City of Ramsey
Agenda
Regular Planning Commission
Thursday, January 7, 2021
7:00 pm
Council Chambers, 7550 Sunwood Drive NW

This meeting is being held in accordance with Minnesota Statutes 13D.021. Due to the COVID-19 Pandemic, it is not practical and prudent for all members of this board to attend in person. Current Minnesota law requires certain social distancing standards that impacts the capacity of the Council Chambers. For those at highest risk, it is advised to isolate themselves from the general public. For these reasons, it is not practical and prudent to have this meeting exclusively in person. Members of the public are welcome to attend in person or remotely.

Remote Attendance available at www.cityoframsey.com/meetings. To maximize social distancing due to the COVID-19 Pandemic, those that can join remotely are encouraged to do so. Those joining remotely and requesting to speak are asked to use a webcam when speaking.

1. Call to Order

2. Pledge of Allegiance

3. Citizen Input

4. Approve Agenda

5. Consent Agenda

1. Approve the December 3, 2020 Planning Commission Meeting Minutes.

2. Review Revised Sketch Plan for Hunt Addition, Case of Platinum Land (Project 20-105)

3. Consider Resolution #21-014 Approving an Interim Use Permit for Storage Containers and Gravel Outdoor Storage Area at 8049 146th Ave NW (Project No. 20-137); Case of JBR Ramsey, LLC on behalf of Richard Lee

4. Provide Feedback for Site Plan and Final Plat for Gigi's Salon (Project #20-140)

6. Public Hearing

1. PUBLIC HEARING: Review Resolution #21-007 Approving Preliminary Plat for Northfork Meadows, Case of Lennar (Project #20-135)

2. PUBLIC HEARING: Consider Ordinance #20-01 Amending City Code Sections 117-111 (R-1 Residential District) and 117-112 (R-2 Residential District) Clarifying Subdistricts based on Lot Size

3. PUBLIC HEARING: Consider Ordinance #21-02 Amending City Code Section 117-148 Entitled Mississippi River Corridor Critical Area

4. PUBLIC HEARING: Consider Recommendations Related to Riverstone South; Case of Capstone Homes/Riverstone Development

1. Adopt Resolution #21-015 Approving Comprehensive Plan Amendment from Low Density Residential to Medium Density Residential for Detached Townhome Section and Preliminary Plat for Riverstone South
2. Adopt Ordinance #21-03 Approving Zoning Amendment from R-1 Residential (MUSA - 80) District to R-1 Residential (MUSA - 65) District, R-1 Residential (MUSA - 50) District and R-2 Residential (Detached Townhome) District

7. Commission Business

1. Center Street Area Framework and Policy Plan

2. Consider Water Treatment Plant Site Selection Recommendation

8. Commission/Staff Input

1. Receive Update on Ramsey Gateway Project (US Highway 10/169 Plan)

9. Adjournment

Regular Planning Commission **5. 1.**

Meeting Date: 01/07/2021

By: JoAnn Shaw, Community Development

Information

Title:

Approve the December 3, 2020 Planning Commission Meeting Minutes.

Purpose/Background:

n/a

Notification:

Observations/Alternatives:

Funding Source:

Recommendation:

Action:

Attachments

Planning Commission Meeting Minutes

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/30/2020 11:46 AM
Form Started By: JoAnn Shaw		Started On: 12/09/2020 12:43 PM
Final Approval Date: 12/30/2020		

PLANNING COMMISSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey Planning Commission conducted a regular meeting on Thursday, December 3, 2020, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present:	Chairperson Randy Bauer Commissioner Bruce Anderson Commissioner Cheri Gengler Commissioner Eric Peters Commissioner Gary VanScoy Commissioner Matt Woestehoff
Members Absent:	Commissioner Torrey Johnson
Also Present:	Senior Planner Chloe McGuire Brigl Deputy City Administrator Tim Gladhill Planning Technician Brian McCann City Council Liaison Debra Musgrove

1. CALL TO ORDER

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

2. PLEDGE OF ALLEGIANCE

Chairperson Bauer led the group in the Pledge of Allegiance.

3. CITIZEN INPUT

None.

4. APPROVAL OF AGENDA

Motion by Commissioner Peters, seconded by Commissioner Woestehoff, to approve the agenda as presented.

A roll call vote was performed:

Commissioner Woestehoff	aye
Commissioner Gengler	aye
Commissioner Peters	aye
Commissioner Anderson	aye

Commissioner VanScoy aye
Chairperson Bauer aye

Motion Carried.

5. CONSENT AGENDA

5.01: Approve the November 5, 2020 Planning Commission Meeting Minutes:

Motion by Commissioner VanScoy, seconded by Commissioner Peters, to approve the consent agenda as presented.

A roll call vote was performed:

Commissioner Peters aye
Commissioner Gengler aye
Commissioner Woestehoff aye
Commissioner Anderson aye
Commissioner VanScoy aye
Chairperson Bauer aye

Motion Carried.

6. PUBLIC HEARINGS/COMMISSION BUSINESS

6.01: Public Hearing: Consider Resolution #20-283 Approving a Home Occupation Permit for Twin Cities Generator at 17040 Baugh St NW (Project No. 20-132); Case of Twin Cities Generator

Public Hearing

Chairperson Bauer called the public hearing to order at 7:03 p.m.

Presentation

Senior Planner McGuire Brigl presented the staff report stating that staff recommends approving Resolution #20-283 granting a Home Occupation Permit on the subject property. She confirmed that the proposed garage would meet all requirements of City Code.

Citizen Input

No comments made.

Motion by Commissioner VanScoy, seconded by Commissioner Woestehoff, to close the public hearing.

A roll call vote was performed:

Commissioner Anderson	aye
Commissioner Peters	aye
Commissioner Gengler	aye
Commissioner Woestehoff	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

Chairperson Bauer closed the public hearing closed at 7:08 p.m.

Commission Business

Motion by Commissioner Anderson, seconded by Commissioner Peters, to recommend that City Council adopt Resolution #20-283 approving a Home Occupation Permit on the subject property.

A roll call vote was performed:

Commissioner Gengler	aye
Commissioner Woestehoff	aye
Commissioner Peters	aye
Commissioner Anderson	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

6.02: Public Hearing: Consider Resolution #20-281 Approving an Interim Use Permit for Storage Containers for Ve-Ve Inc. (Project No. 20-136); Case of John Vevea on behalf of Ve-Ve Inc.

Public Hearing

Chairperson Bauer called the public hearing to order at 7:10 p.m.

Presentation

Senior Planner McGuire Brigl presented the staff report stating that staff recommends approving Resolution #20-281 for an Interim Use Permit for two storage containers on the subject property.

Commissioner VanScoy asked if the five-year period is typical for an interim use permit.

Senior Planner McGuire Brigl confirmed that it a typical timeframe that the City and other municipalities use. She noted that an interim use permit can also be tied to a point in time, such as reconstruction of a road.

Commissioner VanScoy stated that his only concern would be the length of five years.

Commissioner Peters asked if there would be hazardous materials stored in the structures.

Senior Planner McGuire Brigl commented that she did not believe hazardous materials would be stored in the structures but noted that the applicant can provide additional details.

Citizen Input

John Vevea, applicant, confirmed that there will not be hazardous materials stored in the structures and provided details on what would be stored in the cold storage, such as boxes and pallets. He stated that these are not normal storage containers that you see on railroad tracks with an end door. He stated that these have double side doors, which allow all materials to be accessed. He stated that these would be an investment of $12,000 and therefore he would like to have a period of five years. He stated that his business is growing, and this would allow additional storage space and give them time to adjust to the growth.

Chairperson Bauer asked for details on the exterior of the container.

Mr. Vevea replied that it does have a corrugated look with side doors. Staff displayed an example photograph. He stated that his dad started this business in 1973 and they have continued to grow in Ramsey. He hoped that he could continue that growing relationship.

Commissioner Gengler asked if the applicant would keep the trees that provide screening and if those trees would be removed some other screening would be added to screen the containers from the road.

Mr. Vevea agreed that the trees help to screen the containers and confirmed that he does not plan to remove any trees. He stated that the structures will come in the tan color and he could paint it if desired. He stated that these containers are meant to serve for a number of years and therefore will hold up during the five-year period.

Commissioner Anderson asked for additional information on the location of the containers.

Senior Planner McGuire Brigl highlighted the proposed location, which would be behind the trees on the subject property.

Mr. Vevea provided additional information on the different tree screening.

Senior Planner McGuire Brigl confirmed that this area only has business uses and does not receive regular residential traffic.

Commissioner VanScoy asked the plans of the applicant in five years.

Mr. Vevea stated that ideally, he will be expanding into a new space, but it is uncertain to say that would be for sure with all the unknowns.

Councilmember Musgrove thanked the applicant for coming forward with this proposal, noting that the area looks nice from the aerial photograph. She stated that this is a business district, and this would be a great way to help a business make the jump to possibly continue to expand in the future. She commented that the proposed location is both functional and screened.

Motion by Commissioner Woestehoff, seconded by Commissioner Gengler, to close the public hearing.

A roll call vote was performed:

Commissioner Anderson	aye
Commissioner Woestehoff	aye
Commissioner Peters	aye
Commissioner Gengler	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

Chairperson Bauer closed the public hearing closed at 7:27 p.m.

Commission Business

Motion by Commissioner Gengler, seconded by Commissioner VanScoy, to recommend that City Council adopt Resolution #20-281 Approving an Interim Use Permit for two storage containers on the subject property, contingent upon screening remaining in place.

A roll call vote was performed:

Commissioner Gengler	aye
Commissioner Peters	aye
Commissioner Anderson	aye
Commissioner Woestehoff	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

6.03: Public Hearing: Consider Resolution #20-282 Approving an Interim Use Permit for Storage Containers and Gravel Outdoor Storage Area at 8049 146th Ave NW (Project No. 20-137); Case of JBR Ramsey, LLC on behalf of Richard Lee

Public Hearing

Chairperson Bauer called the public hearing to order at 7:28 p.m.

Presentation

Senior Planner McGuire Brigl presented the staff report stating that staff recommends approving Resolution #20-282 for an Interim Use Permit for parking on gravel surfacing and the use of storage containers currently on the subject property.

Commissioner Anderson asked for details on the containers.

Richard Lee, applicant, replied that they are shipping containers similar to the last case. He stated that these containers would be front loaded. He stated that the current tenant uses three containers for salt storage and the other containers are used for storage of seasonal equipment.

Commissioner VanScoy stated that there are six containers on the site and asked if the intent would be to keep the container between the building and Ferret Street.

Mr. Lee believed that the tenant would keep the container in that location. He stated that the property is fenced with gates and that container is easily accessible as it sits across from the gate.

Commissioner VanScoy asked for details on the site setbacks.

Senior Planner McGuire Brigl replied that these are unique uses and because the entrance of the building is to the south, it is not that much of a concern with the container on the front of the building. She stated that the containers are easily moved, and that container could be moved to another location.

Commissioner VanScoy stated that he would anticipate that the City would continue to receive these types of requests and therefore he would be concerned with continuing to approve interim use permits, rather than modifying the ordinance. He stated in this case the container is not screened from the road.

Commissioner Woestehoff asked when the container usage began.

Mr. Lee replied that the previous owner constructed the building and used the property from 1986 to 2018. He stated that when he purchased the property in 2018, some of the containers were already onsite.

Commissioner Woestehoff commented that these containers do not seem to be temporary and seem to be long-term storage in a temporary container and based off the lifespan of these types of containers, he would hesitant. He also recognized that the property is listed for redevelopment and it would be easier to remove these containers than to remove a building.

Senior Planner McGuire Brigl confirmed that this area is identified for retail development and at some point, this type of use would end on the site.

Mr. Lee stated that he purchased the property for future development. He stated that they found it easy to find a tenant to use the site until development reaches this site. He agreed that the future use of this site would be retail but stated that it would be hard to anticipate when that will occur. He stated that this action would help them to maintain the site until the development reaches this site.

Commissioner Woestehoff asked if there is screening between this site and the adjacent retail development.

Mr. Lee confirmed that the retail development planted a line of trees to provide screening.

Commissioner Anderson asked and received confirmation that the time period for this interim use permit would be five years. He asked if the containers could be moved back to be behind the building and look better on the site rather than the haphazard placement that currently exists.

Mr. Lee confirmed that could be considered.

Senior Planner McGuire Brigl displayed an aerial photograph of the site, identifying the location of the containers and the area Commission Anderson would desire.

Councilmember Gengler asked if there is a specific area that would hope to be covered with the class five gravel.

Senior Planner McGuire Brigl identified the area where gravel would be placed.

Councilmember Musgrove asked if the location of the containers proposed by Commissioner Anderson on the side of the building would be functional for the use.

Mr. Lee commented that it would be hard for him to answer that question as he is not the end user and is the property owner. He did not believe there would be an issue as the containers are front loaded.

Commissioner VanScoy commented that two of the containers abut the eastern fence and asked if there would be a setback or screening added.

Mr. Lee replied that the fence is setback 10 feet from the property line, and they did not have any intent on adding screening as the neighboring property owner planted trees.

Commissioner VanScoy commented that when he visited the property, he did not notice screening in the area where the containers back to the fence. He commented that the trees on the neighboring property are on the north end, whereas he is speaking about the containers on the south end of the property.

Senior Planner McGuire Brigl displayed the landscaping plan for Armstrong Retail, which is the adjacent development and then identified the location of the containers in relation.

Citizen Input

No additional comments.

Motion by Commissioner Woestehoff, seconded by Commissioner Peters, to close the public hearing.

A roll call vote was performed:

Commissioner Peters	aye
Commissioner Gengler	aye
Commissioner Anderson	aye
Commissioner Woestehoff	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

Chairperson Bauer closed the public hearing closed at 7:49 p.m.

