CommonBond Communities, a Minnesota nonprofit corporation (the "Subgrantee").

WITNESSETH:

WHEREAS, the City applied for and has been awarded from the Metropolitan Council (the "Council") a grant of Livable Communities Demonstration Account in the amount of $580,000.00 (the "LCDA Grant") and a grant of funds in connection with its Local Housing Incentives Account in the amount of $200,000.00 (the "LHIA Grant" and, together with the LCDA Grant, the "Grants") to be used by the City to meet its affordable and life-cycle housing goals by partially funding the acquisition and development of a 47-unit multifamily housing project to be located in Ramsey, Minnesota (the "Project");

WHEREAS, the City and the Council have executed Metropolitan Livable Communities Act Grant Agreements in connection with the LCDA Grant (the "LCDA Grant Agreement") and the LHIA Grant (the "LHIA Grant Agreement" and, together with the LCDA Grant Agreement the "Grant Agreements"), true and correct copies of which are attached hereto as Exhibit A and Exhibit B, respectively;

WHEREAS, CB Ramsey Housing Limited Partnership, a Minnesota limited partnership (the "Owner"), shall be the owner of the Project, CB Ramsey Housing LLC, a Minnesota limited liability company (the "General Partner"), is the sole general partner of Owner, and Subgrantee is the sole member of General Partner;

WHEREAS, the City desires to subgrant the proceeds of the Grants to Subgrantee to provide financing for the eligible activities described in the Grant Agreements and in accordance with the terms and conditions contained in this Agreement;

WHEREAS, upon Subgrantee's receipt of the proceeds of the Grants from time to time, Subgrantee shall immediately contribute such funds to the General Partner; the General Partner shall then immediately contribute such funds to the Owner; and then the Owner shall use the proceeds to pay for the Improvements; and

WHEREAS, the City and Subgrantee desire to enter into this Agreement for the purpose of setting forth their respective responsibilities with respect to the Grants.

NOW, THEREFORE, the parties hereto agree as follows:

I. DEFINITIONS:

As used in this Agreement, the following terms shall have the following meaning:

Contractor: The contractor(s) who is (are) under contract with the Subgrantee to construct the Improvements.

Disbursement Request: The form, substantially in the form attached hereto as Exhibit D, to be submitted to City when the disbursement is requested and which is referred to in Article VI. hereof.

Improvements: Those improvements that are included among Project Costs that are eligible to be satisfied with proceeds of the Grants.

Plans and Specifications: The final plans and specifications for the construction of the Project approved by the City.

Project Costs: Those Project costs set forth and described in the Grant Agreements that are or will be eligible to be satisfied with the proceeds of the Grants under the Grant Agreements, this Agreement, and applicable law.

II. TERM OF AGREEMENT

This Agreement shall take effect and be in force from and after the Effective Date, and shall remain in effect until Subgrantee has performed all of its obligations hereunder, unless earlier terminated as provided in this Agreement.

III. THE GRANTS

Subject to the terms and conditions of this Agreement, the City awards the Subgrantee the Grants to be contributed by Subgrantee to the General Partner, immediately contributed by the General Partner to the Owner, and then used by the Owner for payment of Project Costs, which Grants shall be disbursed pursuant to this Agreement and under the terms and conditions of the Grant Agreements. In consideration for the Grants, the Subgrantee agrees to perform, and/or shall cause the Owner to perform, all of its obligations under this Agreement.

IV. STATEMENT OF WORK

The Subgrantee shall require the Owner to acquire and construct the Project in accordance with the Plans and Specifications, the Grant Agreements, and this Agreement in all material respects.