Chairperson Bauer stated that he just received a comment from a resident who was having problems connecting to the meeting. The resident does not support the requests related to shipping containers as they do not meet the architectural requirements of the City. The resident expressed concern that if this case and the previous case were approved, the City will continue to see these types of requests.

Commission Business

Commissioner VanScoy stated that he would have difficulty supporting this request without screening and in the current locations related to setback. He believed that the City should review these uses on a more long-term consideration.

Commissioner Gengler commented that she would rather see the container on the far side remain on that side as it would be less visible from the retail center.

Councilmember Musgrove commented that this is a unique situation as this is currently an industrial area, but the use will potentially change in the coming years. She did not want to be too onerous on the business to plant trees that may be removed when the site redevelops. She stated that she would support the use of the containers rather than having the items stored outdoors.

Commissioner Anderson commented that this property can be seen from the entrance ramp onto Highway 10. He stated that these containers are not aesthetically pleasing. He commented that he would like to see the business able to function but would like to see the site cleaned up. He

stated that he does not like allowing these containers in this area and would like to see the containers perhaps fenced.

Commissioner Woestehoff stated that he also has concerns as this is an interested location and zoning compliance. He stated that he also has concerns with salt being placed into metal containers as the containers could rust more quickly. He stated that the containers are meant to store things but in the aerial photographs you can see materials stored outside of the containers. He estimated that another two containers would be needed in order to contain all the equipment.

Commissioner Anderson asked if the Commission should table this request and the applicant could come back with a better site layout and how the containers could be arranged to be more aesthetic. He stated that perhaps screening be placed around the containers as well.

Senior Planner McGuire Brigl commented that there is a not a specific timeline as the containers are already on site. She stated that having gravel placed is a priority of staff as the site is dirt and there is a concern that it would snow before that could happen. She stated that if the Commission would like to see a revised plan making the containers less visible from Armstrong Retail, staff can work on that administratively and bring that forward to the Council once they believe it is ready.

Motion by Commissioner Anderson, seconded by Commissioner VanScoy, to table this review to allow staff to work with the applicant to present a more favorable layout for the storage containers that may include screening.

A roll call vote was performed:

Commissioner Peters	aye
Commissioner Woestehoff	aye
Commissioner Anderson	aye
Commissioner Gengler	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

7. COMMISSION BUSINESS

7.01: Review Concept Plan for Rivenwick 4th Addition; Case of Lennar for Rivenwick 4th Concept Plan (Project 20-134)

Presentation

Senior Planner McGuire Brigl presented the Staff Report stating that staff is open to this compromise request if the land uses within the PUD contain the same amount of commercial a previously directed. Public Works and Public Safety had a few concerns about the public road

ending at a private road, and do prefer the layout with the previous proposal, but can make this layout work with the proper signage.

Commission Business

Commissioner VanScoy asked if the pond would be that large as it takes up a portion of the site that could be used for commercial development.

Senior Planner McGuire Brigl commented that would be close to the estimated size, noting that Lennar does not tend to oversize its ponds.

Commissioner Woestehoff asked if the EDA provided input on this proposal.

Senior Planner McGuire Brigl noted that this has not gone to the EDA but the economic development department provided input, sharing similar concerns to the last proposal but agreed that this could work and they would like the retail along Highway 10.

Councilmember Musgrove asked if the pond is proposed aesthetically or to meet requirements of the City.

Senior Planner McGuire Brigl replied that it is a requirement of the City.

Commissioner Anderson commented that he would like all of the commercial property to face Highway 10. He stated that the pond could be moved to the back corner, as that location is flexible. He stated that he likes the previous proposal layout rather than this layout.

Chairperson Bauer agreed that he preferred the last proposal where the retail faced Highway 10.

Commissioner VanScoy commented that accommodations have already been made for this site and does not want to see more changes and would not support moving the pond onto the commercial area.

Senior Planner McGuire Brigl stated that the previous proposal did not include the pond and a pond would be necessary for stormwater management. She stated that one of the biggest changes was the road layout and where parking should occur.

Chairperson Bauer asked if there would be one pond for both the residential and commercial uses or whether each use would have its own pond.

Senior Planner McGuire Brigl commented that there would most likely be ponding for both uses, as they would most likely develop at separate times.

Chairperson Bauer stated that he would prefer the retail to face Highway 10.

Commissioner Woestehoff echoed the comments of the Commission thus far. He stated that he is unsure of the road going into a T. He stated that he would prefer the townhomes removed as that could provide space for the ponding and free up additional commercial space.

Senior Planner McGuire Brigl asked if the concern was that the townhomes would abut the commercial use or with the road.

Commissioner Woestehoff stated that it is the road issue and noted that moving the pond would allow additional space for the commercial use.

Commissioner Gengler commented that she preferred the previous layout as well and had concern with residential abutting commercial use and the proposed road in this configuration.

Chairperson Bauer reviewed the consensus of the Commission that the commercial portion of the property should not be reduced further than what has already been agreed to. The Commission also prefers a road between the commercial and residential uses rather than allowing those uses to abut each other as shown in this proposal.

7.02: Review Sketch Plan for Bacon Property; Case of Bill Boyum

Presentation

Senior Planner McGuire Brigl presented the Staff Report asked the Commission to provide feedback on which concept plan to move forward with and develop a formal sketch plan application.

Commission Business

Chairperson Bauer stated that the applicant's narrative includes two cul-de-sacs, noting that one lies within Nowthen. He recognized that the comments from public safety shows that they prefer the loop but asked if a larger cul-de-sac would accomplish the same things.

Senior Planner McGuire Brigl stated that she could bring that idea forward to public safety for review.

Chairperson Bauer stated that Commissioner Johnson stated that he preferred the 19-lot layout.

Commissioner VanScoy referenced the option which would connect to 178th and asked for additional details.

Senior Planner McGuire Brigl commented that connection would be challenging as the road would go through the park area that is mostly wetlands.

Commissioner VanScoy commented that several of the lots appear to be encumbered with floodplain and asked how the developer would intend to handle that.

Senior Planner McGuire Brigl stated that the floodplain circles the properties and there is upland area. She commented that some fill is allowed in the floodplain with proper measures and mitigation. She stated that the lots could accommodate the area needed for a house pad and well/septic and most likely only the driveways would be within floodplain.

Councilmember Musgrove referenced the nine-lot layout and easements and asked for additional input on whether those would be for roads.

Senior Planner McGuire Brigl noted that these are easements that already exist for utilities and would not be used for roads.

Commissioner Anderson referenced lots two through five, which would appear to be hard to build on because of the floodplain in that area. He commented that he does not like the 1,500-foot cul-de-sac and asked if a road could be run from the cul-de-sac bulb to 178th to provide a second access to the development. He stated that he does not prefer to have only one way in or out of a development.

Senior Planner McGuire Brigl displayed a map which identifies the wetlands on site, explaining that the road connection would run entirely through wetland. She stated that the comments of the neighbors have been that they do not want the road connection or disruption to the wetlands.

Commissioner VanScoy commented that it would appear the road connection would go through tilled fields rather than wetlands and that there would be minimal wetland disruption.

Commissioner Anderson stated that he could support a connection that would move to the west to connect to 178th.

Kendra Lindahl, Landform, commented that the only request tonight is for the nine-lot subdivision and they are requesting for input on the cul-de-sac. She stated that they do not intend to include a connection to 178th as it was clear that the neighbors do not want that. She stated that they received the input from the neighbors and reduced the number of lots from the 37 which would be allowed to nine lots. She stated that the road connection to 178th would need to go through a public park and require wetland fill and would instead preserve the natural features of the site with two estate lots that backup to that area and fits the existing character of the area. She stated that they are looking for feedback on this alignment and the longer cul-de-sac before they decide whether to invest additional funds into this proposal.

Commissioner Woestehoff asked if there is an economic consideration between the different alignments and whether a cul-de-sac would support nine lots and 19 lots would be needed to support a road connection. He commented that there just seems to be a large jump between the two proposals.

Ms. Lindahl replied that the neighbors would not support the 19-lot subdivision and they do not want to present something that the neighbors would not support. She stated that the road connection would require additional road costs and process, as the road would go through public

park land and impact wetlands. She commented that they believe the nine-lot proposal would be a better subdivision.

Senior Planner McGuire Brigl commented that while it may appear easy to make the road connection on paper, the requirements of the City would require acquisition of the entire public park and a portion of a neighbor's property. She commented that it would be a difficult process and would not be preferred by staff as it would be very challenging.

Commissioner VanScoy commented that it would appear that the connection to 178th would occur at the cul-de-sac bulb and did not see how a neighboring property would be impacted.

Senior Planner McGuire Brigl stated that the City only has about 40 feet of frontage on the cul-de-sac, whereas 66 feet of right-of-way is needed for a roadway.

Commissioner Gengler asked for input from the developer on perhaps making the cul-de-sac wider for more turnaround room.

Ms. Lindahl stated that the cul-de-sac proposed would meet the City standards but confirmed that if that is the desire, they could work with City staff to satisfy those concerns.

Commissioner Anderson asked whether the road would be public or private.

Ms. Lindahl stated that as drawn this would be a public street and would meet the 66-foot street right-of-way with a 28 paved rural section street.

Commissioner Anderson commented that on the drawing it is shown as 24 feet and he would have concern with the 28-foot width as well.

Ms. Lindahl confirmed that the 24-foot shown as an error and that would be 28 feet as required by City standard. She stated that if a wider road is desired, they could work with City staff.

Commissioner VanScoy stated that he would prefer not to have another cul-de-sac that is 1,500 feet in length and would prefer to see another option.

Commissioner Anderson agreed.

Chairperson Bauer asked if there would be another option for a secondary access that would not go through the park.

Senior Planner McGuire Brigl stated that the proposal from the applicant would be the only logical option as there is no development on the north or east to connect to and the other areas are surrounded by wetland.

Commissioner Gengler commented that she likes that the applicant listened to the input from the neighbors but also acknowledged the concerns of public safety. She stated that she would tend to support this layout because of the difficulties and uniqueness of the lot.

Chairperson Bauer noted that some issues and concerns have been raised and the developer should continue to work with staff in attempt to develop something more acceptable before going forward with full plan development.

8. COMMISSION / STAFF INPUT

8.01: Receive Staff Update

Chairperson Bauer asked how the Council liaison appointment is done.

Councilmember Musgrove commented that it is typically done by discussion of the Council.

Deputy City Administrator Gladhill provided additional input on the process, noting that Councilmembers rank their preference for different appointments and the Council then discusses those.

Chairperson Bauer commented that he has appreciated the participation of Councilmember Musgrove and noted the experience of Commissioner Woestehoff. He stated that he would prefer that those two members of the Council continue in a liaison relationship because of their knowledge. He stated that Commissioner Johnson stated that it has been an honor for him to serve on the Board and appreciated the knowledge of City staff. He stated that Commissioner Johnson has not been able to attend the last few meetings because of conflicts with his work and therefore has submitted his resignation. He noted that with Commissioner Woestehoff moving to the City Council, that will create a second vacancy. He stated that applications are going to be accepted for those two vacancies and appointments will be made by the City Council in the spring, but until that time the group would be a Commission of five members.

Commissioner Woestehoff thanked the Commission and staff for the last few years, stating that he has enjoyed his time on the Commission and while he will be sad to leave the Commission, he will continue to serve as a member of the City Council. He confirmed that he would hope to be able to serve as a liaison to the Planning Commission. He also thanked Chairperson Bauer and Commissioner VanScoy in their leadership in moving the Commission to a fully remote meeting in this challenging time.

The Commission thanked Commissioner Woestehoff for his service.

Commissioner VanScoy thanked the staff for making it possible to hold remote meetings.

9. ADJOURNMENT

Motion by Commissioner Peters, seconded by Commissioner Anderson, to adjourn the meeting.

A roll call vote was performed:

Commissioner Gengler aye

Commissioner Peters	aye
Commissioner Anderson	aye
Commissioner Woestehoff	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

The regular meeting of the Planning Commission adjourned at 8:52 p.m.

Respectfully submitted,

_____
Chloe McGuire Brigl
Senior Planner

ATTEST:

_____
JoAnn Shaw
Planning Division Secretary

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

Meeting Date: 01/07/2021

By: Chloe McGuire Brigl, Community Development

Information

Title:

Review Revised Sketch Plan for Hunt Addition, Case of Platinum Land (Project 20-105)

Purpose/Background:

The purpose of this case is to review a revised sketch plan from Platinum Land, LLC (the "Applicant") who is now working with a ne engineering/surveying firm, Landform, on the sketch plan for the Hunt Property. The Subject Property is an approximately 35 acre piece of land west of Nowthen Boulevard, north of 173rd Avenue, and south of 175th Avenue. The Planning Commission has seen two separate sketch plans for this site. Based off the changes since the previous proposal, City Code requires that it comes back to Planning Commission for Sketch Plan review. The major changes since the previous proposal are layout changes, including including the neighboring property on the southeastern corner of the site that was not previously included in the proposal.

Notification:

No notification is required for sketch plan, but the City sent notification of the meeting to Property Owners within 350 feet of the Subject Property, as reflected in the Anoka County Property Records.

Observations/Alternatives:

Summary

The proposed sketch plan shows 79 lots on the 35 acre piece of land. The proposed density is approximately 2.2 units per acre, which falls within the allowed density per City Zoning and the City's approved 2040 Comprehensive Plan. The proposed sketch plan does not require any variances, changes to City Code, or amendments to the Comprehensive Plan. The proposal does require a few unique items, which are noted below in the Next Steps section.

Conformity with City Code

The proposed sketch plan does appear to generally meet the requirements of City Code. There are a few minor changes that will be required, as is typical with any sketch plan or subdivision application - including a couple slightly undersized lots, the need for ponding onsite, an approved wetland delineation, and ensuring there is adequate space for building pads on each lot. Staff comments are attached.

Next Steps

The next step in this project would be development of a preliminary plat. The major items included with this submittal include:

- Wetland Delineation
- Traffic Study
- Floodplain Mitigation (as proposed by Applicant)
- Typical Preliminary Plat Sheets (engineering)
- Utility Plan

One of the major items for this project includes the utility plan. This site is zoned for City Utilities, which are south of Trott Brook in the Brookfield neighborhood. This project will require bringing utilities north of Trott Brook to this area for the first time. This will take significant coordination with the City's Engineering Department.

Staff would like to note that per the City's Charter, the City cannot force homes to connect to City utilities, but

understands the concerns from residents when utilities are put in the road in front of their homes. If any residents have questions about this, they are welcome to reach out to the Planning Department.

City Code Sections

- Section 117-111: R-1 Residential (Existing and Proposed Zoning)
- Section 117-588: Major Plat
- Section 117-614: Subdivision Design Standards

Funding Source:

The Applicant is responsible for all costs associated with review of project.

Recommendation:

No formal motion is required. Staff recommends providing high level feedback and directing the Applicant to move forward with Preliminary Plat development.

Action:

Motion to direct the Applicant to move forward with developing a Preliminary Plat, taking into account all staff comments.

Attachments

Site Location

Sketch Plan

Sketch Plan Comments (ProjectDox)

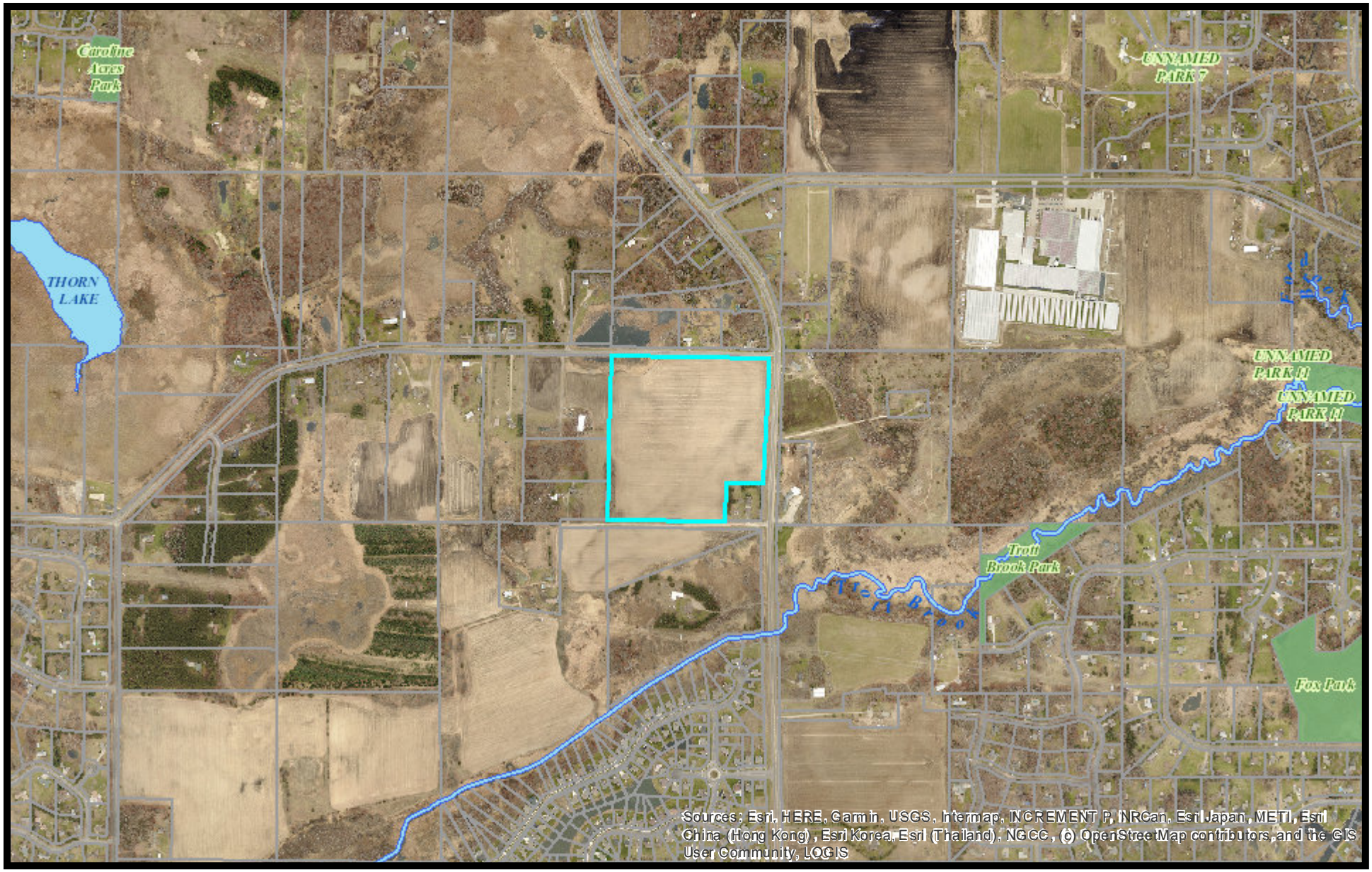
Form Review

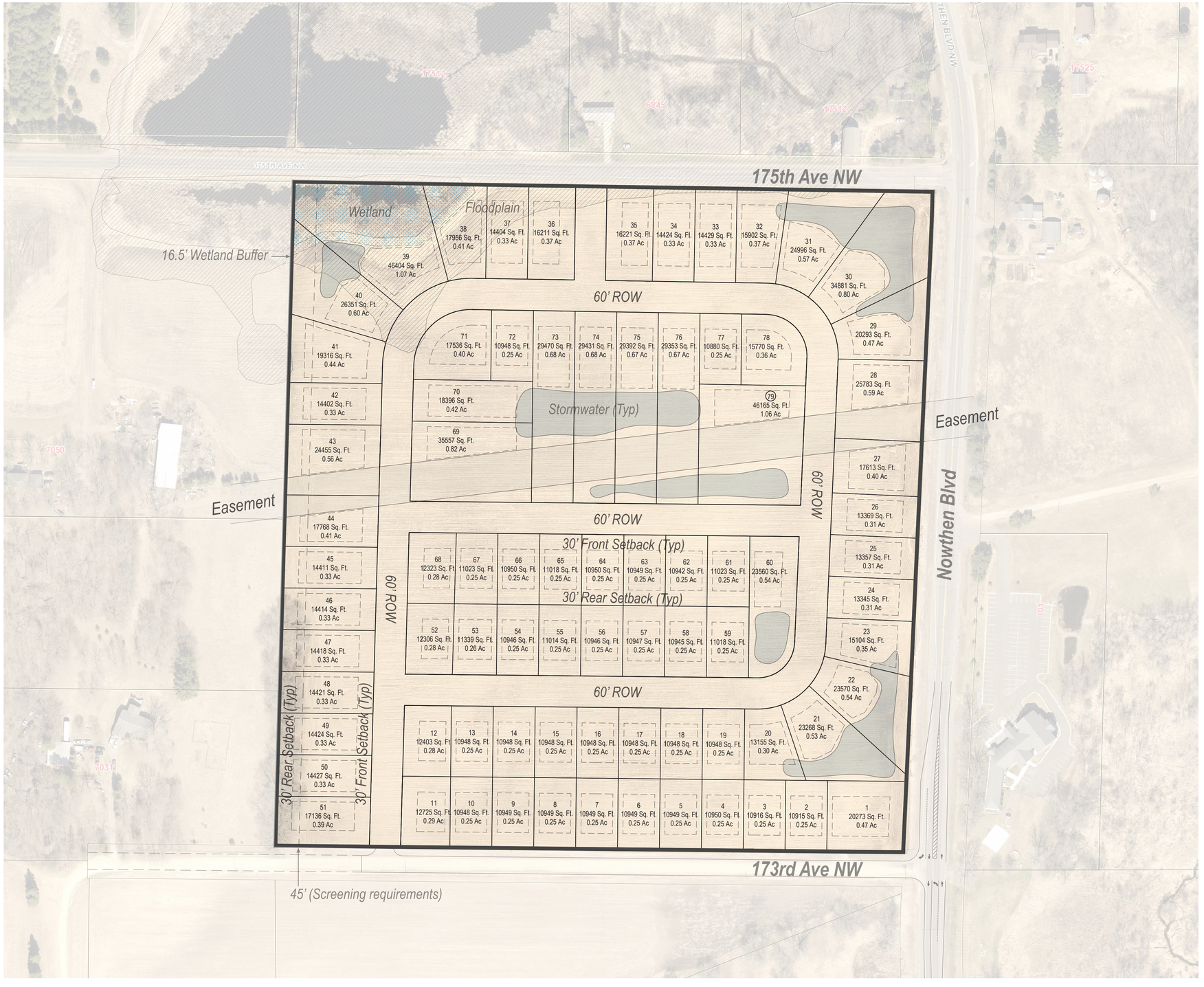
Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/30/2020 11:48 AM
Form Started By: Chloe McGuire Brigl		Started On: 12/28/2020 10:04 AM
Final Approval Date: 12/30/2020		

Subject Property

Hunt Property

Hunt Property





Site Data

Site Area - Gross	**35.5 Acres**
Wetland	0.7 Acres
Wetland Buffer	0.2 Acres
Site Area - Net *(less wetland & wetland buffer)*	**34.7 Acres**
Easement *(not buildable)*	2.1 Acres
Buildable Area *(less wetland, wetland buffer, & easement)*	**32.6 Acres**
Floodplain Area to Mitigate	1.5 Acres

Concept Data

Unit Count	**79**
Density - Gross / Net	**2.2 / 2.3**
Minimum lot size	10,890 Sq. Ft.
Minimum lot width / Corner lot	80' / 90'
Front Building Setback	30'
Rear Building Setback	30'
Side Setback Street / Interior	30' / 10'
Wetland Buffer	16.5'
Buffer Requirements *(required along existing residential properties)*	45' no berm 35' berm

Legend

- Floodplain (FEMA)
- Wetland and Wetland Buffer (NWI)
- Stormwater

0 50' 100'

NORTH

LANDFORM
From Site to Finish

Sketch Plan

SFR 175th Ave • Ramsey, MN

11.05.2020

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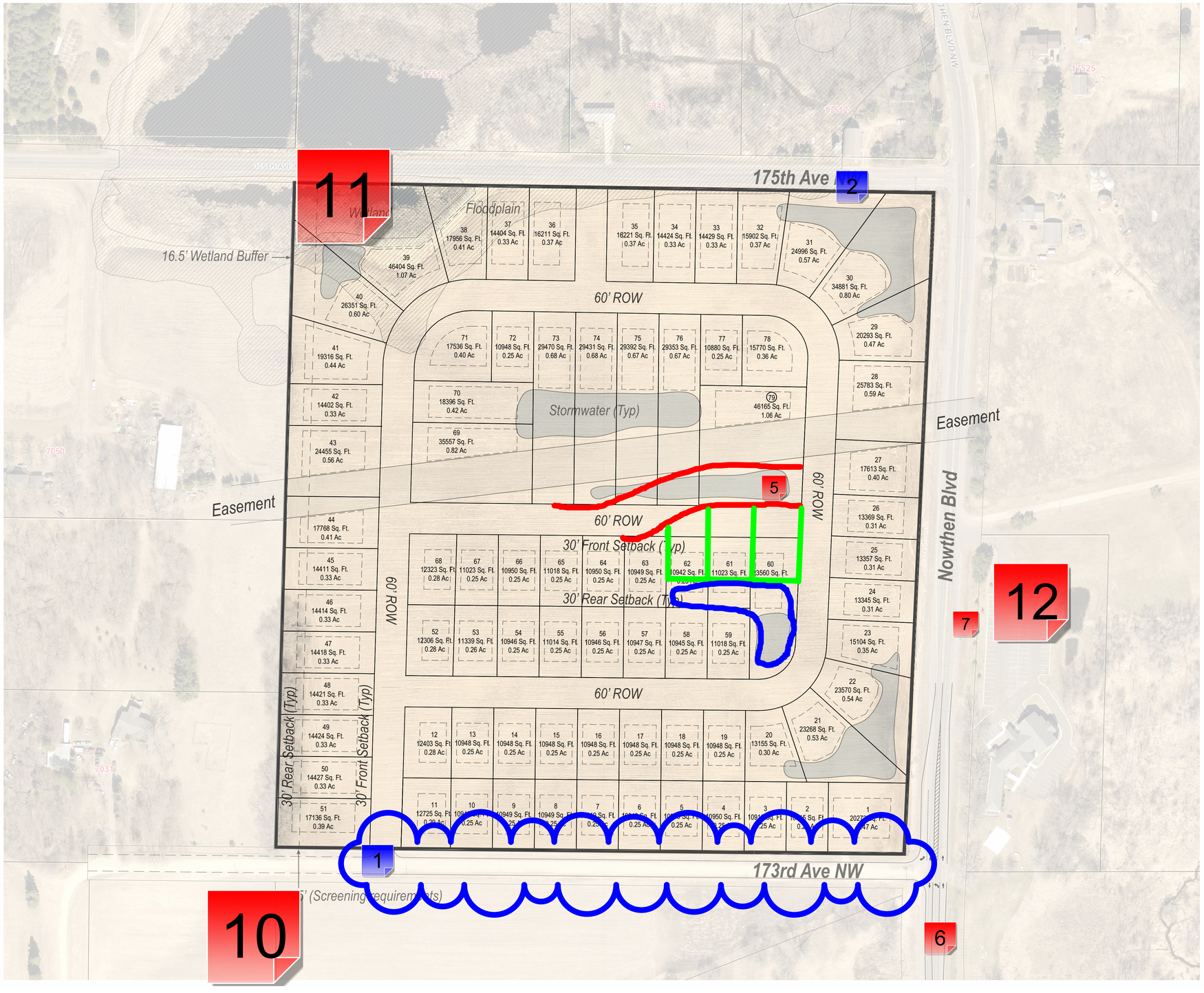
LANDFORM
From Site to Finish

Sketch Plan - Illustrative

SFR 175th Ave • Ramsey, MN

11.05.2020

Landform® and Site to Finish® are registered service marks of Landform Professional Services, LLC.