V. CONDITIONS OF DISBURSEMENT

The obligation of the City to make or cause to be made the disbursements pursuant to Article VI hereof shall be subject to the conditions precedent that it shall have received on or before the date of the disbursement hereunder the following:

a. Evidence satisfactory to the City that the Project and the construction and contemplated use thereof are permitted by and comply in all material respects with all applicable restrictions and requirements in prior conveyances, zoning ordinances, subdivision and platting requirements and other laws and regulations;

b. All other conditions specified in the Grant Agreements shall have been duly satisfied by the Subgrantee or waived in writing by the City or such conditions which, by their nature, would not be applicable as of the date of such disbursement;

c. No Event of Default, and no event which with the giving of notice or the lapse of time or both would constitute an Event of Default, shall have occurred and be continuing and all representations and warranties made by the Subgrantee in Article VII hereof shall continue to be true and correct as of the date of such disbursement; and

d. Subgrantee shall have provided to the City such evidence of compliance with all of the provisions of this Agreement, including without limitation, the provisions of the Grant Agreements, as the City may reasonably request.

e. Subgrantee or the City shall have obtained the consent of the Metropolitan Council as provided for under paragraph 2.07 of the LCDA Grant Agreement and paragraph 2.08 of the LHIA Grant Agreement.

VI. REQUEST FOR DISBURSEMENT

6.01. Disbursement. The City and the Subgrantee agree that, on the terms and subject to the conditions hereinafter set forth, the proceeds of the Grants shall be disbursed from the City to the Subgrantee as follows: (i) an initial draw of LCDA Grant funds at the closing of the Owner's acquisition of the Project for Project Cost incurred on or prior to such date, and (ii) in monthly disbursements thereafter, with the last disbursement being made upon one hundred percent (100%) completion of the Improvements. Notwithstanding anything to the contrary contained herein, the City shall only be obligated to make the disbursement hereunder to pay Project Costs in an amount up to or equal to the lesser of the amount of the Grants or the amount actually disbursed to the City under the Grant Agreements and such obligation is further subject to the conditions of Article V hereof.

6.02. Disbursement Request.

a. When the Subgrantee desires to obtain a disbursement, the Subgrantee shall submit a Disbursement Request duly signed by the Subgrantee and the Owner, as applicable.

The Disbursement Request shall be submitted by the Subgrantee at least ten (10) days prior to the date of the requested disbursement. The Disbursement Request shall constitute a representation and warranty by the Subgrantee to the City that all representations and warranties of the Subgrantee set forth in this Agreement are true and correct as of the date of such Disbursement Request, except for such representations and warranties which, by their nature, would not be applicable as of the date of such Disbursement Request. The City will submit a reimbursement request to the Metropolitan Council within 10 business days of receipt of request from Subgrantee. The City will disburse funds as soon as reasonably acceptable upon receipt of funds from the Metropolitan Council.

b. At the time of submission of the Disbursement Request, the Subgrantee shall also submit the following to the City:

1. a written lien waiver from each Contractor for completed Improvements which were previously paid or are to be paid for pursuant to such Disbursement Request;

2. evidence satisfactory to the City that the Improvements completed to date have been constructed in accordance with the Plans and Specifications in all material respects; and

3. a certified statement of the Owner reflecting the use to which the proceeds of the Grants have been applied in addition to those uses reflected in the Grant Agreements.

c. Compliance with Accounting Audit and Report Requirements. All Disbursement Requests shall demonstrate compliance with the Accounting, Audit and Report requirements as contained in Section III paragraphs 3.01, 3.02 and 3.03 of the Grant Agreements.

VII. SUBGRANTEE'S COVENANTS, REPRESENTATIONS, WARRANTIES AND AGREEMENTS

Subgrantee covenants, represents, warrants and agrees that:

a. Subgrantee is a nonprofit corporation duly incorporated under the laws of the State of Minnesota, is duly authorized to operate in the State of Minnesota, has the power to enter into and execute this Agreement and by appropriate corporate action has authorized the execution and delivery of this Agreement.

b. Subgrantee's execution of this Agreement will not result in any breach of or constitute a default under any other mortgage, lease, loan, grant or credit agreement, corporate charter, by-law or other instrument to which Subgrantee is a party or by which it may be bound or affected.

c. This Agreement constitutes the legal and binding obligation enforceable against the Subgrantee.

d. Prior to Subgrantee's submission of any Disbursement Request, the Owner shall have all necessary approvals, licenses and permits required for construction and operation of the Project except those which cannot be obtained until completion of the Project.

e. Subgrantee shall permit and/or shall cause the Owner to permit, as applicable, the City, upon reasonable notice, to examine all books, records, contracts, plans, permits, bills and statements of account pertaining to the Project and to make copies as the City may require.

f. Subgrantee shall cause the Owner to obey and comply with all federal, state and local laws, rules and regulations in connection with the Project.

g. Subgrantee agrees to provide and/or obtain all matching funds, if any, required by the Grant Agreements. Subgrantee agrees to pay for all of the costs incurred to construct the Improvements including any cost overruns in excess of those in the sources and uses set forth in Exhibit C.

h. Subgrantee represents that all uses to which the Grants funds shall be used will be grant eligible uses as provided for within the Grant Agreements.

i. Subgrantee will indemnify and hold the City harmless relative to the Grant Agreements to the extent that its performance or lack thereof under the terms of this Agreement places the City in non-compliance with the Grants.

VIII. DEFAULT

Any one or more of the following shall constitute an "Event of Default" under this Agreement:

a. Subgrantee shall default in the performance or observance of any agreement, covenant or condition required to be performed or observed by Subgrantee under the terms of this Agreement, and such default shall not be remedied within thirty (30) days after written notice to Subgrantee from the City specifying such default.

b. Subgrantee shall be in default of any material term of any other agreement relating to the Project to which it is a party, and such default shall not be remedied within any applicable cure period.

c. Any representation or warranty made by Subgrantee herein or any document or certificate furnished to the City shall prove to be materially incorrect or misleading as of the date made.

d. Subgrantee engages in any illegal activities that have or are likely to have a material adverse effect on the Project.

e. Subgrantee or the Owner uses any of the Grants funds contrary to this Agreement, and fails to correct such error within thirty (30) days.

f. The Owner shall fail to obtain and/or keep in force insurance of the types and in the amounts as specified within this Agreement.

g. Subgrantee violates any term or provision of the Grant Agreements as imposed upon the City or otherwise makes compliance by the City with the terms and provisions thereof impossible or impractical, and such violation is not cured within any applicable cure period set forth in the Grant Agreements.

Notwithstanding anything to the contrary herein, Wincopin Circle LLLP, the expected limited partner of Owner ("Investor Limited Partner"), shall have the right, but not the obligation, to cure any Event of Default under this Agreement and the City shall accept performance by Investor Limited Partner of any obligation of Subgrantee or the Owner as though tendered by Subgrantee or the Owner itself, as applicable, provided such performance has occurred during the applicable cure period, if any, provided to Subgrantee or the Owner under this Agreement.

IX. REMEDIES

Upon the occurrence of an Event of Default, any one or more of the following remedial steps may be taken by the City:

a. The City may terminate this Agreement;

b. The City may suspend or terminate any further disbursements to be made under this Agreement;

c. The City may suspend its performance under this Agreement during the continuance of the Event of Default; or

d. The City may take whatever action at law or in equity may appear necessary or appropriate to seek repayment or reimbursement of the Grants funds disbursed to Subgrantee to the extent required under the Grant Agreements, to enforce performance and observance of any obligation, agreement, covenant, representation or warranty of the Subgrantee under this Agreement; or to otherwise compensate the City for any damages on account of such Event of Default.