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- Wetland and Wetland Buffer (NWI)
- Stormwater

0 50' 100' NORTH

LANDFORM
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Sketch Plan

SFR 175th Ave • Ramsey, MN

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LANDFORM
From Site to Finish

Sketch Plan - Illustrative

SFR 175th Ave • Ramsey, MN

11.05.2020

Landform® and Site to Finish® are registered service marks of Landform Professional Services, LLC.

Sketch Plan.pdf V4 - Changemark Notes (12 Notes)

1 - Improve 173rd Avenue NW

Created by: Tim Gladhill
On: 11/30/2020 02:17 PM

173rd Avenue will need to be upgraded to urban street standards. Will discuss Cost Share/Assessment Agreement with other benefitting properties (benefitting by future development, not assessed to existing residents).

--------- 0 Replies ---------

2 - Add Turn Lane for 175th Avenue NW

Created by: Tim Gladhill
On: 11/30/2020 02:18 PM

Shift intersection south to improve width of ROW. Preserve additional ROW on south side of 175th Avenue NW.

--------- 0 Replies ---------

3 - Traffic Study Required

Created by: Tim Gladhill
On: 11/30/2020 02:19 PM

Due to access onto 2 collector roads, a traffic study shall be required.

To be completed as part of Preliminary Plat. Not required as part of Sketch Plan Review.

--------- 0 Replies ---------

4 - Trunk Utility Plan

Created by: Tim Gladhill
On: 11/30/2020 02:21 PM

Please work with City's Engineering Division to develop a revised plan for Trunk Utilities to service this site. 2018 Comprehensive Water and Sewer Plans are baseline for discussion. Plan prepared by Bolton and Menk.

--------- 0 Replies ---------

5 - Dead Space

Created by: Logan Czech
On: 12/09/2020 09:36 AM

Potential layout change to eliminate some of the dead space along the easement.

--------- 0 Replies ---------

6 - Trunk Municipal Utilities

Created by: Joe Feriancek
On: 12/11/2020 12:55 PM

Trunk utilities do not exist to this site. Development will require extension of utilities. Options will need to be discussed. Consideration of a temporary lift station until trunk sewer line from the west is constructed may need to be considered.

--------- 0 Replies ---------

7 - 173rd and 175th

Created by: Joe Feriancek
On: 12/11/2020 12:57 PM

Upgrades to adjacent streets will be required with development. These upgrades will need to be shown at time of preliminary plat to confirm right of way at 173rd and 175th is sufficient for necessary improvements.

--------- 0 Replies ---------

8 - Stormwater

Created by: Len Linton
On: 12/11/2020 02:30 PM

Stormwater ponds are shown on the sketch plan. This site minimal grade change from west to east and north to south. The proposed stormwater ponds are on the east and north edges of the site. The proporties east of Nowthen Blvd and north of 175th Avenue do not have drainage and utility easements for routing stormwater.

The preliminary plat plans will need to show the proposed outlet routes with proposed easements from the ponds to the county ditch north or east of the site.

The City has recieved high water complaints in the past from the properties north of 175th Avenue. Stormwater cannot be directed north without investgation of the drainage system in that area.

Multiple connection points will most likely be required due to the Natural Gas lines that cross the site. Providing the require separation between storm sewer and gas lines is probably not feasible.

--------- 0 Replies ---------

9 - Floodplain

Created by: Len Linton
On: 12/11/2020 02:47 PM

The narrative talks about floodplain mitigation to allow constuction of the lots in the northwest corner of the site.

The floodplain bouondary was not established with detailed methods. The watershed for this floodplain extends into the City of Nowthen. Identifying the floodplain elevation in this area and sites for floodplain mitigation will take some effort that is not generally part of preliminary plat approval.

--------- 0 Replies ---------

10 - Municipal Services Connections

Created by: Len Linton
On: 12/11/2020 03:03 PM

The nearest Municipal Sewer and Water Lines are near the intersection of Trott Brook and Variolite Street. A plan for connection to these services must be developed. It must be thoughtful, providing service to this site while preserving the development potential of the lands which the lines must cross.

A concept for connection to municipal sewer and water must be included in the preliminary plat submittal.

--------- 0 Replies ---------

11 - Floodway/Flood Fringe Determination

Created by: Chris Anderson
On: 12/15/2020 02:26 PM

In the NW corner (impacting lots 36-40), the floodplain is designated General Floodplain District, meaning the floodway/flood fringe boundary has not been determined by FEMA. City Staff has reached out to the DNR to see if any regional flood elevation and/or floodway data is available to assist with this determination. Applicant may have to complete a hydrologic and hydraulic engineering analysis to determine Regional Flood Protection Elevation.

--------- 0 Replies ---------

12 - Lot size

Created by: Kristin Moen
On: 12/21/2020 09:23 AM

All lots have been measured to meet the required minimum lot width and depth.

Lot 77 as shown does not appear to meet the minimum lot size.

Note that lots 69 and 79 do not have 80 feet of continuous width due to the easement.

--------- 0 Replies ---------

Regular Planning Commission **5. 3.**

Meeting Date: 01/07/2021

By: Brian McCann, Community Development

Information

Title:

Consider Resolution #21-014 Approving an Interim Use Permit for Storage Containers and Gravel Outdoor Storage Area at 8049 146th Ave NW (Project No. 20-137); Case of JBR Ramsey, LLC on behalf of Richard Lee

Purpose/Background:

This request comes from Richard Lee (the "Applicant"), owner of JBR Ramsey LLC which owns 8049 146th Avenue NW (the "Subject Property"). The Applicant is seeking recommendation of approval for an Interim Use Permit for outdoor storage on gravel surfacing for vehicles, storage containers, and various equipment for Fred Outdoor Services (the "Tenant). The Planning Commission tabled this topic at their December 3, 2020 Planning Commission meeting, recommending that the Applicant work with City Staff to revise their Application to include additional screening for the storage containers. Since that meeting, the Applicant has revised their application.

The current proposal is to:

- Align all storage containers (except one outlined below) to the east side of the building. The storage containers will remain in a neat and orderly line.
- The ends of the storage containers will be painted to match the building. The paint will be maintained and kept in neat appearance.
- One remaining storage container will be on the west side of the building, to remain screened from adjacent properties to the north and east.
- The Applicant is open to additional screening including a white PVC fence or wrapping the end container.

Staff is comfortable with this compromise scenario, as the property is likely to redevelop in future years. Staff is supportive of utilizing storage containers for this unique situation instead of investing in a new building on the property that will likely be torn down in future years.

There are no changes to the proposal for gravel parking, as the Planning Commission seemed comfortable with the previous compromise scenario that was recommended.

Notification:

The City attempted to notify Property Owners, as reflected in the Anoka County Property Records, within 350 feet of the Subject Property of the request.

Observations/Alternatives:

Summary

The Subject Property was discovered to be in violation of City Code in regards to overgrown vegetation, outdoor storage on unapproved surfacing, and off-street parking regulations. The property owner, Richard Lee, has been working with the City for an extended period of time to resolve these violations, and receive approval for outdoor storage on approved surfacing. The only outstanding violation on the property is the outdoor storage. Fred Outdoor Services uses the area for equipment, vehicle, and material storage which includes six (6) storage containers. According to the Applicant, two (2) of the six (6) storage containers have been there for at least 15 years, but Staff does not have any records of permits for these units, nor for the gravel parking area that the property owner installed.

Mr. Lee is requesting that the Planning Commission recommend approval so that he may install an additional layer of Class V gravel, and utilize the area in the manner it has been for the last 15 years, with the inclusion of the

storage containers currently on site. Staff has suggested a 20 foot buffer surrounding the property to refrain from parking vehicles and equipment in the drainage and utility easement. The Applicant has noted that the containers would be managed and maintained by the tenant, and would like to utilize the containers for an extended period of time, at least five (5) years. Staff anticipates that the storage containers will remain onsite until the property redevelops, if this permit is approved.

Site Information
The Subject Property is approximately 1.43 acres, and zoned COR, but functions as an older industrial district. It is a unique property in the City of Ramsey, slated for redevelopment.The current location of the containers is noted in the attached site plan. Currently, the outdoor storage area consists entirely of dirt and grass. The southwest parking area of the parcel is made entirely of asphalt and concrete surfacing, but the storage area does not have any Class V left after consistent use over the years. The containers are currently placed on grass or dirt, but the City requests that they be placed on Class V crushed concrete, which will be installed at a later date.

Current Regulations
At this time, the City does not allow shipping containers or these large metal storage containers in lieu of an accessory building in any district. The request for these types of containers is becoming more and more common as the containers become more trendy and readily available. Staff is aware of at least one other request from an industrial-type user for these types of shipping containers, and has numerous requests from residents to allow these types of storage containers on residential properties.

Previous direction has been to improve the image of Ramsey and work with property owners throughout the City to incrementally improve properties. These containers do require upkeep and the metal containers are not an ideal architectural feature. However, Staff is empathetic to the recent economic downturn and wants to help a Ramsey business remain in their current location.

The outdoor storage has been debated internally since the only documentation consists of aerial photographs added to this case, as well as the signed copy of the site plan presented from the former tenant from 1986 through 2018, Chalich Trucking. It is also noted that Class V was installed without City approval in 2016, based on the proposed site plan. Recent inspections indicate that an additional layer of Class V will need to be approved by the City and installed if the Interim Use Permit is approved.

Code Sections

- COR Section of Code, Chapter 117-118
- Public Nuisances Section of Code, Chapter 30-3

Alternatives
Alternative 1: Recommend approval of the Interim Use Permit for gravel parking and storage containers with modifications to the previous proposal including aligning the containers to the east of the building, and painting the ends of the containers for additional screening.
Alternative 2: Recommend approval of the Interim Use Permit for gravel parking and storage containers with modifications to the previous proposal including aligning the containers to the east of the building, and putting up a white PVC fence around the north and east sides of the containers for additional screening.
Alternative 3: Recommend approval of the Interim Use Permit for gravel parking and storage containers with modifications to the previous proposal including aligning the containers to the east of the building.
Alternative 4: Table the proposal.

Funding Source:
All costs associated with this request are the responsibility of the Applicant.

Recommendation:
Staff recommends Alternative 1, including painting the containers for additional screening. Staff recommends approving Resolution #21-014 for an Interim Use Permit for parking on gravel surfacing and the use of storage containers currently on the Subject Property.

Action:

Motion to recommend City Council adopt Resolution #21-014 Approving an Interim Use Permit for gravel parking and use of storage containers currently on the Subject Property to align with updated site plan.

Attachments

Resolution #21-014
Previous Site Plan
Site Location Map
Aerial Photographs
Updated Site Plan

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/30/2020 11:44 AM
Tim Gladhill	Tim Gladhill	12/30/2020 04:09 PM
Form Started By: Chloe McGuire Brigl		Started On: 12/30/2020 10:22 AM
Final Approval Date: 12/30/2020		

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

RESOLUTION #21-014

A RESOLUTION APPROVING THE ISSUANCE OF AN INTERIM USE PERMIT TO ALLOW OUTDOOR STORAGE ON GRAVEL PARKING AND THE USE OF STORAGE CONTAINERS ON THE PROPERTY LOCATED AT 8049 146TH AVE NW AND DECLARING TERMS OF SAME

RECITALS

1. Richard Lee, hereinafter referred to as the "**Permittee**" has properly applied for an Interim Use Permit to allow the use of six (6) storage containers and gravel parking on the property generally known as 8049 146th Ave NW and legally described as follows:

   LOT 4 BLK 2 HY-10 RAMSEY SUBJ TO EASE OF REC, Anoka County, Minnesota

   (the "**Subject Property**")

2. That Richard Lee of JBR Ramsey, LLC, owns the Subject Property and has signed off on the application.

3. That the **Subject Property** is zoned COR Industrial District and is approximately 1.43 acres in size.

4. That the **Subject Property** abuts 146th Ave NW to the south and Ferret St NW to the west, and parcels to the east and north of the Subject Property are zoned COR Industrial District.

5. That there are existing Zoning Code violations on the **Subject Property** regarding outdoor storage.

6. That the **Permittee** is proposing to utilize the parking and outdoor storage areas as they currently stand on the property.

7. That the **Subject Property** has some lawful, nonconforming rights associated with outdoor storage and gravel parking.

FINDINGS OF FACT

1. That the **Containers and Gravel Parking** will not be unduly dangerous or detrimental to persons residing or working in the vicinity of the use, or to the public welfare.

2. That the **Containers and Gravel Parking** will not substantially adversely impair the use, enjoyment or market value of any of the surrounding properties.

3. That the **Containers and Gravel Parking** will be harmonious with and in accordance with the specific objectives of the comprehensive plan.

4. That the **Containers and Gravel Parking** will be maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and will not change the essential character of the area.

5. That the **Containers and Gravel Parking** will not be hazardous to existing or future neighboring uses.

6. That the **Containers and Gravel Parking** will not impact essential public facilities and services, such as highways, streets, police and fire protection.

7. That the **Containers and Gravel Parking** will not create excessive additional requirements at public cost for public facilities and services and will not be detrimental to the economic welfare of the community.

8. That the **Containers and Gravel Parking** will not involve uses, activities and equipment 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.