X. ADDITIONAL PROVISIONS

a. Indemnity, Hold Harmless. The Subgrantee shall bear all loss, expense (including reasonable attorney's fees) and damage in connection with, and hereby releases and agrees to indemnify, defend, and hold harmless the City, its agents, servants and employees from and against all claims demands, losses expenses and judgments made or recovered against or suffered by the City, its agents, servants and employees from any cause whatsoever, arising out of, incidental to, or in connection with the construction of the Project, except to the extent such losses result solely due to any act or omission, including negligence, of the City or its or their employees, servants or agents.

b. Independent Contractor. For the purpose of this Agreement, Subgrantee shall be deemed an independent contractor and not an employee or agent of the City. Any and all employees or agents of the Subgrantee shall not be considered employees or agents of the City.

XI. INSURANCE

With respect to the Improvements, the Subgrantee shall cause the Owner to require the Contractor and its subcontractors to procure and maintain, at their sole expense and until completion of the Improvements, the following insurance coverages in at least the following amounts (unless otherwise agreed to by the City and the Subgrantee) and observe all requirements of the pertinent policies:

(i) To the extent required under applicable law, workers' compensation in an amount not less than prescribed by law and employer's liability insurance in the amount of One Million Dollars ($1,000,000); and

(ii) If applicable, automobile liability insurance (covering owned, non-owned, and hired) with a combined single limit of One Million Dollars ($1,000,000) per occurrence, which policy shall have a policy extension for sudden and accidental pollution coverage; and

(iii) Commercial general liability insurance with limits of One Million Dollars ($1,000,000) per occurrence and Two Million Dollars ($2,000,000) in the aggregate for bodily injury, including death, and property damage, which policy shall have a policy extension for broad-form completed operations, explosion, collapse, underground property damage, and environmental liability coverage; and

(v) Umbrella liability insurance with limits of One Million Dollars ($1,000,000) per occurrence and Three Million Dollars ($3,000,000) in the aggregate covering claims in excess of the employer's liability, automobile liability and commercial general liability limits above.

With the exception of workers' compensation/employers liability coverage, the City, the Subgrantee, and the Owner shall be named as additional insureds. All policies shall require that thirty (30) days' advance written notice be given to the City, the Subgrantee, and the Owner prior to cancellation. Prior to commencing construction of the Improvements, the Subgrantee shall

cause the Owner to deliver to the City proof of insurance evidencing the above coverages and any endorsements thereto. Thereafter, the Subgrantee shall cause the Owner to make copies of renewal policies available for inspection by the City.

XII. RECORDS AND REPORTS

The Subgrantee shall cause the Owner to submit to the City a full account of the status of the activities undertaken as part of this Agreement. The following records shall be maintained by the Subgrantee, copies of which shall be submitted in such form as City staff may prescribe:

a. All receipts and invoices relating to expenditure of Grants funds.

b. Records shall be sufficient to reflect all costs incurred in performance of the Grants. The books, records, documents, and accounting procedures, relevant to the Grants shall be subject to examination by the City and state agencies and the legislative auditor.

c. Records of insurance required under this Agreement, including proof of insurance in effect, and proof of payment of insurance premiums.

XIII. EXHIBITS

The following identified exhibits are incorporated into and made part of this Agreement:

Exhibit A – LCDA Grant Agreement
Exhibit B – LHIA Grant Agreement
Exhibit C – Project Budget
Exhibit D – Disbursement Request Form

XIV. AMENDMENT

This Agreement shall not be amended or modified except in writing signed by the Subgrantee and the City.

XV. INCORPORATION OF GRANT AGREEMENTS.

Subgrantee acknowledges and agrees that all terms, conditions and obligations contained in the Grant Agreements are incorporated herein, and made a part of this Agreement. In addition to the terms, conditions and obligations described herein, the Subgrantee further acknowledges, accepts and assumes all of the City's obligations described in the Grant Agreements. For purposes of enforcing this Agreement, Subgrantee acknowledges, accepts and agrees that the City shall inure to, and possess the rights and authority of the Council as described in the Grant Agreements.

XVI. MISCELLANEOUS

a. Notices. All notices provided for herein shall be in writing and shall be deemed to have been given when delivered personally or when deposited in the United States mail, registered or certified, postage prepaid, addressed as follows:

If to Subgrantee: CommonBond Communities
1080 Montreal Avenue
Saint Paul, MN 55116
Attention: Vice President of Development

and copies to: Winthrop & Weinstine, P.A.
Capella Tower, Suite 3500
225 South Sixth Street
Minneapolis, MN 55402
Attention: Jeffrey J. Koerselman

Wincopin Circle LLLP
c/o Enterprise Community Asset Management, Inc.
70 Corporate Center
11000 Broken Land Parkway, Suite 700
Columbia, MD 21044
Attention: General Counsel

and

Bocarsly Emden Cowan Esmail & Arndt LLP
7700 Old Georgetown Road, Suite 600
Bethesda, MD 20814
Attention: Craig A. Emden

If to City: City of Ramsey
7550 Sunwood Drive
Ramsey, MN 55303

or addressed to any such party at such other address as such party shall hereafter furnish by notice to the other parties as above provided.

b. Binding Effect; Waiver. The provisions of this Agreement shall inure to the benefit of and be binding upon Subgrantee and City and their respective successors and assigns. No delay on the part of City in exercising any right, power or privilege shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege constitute such waiver nor exhaust the same, which shall be continuing.

c. Survival of Agreements, Representations and Warranties. All agreements, representations and warranties made in this Agreement by Subgrantee shall survive its termination.

d. Governing Law. This Agreement and the attachments are to be construed and enforced according to and governed by the laws of the State of Minnesota.

e. Counterparts. This Agreement may be executed in any number of counterparts, all of which shall constitute a single agreement, any one of which bearing signatures of all parties shall be deemed an original.

f. Time. Time is of the essence in the performance of this Agreement.

g. Entire Agreement. This Agreement contains the entire agreement of the parties hereto on the matters covered herein. No other agreement, statement or promise made by any party or by any employee, officer or agent of any party hereto that is not in writing and signed by all the parties to this Agreement shall be binding.

h. No Joint Venture. The relationship between City and Subgrantee is solely that of grantor and grantee and the relationship by and among City, and Subgrantee is not, nor shall it be deemed to create, a partnership or joint venture in the Project.

i. Assignment. This Agreement may not be assigned by Subgrantee without the prior written consent of City.

j. Permitted Transfers. Notwithstanding anything to the contrary contained in this Agreement, it shall not constitute a default or event of default under this Agreement and the consent of the City is not required, for: (a) the transfer of limited partner interests in the Owner to an affiliate of the Investor Limited Partner in accordance with the terms of the Owner's partnership agreement, as amended (the "Partnership Agreement"), (b) the transfer of ownership interests in a limited partner of the Owner, so long as the manager, managing member or general partner of such limited partner is an affiliate of Investor Limited Partner, (c) the removal of the General Partner for cause in accordance with the Partnership Agreement by Investor Limited Partner and the replacement of the General Partner with an affiliate of Investor Limited Partner, or (d) an amendment of the Partnership Agreement (i) memorializing the transfers or removal described above or (ii) which does not materially and adversely affect the ability of the Owner to perform the Owner's obligations under this Agreement.

[*The remainder of this page has been left blank intentionally.*]

IN WITNESS WHEREOF, the parties have caused this Subgrant Agreement to be executed as of the date first above written.

SUBGRANTEE:

COMMONBOND COMMUNITIES,
a Minnesota nonprofit corporation

By: _____
Ellen Higgins
Its Vice President

CITY:

CITY OF RAMSEY, MINNESOTA

By: _____
Name: _____
Its: _____

By: _____
Name: _____
Its: _____

10528737v2

EXHIBIT A

LCDA GRANT AGREEMENT
(Attached)

EXHIBIT B

LHIA GRANT AGREEMENT
(Attached)

EXHIBIT C

PROJECT BUDGET
(Attached)

EXHIBIT D

DISBURSEMENT REQUEST FORM

Pursuant to that certain Subgrant Agreement dated as of _____, 2015 (the "Agreement"), between CommonBond Communities ("Subgrantee") and the City of Ramsey, Minnesota ("City") Subgrantee hereby requests payment of the expenses listed on the attached Expense Listing.