9. That the **Containers and Gravel Parking** will be consistent with the intent and purposes of the Zoning Chapter.

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

That the Ramsey City Council hereby grants approval of an Interim Use Permit for Gravel Parking and Use of Storage Containers on the **Subject Property** contingent upon the following conditions:

CONDITIONS

1. That this **Permit** allows for use on the **Subject Property** for five (5) years.

2. That the **Permittee** shall obtain all necessary permits on the **Subject Property**.

3. That the **Permittee** shall maintain the Subject Property in compliance with City Code Sections 117-356 (Commercial and Industrial Development Off-Street Parking) and 117-118 (The COR District), Chapter 117 (Zoning and Subdivisions) Article II (Zoning) Division 6 (Performance Standards); and Chapter 30 (Nuisances) at all times.

4. That the **Permittee** shall obtain all necessary permits to complete any required building modifications.

5. That this **Permit** shall be perpetual in duration as long as the terms are herein complied with.

6. That the **Permittee** shall be responsible for all City costs incurred in administering and enforcing this Permit.

7. That the City Administrator, or his/her designee, shall have the right to inspect the premises for compliance and safety purposes annually or at any time, upon reasonable request.

8. That this **Permit** approves the gravel parking lot and six (6) storage containers as seen in Exhibit A. No gravel shall be expanded past this point, and there shall not be any additional outdoor storage without an amendment to this **Permit**.

9. That this **Permit** shall automatically expire if the use is not initiated by December 3rd, 2021.

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 ____th day of January, 2021.

CITY OF RAMSEY:

By:_____ By:_____
Mayor City Clerk

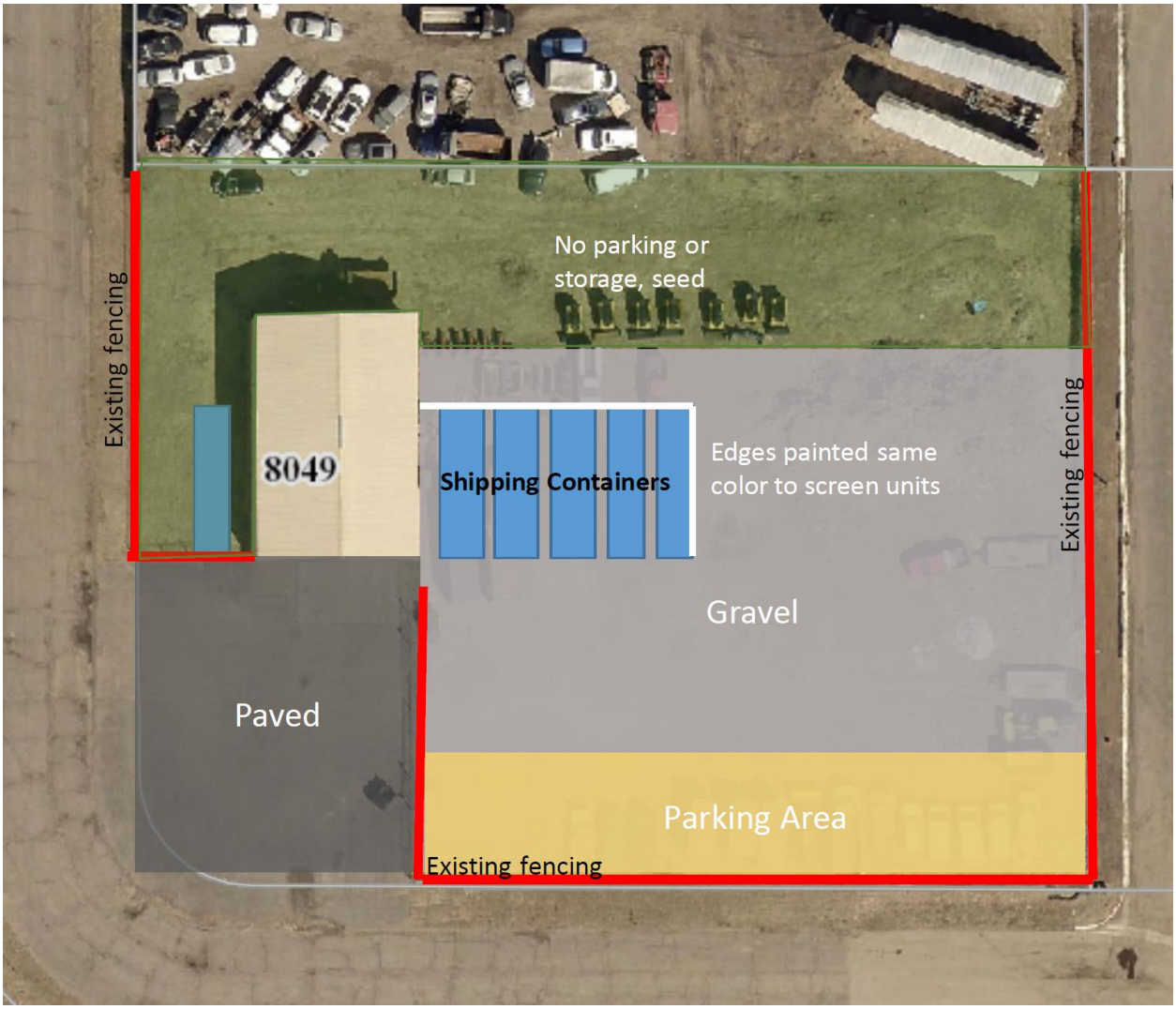
STATE OF MINNESOTA)
) ss.
COUNTY OF ANOKA)

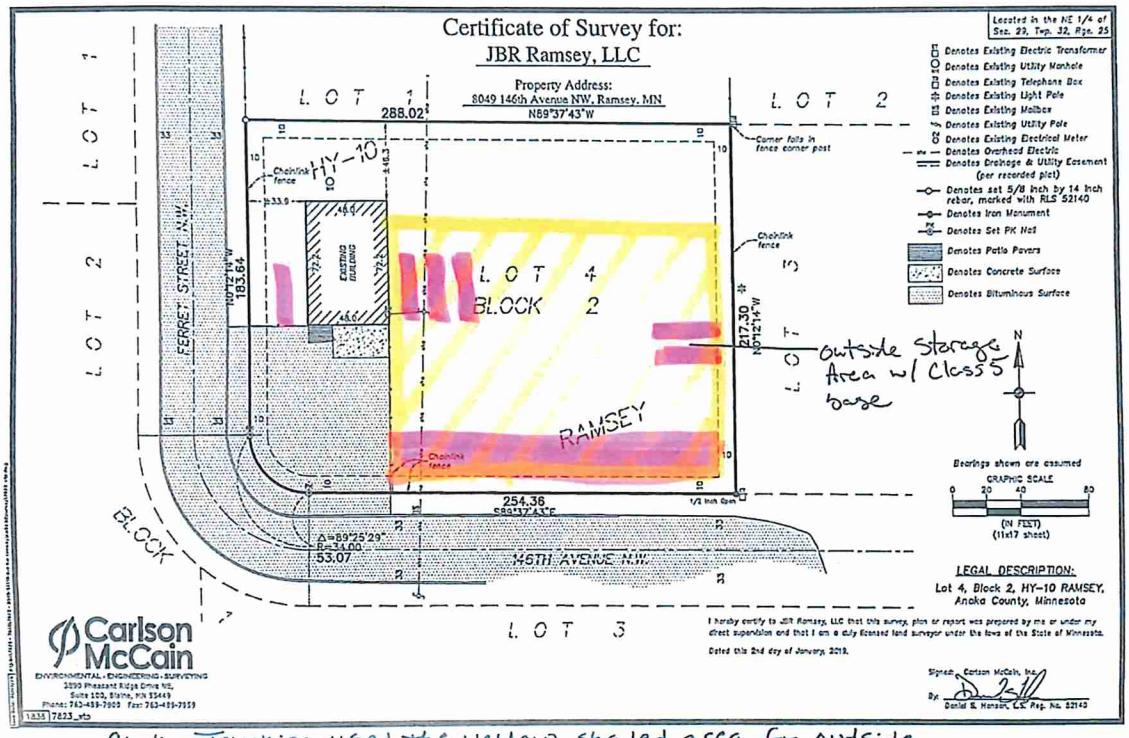
On this _____ day of _____, ____, before me a Notary Public personally appeared Mayor John LeTourneau and Colleen Lasher, to me personally known, who, being each by me duly sworn, did say that they are respectively the Mayor and City Clerk of the City of Ramsey, the Municipal Corporation named in the 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 John LeTourneau and Colleen Lasher 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

Exhibit A: Site Plan





Chalich Trucking used the yellow shaded area for outside storage for an approximate time frame 1986-2018. In 2012 Chalich Trucking put recycled concrete in outside storage area. Chalich had semi van trailers parked up to the east chain fence.
Chris Cook - President 09-17-2020

City of RAMSEY

Site Location Map

JBR Ramsey LLC

8049 146th Ave NW

29-32-25-14-0011

Legend

Site

Parcels

N

November 20th, 2020

0 0.0225 0.045 mi

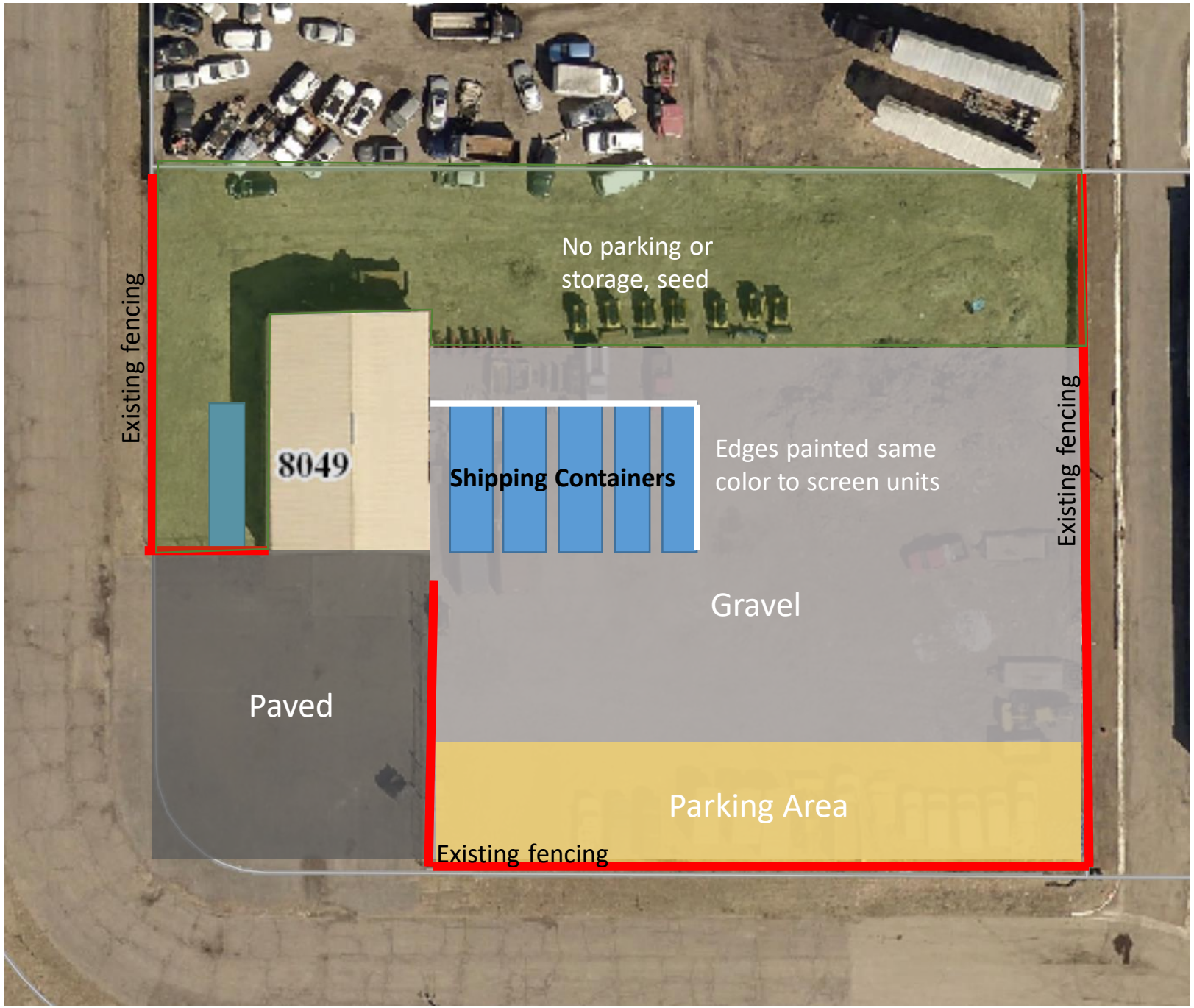
2020

2014

2011

2008

2005


No parking or
storage, seed
Existing fencing
8049
Shipping Containers
Edges painted same
color to screen units
Existing fencing
Gravel
Paved
Parking Area
Existing fencing

Regular Planning Commission **5. 4.**

Meeting Date: 01/07/2021

By: Chloe McGuire Brigl, Community Development

Information

Title:

Provide Feedback for Site Plan and Final Plat for Gigi's Salon (Project #20-140)

Purpose/Background:

The purpose of this case is to review a proposal from Gigi's Salon (the "Applicant") for a final plat and site plan review for a proposed salon on the corner of Zeolite Street, Veterans Drive, and Sunwood Drive. The proposed site is currently owned by the City of Ramsey and the Applicant has an active purchase agreement with the City. The Subject Property is approximately 3.14 acres with 1.42 acres being platted as a buildable lot for Gigi's Salon. The remaining acreage will be platted as two separate outlots, one for the City to maintain for a well, and one for a buildable lot to sell in the future.

A public hearing was noticed for this meeting. Staff has since moved this agenda item to the consent agenda with the recommendation to table the formal public hearing until the next meeting. This case is now meant as an update and an opportunity to confirm the direction of Staff moving forward with project review. Staff's intended direction is to:

- Direct the Applicant to update plan sheets to conform with City Code requirements, COR Design Framework guidelines, and Staff comments
- Direct the Applicant to ensure the architectural requirements are those required by the COR Design Framework, including high quality materials, stone, increased window openings, and 4 sided architecture.

Notification:

The City attempted to notify Property Owners, as reflected in the Anoka County Property Records, within 700 feet of the Subject Property of the request. The Public Hearing Notice was also properly posted in the Anoka County UnionHerald, the City's Official Newsletter.

Observations/Alternatives:

Proposed Architecture

The Applicant is proposing block walls with stone entrances and a metal roof. This does not meet the intent or requirements of the COR Design Framework. Staff is recommending some changes to the elevations before Staff is comfortable moving this forward to City Council. There are also changes needed to the plan sheets, including updating the landscape and grading plan, adding sidewalks to the public roads, and other minimal comments.

Please see the attached Staff Review Letter and proposed elevations for more information.

Alternatives

Alternative 1: Table the project until the Applicant has time to revise plan sheets for conformity with Staff comments, including updating landscape plan, street and lighting plan, grading plan, and architectural elevations. Staff is supportive of this alternative.

Alternative 2: Motion to recommend the City Council adopt the Resolution to approve the final plat and site plan with contingencies for Staff to work with the Applicant to revise the plan sheets to conform with City Code. As part of this recommendation, Staff would request that the Planning Commission is specific on the architectural

requirements that they would like to see on this site. Specifically, Staff is requesting feedback on block walls, a metal roof, and reduced window openings. If the Planning Commission is open to being flexible on these items, the City Council would still need to approve the deviations from the COR Design Framework.

Funding Source:

The Applicant is responsible for all costs associated with project review. Please note that this project does include a land transaction with the City, as the entire site is currently owned by the City of Ramsey.

Recommendation:

Staff recommends Alternative 1, which includes tabling until the next meeting to allow the Applicant time to revise the architectural elevations and plan sheets in accordance with Planning Commission's recommendation.

Action:

Motion to table proposal until Applicant can revise architectural elevations and plan sheets for full Planning Commission review.

Attachments

Site Location Map
Final Plat
Site Plan
Proposed Elevations
Plan Sheets
Preliminary Staff Comments (ProjectDox)
Staff Review Letter

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/30/2020 11:46 AM
Form Started By: Chloe McGuire Brigl		Started On: 12/28/2020 11:18 AM
Final Approval Date: 12/30/2020		

City of RAMSEY

Gigi's Salon

28-32-25-23-0018

Legend

Site

Parcels

N

December 15th, 2020

0 0.045 0.09 mi

DRAFT - FINAL PLAT - 2020-11-16

GIGI ADDITION

CITY OF RAMSEY
COUNTY OF ANOKA
SEC. 28, T. 32, R. 25

KNOW ALL PERSONS BY THESE PRESENTS: That the City of Ramsey, a Minnesota municipal corporation, owner of the following described property:

Outlot A, COR STONE BROOK ACADEMY, Anoka County, Minnesota.

Has caused the same to be surveyed and platted as GIGI ADDITION and does hereby dedicate to the public for public use the drainage and utility easements as shown on this plat.

In witness whereof said City of Ramsey, a Minnesota municipal corporation, has caused these presents to be signed by its proper officers this _____ day of _____, 20____.

SIGNED: City of Ramsey

By: _____ Mayor By: _____ Clerk

STATE OF MINNESOTA
COUNTY OF _____

This instrument was acknowledged before me this _____ day of _____, 20____ by _____, as Mayor and _____, as Clerk of City of Ramsey, a Minnesota municipal corporation, on behalf of the corporation.

_____ (Signature) _____
Notary Public, _____ County, Minnesota Notary Printed Name
My Commission Expires_____

I Jeremy R. Honga 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____.

_____
Jeremy R. Honga, Licensed Land Surveyor,
Minnesota License No. 58013

STATE OF MINNESOTA
COUNTY OF _____

This instrument was acknowledged before me this _____ day of _____, 20____ by Jeremy R. Honga.

_____ (Signature) _____
Notary Public, _____ County, Minnesota Notary Printed Name
My Commission Expires_____

CITY COUNCIL, CITY OF RAMSEY, MINNESOTA

This plat of GIGI ADDITION 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: _____ Clerk

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____.

_____
Charles F. Gitzen, 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____.

_____ By: _____, Deputy
Property Tax Administrator

COUNTY RECORDER / REGISTRAR OF TITLES
County of Anoka, State of Minnesota

I hereby certify that this plat of GIGI ADDITION 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 as Document Number _____.

_____ By: _____, Deputy
County Recorder/Registrar of Titles

DRAINAGE AND UTILITY EASEMENTS
ARE SHOWN THUS:
(NOT TO SCALE)

BEING 5 FEET IN WIDTH, UNLESS OTHERWISE INDICATED, AND ADJOINING LOT LINES, AND 10 FEET IN WIDTH, UNLESS OTHERWISE INDICATED, AND ADJOINING RIGHT-OF-WAY LINES, AS SHOWN ON THE PLAT.

○ DENOTES 1/2 INCH BY 14 INCH IRON MONUMENT SET AND MARKED BY LICENSE NO. 58013.

● DENOTES FOUND MONUMENT, AS NOTED.

THE SOUTH LINE OF OUTLOT A, COR STONE BROOK ACADEMY, IS ASSUMED TO HAVE A BEARING OF N66°10'33"W.

wsb

DESCRIPTION of Parcel 28-32-25-23-0018

Outlot A, COR Stone Brook Academy, Anoka County, Minnesota

Note: This property is Torrens

DESCRIPTION of Proposed Gigi's Parcel

Lot 1, Block 1, Gigi Adddition, Anoka County, Minnesota.

PROPERTY SUMMARY

1. Subject property's address is Unassigned.
2. Subject property's property identification number is 28-32-25-23-0018
3. The gross area of the subject property is 136,676 Square Feet or 3.14 acres.
4. The subject property is zoned COR: The COR, per the City of Ramsey zoning map dated September, 2011.
5. There are no buildings on the subject property.

SURVEY NOTES

1. The bearing system is based on the recorded plat of COR Stone Brook Academy, having a bearing of N66°10'33"W for the South line of Outlot A.
2. The vertical datum is based on NAVD88. The originating benchmark is HYATT MNDT, referenced from the MnDOT Geodetic Database. Elev. = 878.97
3. Location, sizes and types of underground utilities shown are a combination of observed evidence and plan information. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. WSB makes no guarantee that the utilities shown compromise all of the utilities in the area. Where additional or more detailed information is required, the client is advised that excavation and/or a private utility locate request may be necessary. Pursuant to MS 216.D contact Gopher State One Call at 651-454-0002 prior to any excavation.
4. Field work was completed on 5/28/2020.

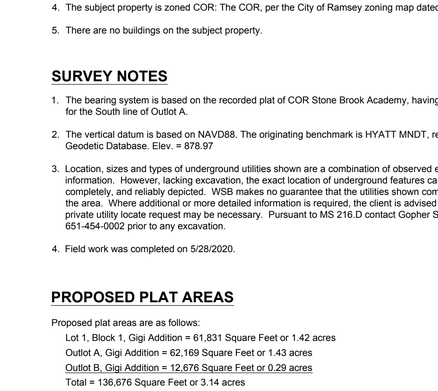
PROPOSED PLAT AREAS

Proposed plat areas are as follows:

Lot 1, Block 1, Gigi Addition = 61,831 Square Feet or 1.42 acres
Outlot A, Gigi Addition = 62,169 Square Feet or 1.43 acres
Outlot B, Gigi Addition = 12,676 Square Feet or 0.29 acres
Total = 136,676 Square Feet or 3.14 acres

SITE INFORMATION (PER CLIENT SITE PLAN)

SITE DATA: COBBLESTONE ADDITION, OUTLOT A
LOT SIZE – 61,831 S.F. = 1.42 ACRES
(DOES NOT INCLUDE WELL EASEMENT)
BUILDING – 9,162 S.F. SALON AND SPA
ANTICIPATED EMPLOYEES – ±30
BUILDING COVERAGE
9,162/61,831 = 14.8%
IMPERVIOUS SURFACE COVERAGE
31,691/61,831 = 51.2%
ZONING – COR2, COMMERCIAL
PARKING DATA:
HEALTH CLUB – 9,162 S.F. 3/1,000–5/1,000 = 27–37 STALLS
50 STALLS PROVIDED



LEGEND

- FD MONUMENT
- FD CHISELED X
- SET MONUMENT
- SIGN POST
- UTILITY PEDESTAL
- SANITARY MANHOLE
- CATCH BASIN
- WATER VALVE
- WATER HYDRANT
- LIGHT POLE
- STORM MANHOLE
- ELECTRIC BOX
- DECIDUOUS TREE
- SANITARY LINE
- STORM LINE
- WATERMAIN LINE
- UNDERGROUND ELECTRIC
- GAS LINE
- UNDERGROUND TELEPHONE
- CURB AND GUTTER
- BITUMINOUS SURFACE
- CONCRETE SURFACE

AFFINITY
AT
THE
COR
NORTHSTAR
TWO
ZEOLITE STREET NW
SUNWOOD DRIVE
VETERANS DRIVE NW
YOLITE STREET NW
BROOK
ACADEMY
STONE
PROPOSED BUILDING 9,162 S.F.
PROPOSED LOT 1 BLOCK 1
PROPOSED OUTLOT A
PROPOSED OUTLOT B
OUTLOT A
OUTLOT B
LOT 1 BLOCK 1
OWNER: CITY OF RAMSEY
ADDRESS: NA
PID: 28-32-25-23-0018
OWNER: MK JOHNSON PROPERTIES LLC
ADDRESS: 7800 SUNWOOD DRIVE NW
PID: 28-32-25-24-0014
BITUMINOUS PARKING LOT
EXISTING BUILDING
PROPOSED DRAINAGE & UTILITY EASEMENT
20 FT DRAINAGE & UTILITY EASEMENT PER RAMSEY TOWN CENTER ADDITION
UTILITY EASEMENT PER RAMSEY TOWN CENTER ADDITION
TNH ELEV: 873.46
TNH ELEV: 870.48
TNH ELEV: 872.06
FD RLS 49138
FD NAIL
HYATT MNDT
N23°49'47"E 352.02
N23°49'47"E 171.68
N23°49'27"E 125.00
S23°49'27"W 125.00
N65°10'33"W 206.56
L=114.27 R=502.00 Δ=13°02'30"
S66°10'33"E 125.00
N66°10'33"W 450.82
N66°10'33"W 139.70
S23°52'40"W 272.15
S68°46'16"W 14.18
101.41
23.59
113.64
235.77
51.29
49.47
248.27
SAN MH RE=872.16 INV SW=857.41 INV NE=857.45 INV NW=856.16 INV SE=856.06
SAN MH RE=869.25 INV NE=857.00 INV NW=856.75 INV SE=856.55
SAN MH RE=869.78 INV SE=859.39 INV NE=859.48
SAN MH RE=886.45 INV SW=859.45 INV NE=859.74 INV SE=859.19
STMH RE 870.73 INV SW=866.38 INV NE=866.38
STMH RE 869.93 INV NW=859.13 INV NE=859.13
STMH RE=869.99 INV NE=859.72 INV SW=859.32
CB RE 868.12 INV SE=864.02 INV N=863.92
CB RE 868.04 INV NW=864.29
CB RE=868.55 INV SW=864.74
CB RE=869.52 INV NE=859.93 INV SW=859.88
CB RE=869.23 INV SW=859.28
CB RE 869.20 INV NW=864.32 INV SE=864.22
CB RE=886.06 INV NW=861.76 INV SE=861.66
CB RE=864.99 INV NW=859.88 INV SW=859.08
CB RE=864.99 INV NW=861.39
CB RE=870.19 INV NE=858.83 INV SE=858.71 INV NW=858.51
CB RE=868.09 INV E=858.88 INV SW=858.58
CB RE=868.23 INV NE=858.35
STMH RE=868.60 INV NE=858.50 INV NW=857.60 INV SE=857.69
INV=858.64
INV=857.44
RE=RECORD PLAN
PHS
PHS
PHS

SOUTH ELEVATION

EAST ELEVATION

NORTH ELEVATION

WEST ELEVATION

GIGI'S SALON AND SPA

Ramsey, Minnesota

NOTE: THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL COLORS NEED TO BE FIELD VERIFIED.

LA ARCHITECTS

DESCRIPTION of Parcel 28-32-25-23-0018

Outlot A, COR Stone Brook Academy, Anoka County, Minnesota

Note: This property is Torrens

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SURVEY NOTES

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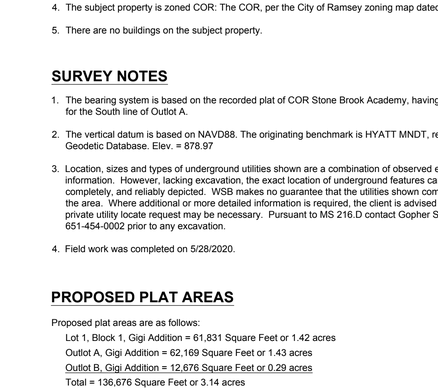
50 STALLS PROVIDED



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- FD CHISELED X
- SET MONUMENT
- SIGN POST
- UTILITY PEDESTAL
- SANITARY MANHOLE
- CATCH BASIN
- WATER VALVE
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NORTHSTAR
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STONE
PROPOSED BUILDING 9,162 S.F.
PROPOSED LOT 1 BLOCK 1
PROPOSED OUTLOT A
PROPOSED OUTLOT B
OUTLOT A
OUTLOT B
LOT 1 BLOCK 1
OWNER: CITY OF RAMSEY
ADDRESS: NA
PID: 28-32-25-23-0018
OWNER: MK JOHNSON PROPERTIES LLC
ADDRESS: 7800 SUNWOOD DRIVE NW
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RE=RECORD PLAN
PHS
PHS
PHS

DRAFT - FINAL PLAT - 2020-11-16

GIGI ADDITION

CITY OF RAMSEY
COUNTY OF ANOKA
SEC. 28, T. 32, R. 25

KNOW ALL PERSONS BY THESE PRESENTS: That the City of Ramsey, a Minnesota municipal corporation, owner of the following described property:

Outlot A, COR STONE BROOK ACADEMY, Anoka County, Minnesota.