The total amount to be disbursed for this Disbursement Request is $_____.

In connection with this Disbursement Request, the undersigned hereby represents as follows:

a. each obligation listed in the attached exhibit has been incurred and is a Project Cost related to the Improvements,

b. no license or permit necessary for construction of the Improvements previously issued has been revoked or the issuance thereof subjected to challenge before any court of other governmental authority having or asserting jurisdiction thereover; and

c. no event has occurred and is continuing which, but for the giving of notice, the expiration of any cure period, or both, would constitute an Event of Default under the Agreement.

Any capitalized terms used herein that are not otherwise defined herein shall have the meanings assigned to such terms in the Agreement.

COMMONBOND COMMUNITIES

By: _____
Name: _____
Its: _____

Approved:

CITY OF RAMSEY

By: _____
Name: _____
Its: _____

Expense Listing

Item	Amount

Councilmember _____ introduced the following resolution and moved for its adoption:

RESOLUTION #15-07-177

RESOLUTION APPROVING MULTIPLE AGREEMENTS LOT 3, BLOCK 1, COR ONE AND OUTLOT A, COR ONE.

WHEREAS, on March 24, 2015, the City of Ramsey received an application and plans for sketch plan, final plat and site plan from CommonBond Communities to replat Outlot A, COR ONE into one buildable lot; and

WHEREAS, on May 12, 2015, the City Council approved the Final Plat and Site Plan for Sunwood Village; and

WHEREAS, a Declaration of Reciprocal Driveway Easements and Drainage and Utility Easements was approved by the City of Ramey's Housing and Redevelopment Authority (HRA) in April of 2012 benefiting both Lot 3, Block 1, COR ONE and Outlot A, COR ONE, and an error was discovered in the legal description of said reciprocal driveway easement; and

WHEREAS, as of January 1, 2015, the HRA was dissolved and all holdings were transferred to the City of Ramsey; and

WHEREAS, on December 10, 2014, the Metropolitan Council approved two (2) funding awards for Sunwood Village for a total of $780,000; and

WHEREAS, the City has already accepted the grant awards on behalf of Sunwood Village and CommondBond Communities is requesting the City enter into a Sub-Grant Agreement with CommonBond Communities; and

WHEREAS, one of the items noted in the Staff Review Letter was the need for an Easement Agreement to address the encroachment of public sidewalks along both Sunwood and Veterans Drives onto Lot 1 Block 1 Sunwood Village; and

WHEREAS, upon closing on the land transaction with the City of Ramsey, CB Ramsey Housing Limited Partnership will be the owner of Lot 1 Block 1 SUNWOOD VILLAGE and has agreed to grant to the City of Ramsey an Easement Agreement to ensure public use of the sidewalk.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF RAMSEY, ANOKA COUNTY, STATE OF MINNESOTA, as follows:

That the Ramsey City Council hereby approves the following agreements related to Sunwood Village by CommonBond Communities, all subject to review and approval by the City Attorney as to legal form.

1) Amended Reciprocal Driveway and Drainage and Utility Easement

2) Amended Development Agreement
3) Sidewalk Easement Agreement
4) Metropolitan Council Livable Communities Sub-Grant Agreement

The motion for the adoption of the foregoing resolution was duly seconded by Councilmember _____, and upon vote being taken thereon, the following voted in favor thereof:

and the following voted against the same:

and the following abstained:

and the following were absent:

Whereupon said resolution was declared duly passed and adopted by the Ramsey City Council this the 28th day of July, 2015.

_____
Mayor

ATTEST:

_____
City Clerk