Has caused the same to be surveyed and platted as GIGI ADDITION and does hereby dedicate to the public for public use the drainage and utility easements as shown on this plat.

In witness whereof said City of Ramsey, a Minnesota municipal corporation, has caused these presents to be signed by its proper officers this _____ day of _____, 20____.

SIGNED: City of Ramsey

By: _____ Mayor By: _____ Clerk

STATE OF MINNESOTA
COUNTY OF _____

This instrument was acknowledged before me this _____ day of _____, 20____ by _____, as Mayor and _____, as Clerk of City of Ramsey, a Minnesota municipal corporation, on behalf of the corporation.

_____ (Signature) _____
Notary Public, _____ County, Minnesota Notary Printed Name
My Commission Expires_____

I Jeremy R. Honga 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____.

_____
Jeremy R. Honga, Licensed Land Surveyor,
Minnesota License No. 58013

STATE OF MINNESOTA
COUNTY OF _____

This instrument was acknowledged before me this _____ day of _____, 20____ by Jeremy R. Honga.

_____ (Signature) _____
Notary Public, _____ County, Minnesota Notary Printed Name
My Commission Expires_____

CITY COUNCIL, CITY OF RAMSEY, MINNESOTA

This plat of GIGI ADDITION 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: _____ Clerk

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____.

_____
Charles F. Gitzen, 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____.

_____ By: _____, Deputy
Property Tax Administrator

COUNTY RECORDER / REGISTRAR OF TITLES
County of Anoka, State of Minnesota

I hereby certify that this plat of GIGI ADDITION 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 as Document Number _____.

_____ By: _____, Deputy
County Recorder/Registrar of Titles

DRAINAGE AND UTILITY EASEMENTS
ARE SHOWN THUS:
(NOT TO SCALE)

BEING 5 FEET IN WIDTH, UNLESS OTHERWISE INDICATED, AND ADJOINING LOT LINES, AND 10 FEET IN WIDTH, UNLESS OTHERWISE INDICATED, AND ADJOINING RIGHT-OF-WAY LINES, AS SHOWN ON THE PLAT.

○ DENOTES 1/2 INCH BY 14 INCH IRON MONUMENT SET AND MARKED BY LICENSE NO. 58013.

● DENOTES FOUND MONUMENT, AS NOTED.

THE SOUTH LINE OF OUTLOT A, COR STONE BROOK ACADEMY, IS ASSUMED TO HAVE A BEARING OF N66°10'33"W.

wsb

PRELIMINARY PLAT - 2020-11-16

PROPERTY DESCRIPTION

Outlot A, COR Stone Brook Academy, Anoka County, Minnesota

Note: This property is Torrens

PROPERTY SUMMARY

1. Subject property's address is Unassigned.
2. Subject property's property identification number is 28-32-25-23-0018
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3. Location, sizes and types of underground utilities shown are a combination of observed evidence and plan information. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. WSB makes no guarantee that the utilities shown compromise all of the utilities in the area. Where additional or more detailed information is required, the client is advised that excavation and/or a private utility locate request may be necessary. Pursuant to MS 216.D contact Gopher State One Call at 651-454-0002 prior to any excavation.
4. Field work was completed on 5/28/2020.

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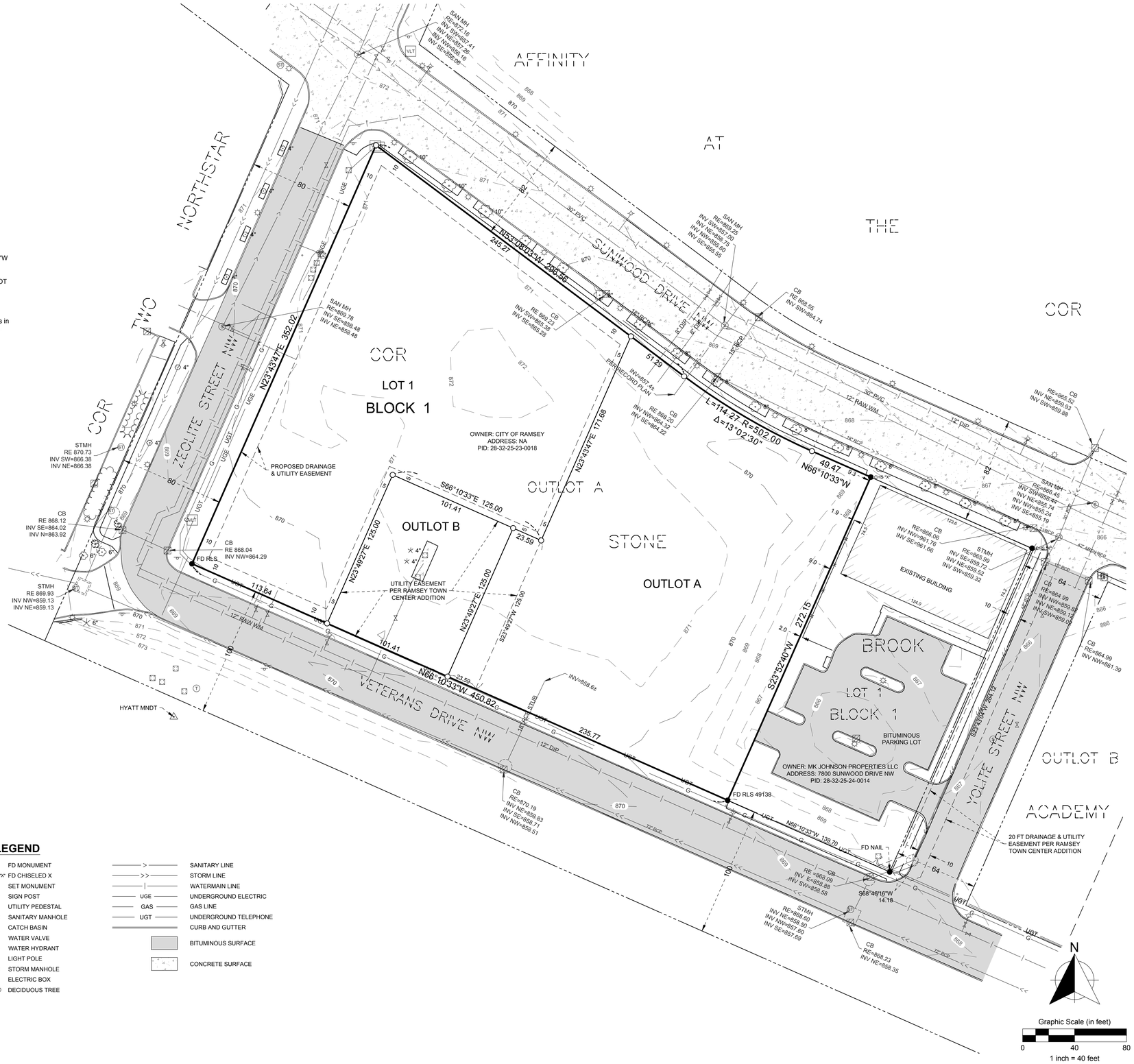
Outlot B = 12,676 Square Feet or 0.29 acres
Total = 136,676 Square Feet or 3.14 acres

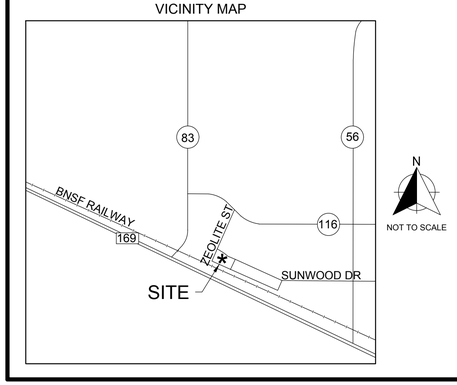
ADDRESSES

Owner: as shown on graphic

Surveyor: WSB
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416



VICINITY MAP



LEGEND

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- CURB AND GUTTER
- BITUMINOUS SURFACE
- CONCRETE SURFACE

wsb

WSB PROJECT NO.: 015674-000

SCALE: 1" = 40'
DRAWN BY: JRH
SURVEY BY: NE / JO
CHECK BY: JRH

REVISIONS

NO.	DATE	DESCRIPTION

CERTIFICATION

I HEREBY CERTIFY THAT THIS SURVEY, PLAN OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

Jeremy R. Honga
DATE: 11/16/2020 LIC. NO.: 58013

Outlot A, COR Stone Brook Academy

Client: Classic Construction, Inc.

Ramsey, Minnesota

Gigi Addition
Preliminary Plat

SHEET
1 OF 1

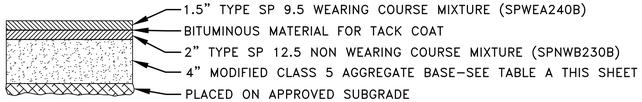
K:\015674-000\Survey\Drawing\015674-000-V-PPLAT Gigi Addition.dwg, 11/16/2020 1:30:32 PM

GENERAL CONSTRUCTION AND SOILS NOTES:

1. STRIP ALL INPLACE TOPSOIL IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. IN AREAS OF PARKING LOT AND BUILDING CONSTRUCTION, THE EXPOSED SAND SHALL BE SURFACE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY, ASTM D698, IN AT LEAST THE UPPER 3 FEET.
2. UNLESS OTHERWISE RECOMMENDED IN THESE PLANS, OR IN THE GEOTECHNICAL REPORT, THE GRADING SUBGRADE SHALL BE CONSTRUCTED OF SUITABLE GRADING MATERIAL. THE FILL SHALL BE PLACED IN 8'' TO 10'' LOOSE LIFTS, AND COMPACTED TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
3. SUITABLE GRADING MATERIAL FOR THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED OR IMPORTED WITH THE EXCEPTION OF TOPSOIL, SILT, DEBRIS, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL.
4. PROVIDE A FULL DEPTH SAW CUT WHEN PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT AND AT TERMINI OF CONSTRUCTION TO ENSURE A UNIFORM JOINT.
5. BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH Mn/DOT SPEC. 2104.3.
6. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.05 GAL/SY TO 0.07 GAL/SY BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS.
7. PERFORMANCE GRADED (PG) ASPHALT BINDER PG 58-28, SPEC. 3151, SHALL BE USED FOR ALL BITUMINOUS MIXES ON THIS PROJECT. SPECIFIC PG GRADES SHALL BE LISTED AT THE END OF THE MIX DESIGNATION NUMBER SHOWN ON THE TYPICAL SECTION.
8. THE BITUMINOUS MIXTURES SHALL MEET THE REQUIREMENTS OF SPECIFICATIONS 2360 AND 3139.
9. ALL DISTURBED AREAS SHALL BE RESTORED WITH 4" OF TOPSOIL AND SOD. SEE CITY STANDARD PLATE ERO-6 ON SHEET C2 FOR TOPSOIL REQUIREMENTS.

GENERAL EROSION CONTROL NOTES:

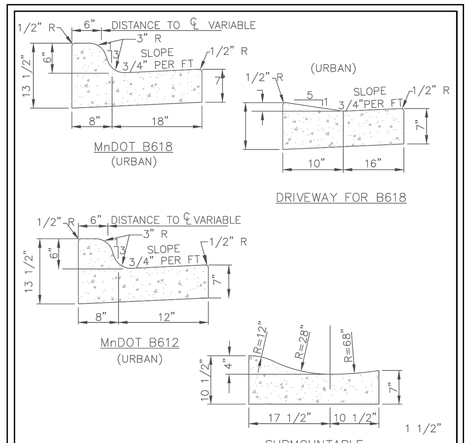
1. EROSION CONTROL SHALL CONFORM TO THE Mn/DOT EROSION CONTROL HANDBOOK AND THE STORMWATER POLLUTION PREVENTION PLAN PREPARED FOR THIS PROJECT.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL ACQUIRE THE NECESSARY MPCA NPDES STORMWATER PERMIT.
3. THE CONTRACTOR SHALL INSTALL EROSION AND SEDIMENT CONTROL FACILITIES (BMP'S) PRIOR TO GRADING AND REMOVAL ACTIVITIES. BMP'S SHALL BE MAINTAINED FOR THE DURATION OF CONSTRUCTION ACTIVITIES AND POTENTIAL FOR EROSION HAS PASSED.
4. THE CONTRACTOR SHALL SCHEDULE THEIR OPERATION TO MINIMIZE THE AMOUNT OF DISTURBED AREA AT ANY GIVEN TIME.
5. BMP'S SHALL BE INSPECTED DAILY BY THE CONTRACTOR. OBSERVATIONS SHALL BE RECORDED IN THE INSPECTION LOG.
6. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY DISPOSED OF WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION.
7. THE CONTRACTOR SHALL FILE A NOTICE OF TERMINATION WITH THE MPCA AFTER FINAL STABILIZATION HAS BEEN APPROVED. THE CITY MUST APPROVE THE NOTICE OF TERMINATION PRIOR TO SUBMITTAL. ALL EROSION CONTROL INSPECTION LOGS MUST BE SUBMITTED TO THE CITY PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
8. STREETS SHALL BE CLEANED WITHIN 3 HOURS AFTER NOTIFICATION BY CITY THAT SWEEPING IS REQUIRED.
9. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND THE 2013 CEAM STANDARD SPECIFICATIONS AND ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES.



1/C1 BITUMINOUS PAVEMENT SECTION
NO SCALE

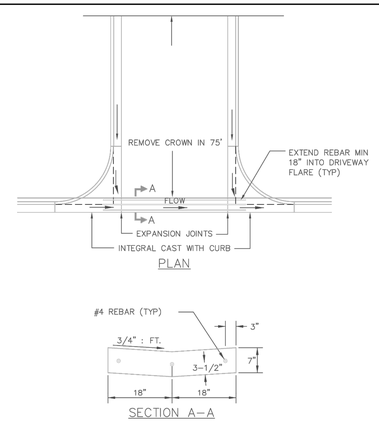
TABLE A
MODIFIED CLASS 5 SPECIFICATIONS
% PASSING

1"	100
3/4"	90 – 100
3/8"	50 – 80
No.4	35 – 70
No.10	20 – 60
No.40	10 – 35
No.200	5 – 10



NOTES:
1. ON WEAR COURSE MILL THE EXISTING BITUMINOUS 1.5" BY 24" IN FRONT OF THE REPLACEMENT CURB.
2. ON BASE COURSE SAW CUT AND REMOVE EXISTING BITUMINOUS 18" IN FRONT OF THE REPLACEMENT CURB.

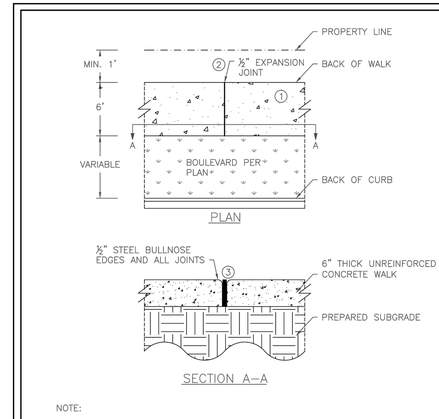
APPROVED: 1 - 2016 | City of RAMSEY | STANDARD DETAILS: CURB AND GUTTER | CITY PLATE No. STR-1



CONCRETE VALLEY GUTTER

NOTES:
1. WITH REMOVAL OF EXISTING CURB AT A STREET, MILL BITUMINOUS TO A DEPTH OF 1.5" ANS A WIDTH OF 18" IN EXISTING STREET.
2. TO BE USED WHENEVER CROSS DRAINAGE IS < 2%

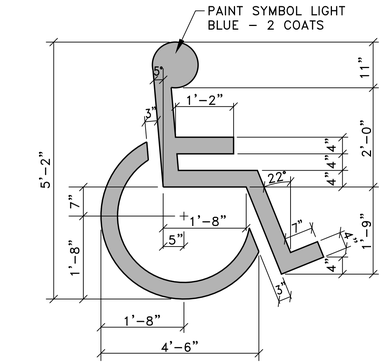
APPROVED: 4 - 2007 | City of RAMSEY | STANDARD DETAILS: CROSS GUTTER | CITY PLATE No. STR-2



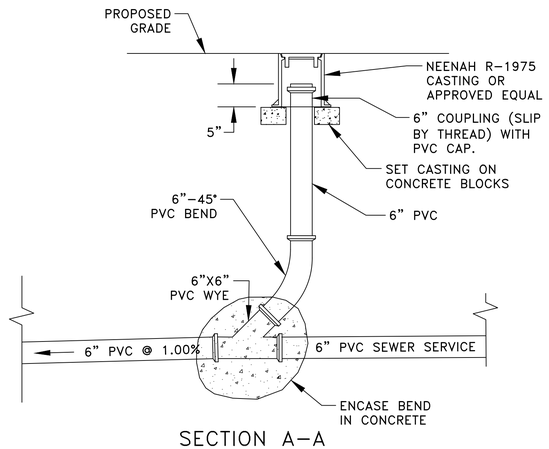
NOTE:
1. BROOM FINISH CONCRETE WALK SURFACE
2. MAXIMUM 100 FOOT SPACING BETWEEN EXPANSION JOINTS
3. 1/2" EXPANION JOINT MEETING MNDOT SPEC 3702. PROVIDE ONE PIECE OF FILLER FOR THE ENTIRE DEPTH AND WIDTH OF THE JOINT

NOT TO SCALE

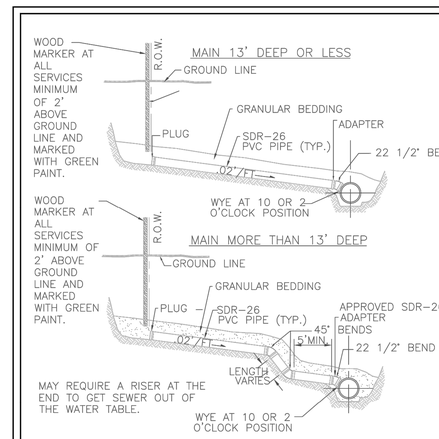
APPROVED: 10 - 2015 | City of RAMSEY | STANDARD DETAILS: CONCRETE SIDEWALK | CITY PLATE No. STR-3



2/C1 H.C. PARKING SYMBOL



3/C1 SANITARY SEWER CLEANOUT DETAIL



NOTES:
1. 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES
2. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE.
3. TRACER WIRE ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS.

APPROVED: 4 - 2016 | City of RAMSEY | STANDARD DETAILS: SANITARY SEWER SERVICE | CITY PLATE No. SEW-3

DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am A duly Licensed Professional Engineer under the laws of the State of Minnesota.
Date 12/8/20 CRAIG J. JOCHUM, P.E. Lic. No. 23461

DESIGNED BY: CJJ
DRAWN BY: SJJ
CHECKED BY: TAE

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763-427-5860 FAX 763-427-0520
www.hakanson-anderson.com

GIGI'S SALON CONSTRUCTION PLANS
CLASSIC CONSTRUCTION

GENERAL CONSTRUCTION NOTES AND DETAILS
CITY OF RAMSEY, MINNESOTA

SHEET C1 OF C5 SHEETS

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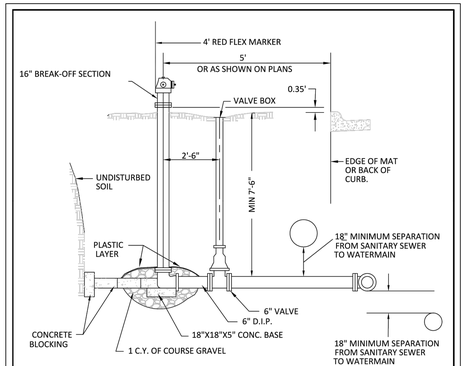
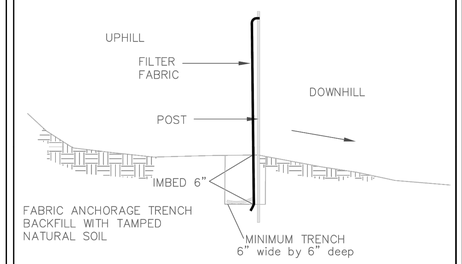


NOTES:
1. HYDRANT SHALL BE 5-1/4" WB67 WATEROUS PACER OR APPROVED EQUAL.
2. HYDRANTS TO BE ORDERED FOR 8'-0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANTS EXTENSIONS MAY BE REQUIRED.
3. HYDRANTS SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2-3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
4. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE.
5. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW.
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE.
7. PUMPER NOZZLE .5.75" O.D. X 4 T.P.I, HOSE NOZZLE 3.06" O.D. X 7 T.P.I.

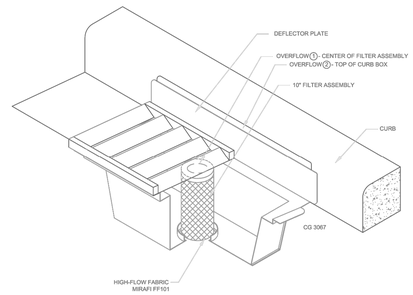
APPROVED: 6 – 2017	City of RAMSEY	STANDARD DETAILS: HYDRANT
		CITY PLATE No. WAT-1



INSTALL AS PER FILTER FABRIC MANUFACTURER'S RECOMMENDATIONS

SILT FENCE DETAIL
NO SCALE

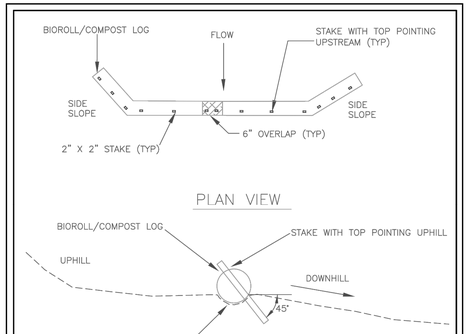
APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: SILT FENCE
		CITY PLATE No. ERO-1



INLET PROTECTION – WIMCO OR EQUAL
N.T.S.

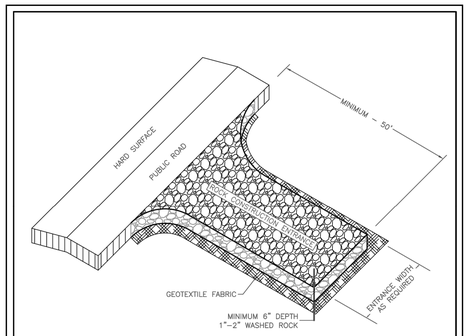
NOTE:
THIS INLET PROTECTION SHALL BE USED IMMEDIATELY FOLLOWING CURB & GUTTER CONSTRUCTION. INLET PROTECTION SHALL REMAIN INSTALLED AND MAINTAINTED UNTIL ALL HOME CONSTRUCTION IS COMPLETE.

APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: INLET PROTECTION
		CITY PLATE No. ERO-2



NOTE:
STAKE INTO GROUND WITH WOOD STAKES DRIVING STAKE 6" INTO GROUND AND PROTRUDING 2" ABOVE LOG
WOOD STAKES ARE A MINIMUM 0.5" X 2" X 16" AND PLACED EVERY 1' UNLESS PRECLUDED BY A ROCK.
WHEN MORE THAN 1 BIOROLL/COMPOST LOG IS NEEDED, OVERLAP ENDS A MINIMUM OF 6" AND STAKE
WOOD STAKES ARE DRIVEN THROUGH BACK HALF OF BIOROLL OR COMPOST LOG AT 45° ANGLE WITH TOP OF STAKE POINTING UPHILL

APPROVED: 3 – 2016	City of RAMSEY	STANDARD DETAILS: BIO ROLL (COMPOST LOG)
		CITY PLATE No. ERO-4



NOTE:
1. MINIMUM CONSTRUCTION ENTRANCE WIDTH EQUAL TO PROPOSED ROADWAY WIDTH.
2. WIDTH OF RADIUS AS REQUIRED TO ENSURE VEHICLES DO NOT TRACK ONTO PUBLIC ROAD.
3. MAINTAINENCE AS REQUIRED TO PREVENT TRACKING ONTO PUBLIC ROADS. THIS MAY REQUIRE TOP DRESSING WITH ADDITIONAL ROCK OR REMOVAL AND REINSTALLATION OF THE ENTRANCE AS NEEDED.

NOT TO SCALE

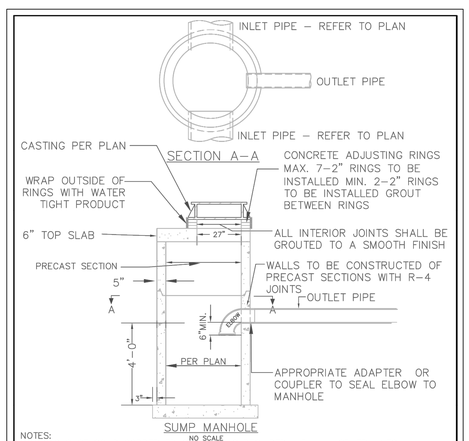
APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: ROCK CONSTRUCTION ENTRANCE
		CITY PLATE No. ERO-5

MNDOT 2016 SPEC

MNDOT 2016 SPEC TABLE 3877-1 COMMON TOPSOIL BORROW		
REQUIREMENT	RANGE	TEST METHOD
MATERIAL PASSING THE 3/4 IN [19MM]	100%	ASTM D 422
MATERIAL PASSING NO. 4 [4.75MM]	>85%	–
CLAY	5% –35%	ASTM D 422
SILT	5% – 70%	ASTM D 422
SAND	10% – 75%	ASTM D 422
ORGANIC MATTER	3% – 15%	ASTM D 2974
pH	6.1–7.8	ASTM G 51

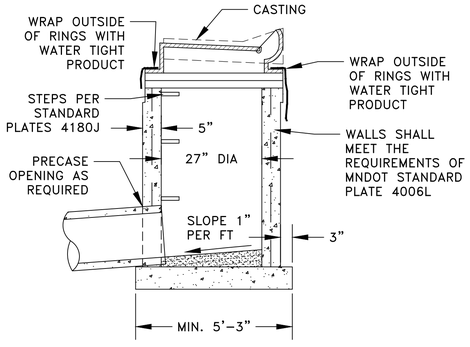
NOTE:
1. INSTALLATION OF 4" OF TOPSOIL MEETING MNDOT SPECIFICATION 3877A COMMON TOPSOIL BORROW, MAY BE REQUIRED ACROSS ALL DISTURBED AREAS.
2. A SOIL CERTIFICATION FROM A GEOTECHNICAL FIRM MUST BE PROVIDED VERIFYING THE TOPSOIL MEETS SPECIFICATION ALONG WITH LOAD TICKETS TO VERIFY THE SOURCE OF MATERIAL AND QUANTITY.
3. TOPSOIL MUST COME FROM A CITY APPROVED SOURCE.

APPROVED: 1 – 2016	City of RAMSEY	CITY PLATE No. ERO-6	STANDARD DETAILS: TOPSOIL REQUIREMENTS



NOTES:
1. A 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES
2. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE
3. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS
4. STEPS WILL BE REQUIRED AT A MAXIMUM OF 3' FROM THE RIM AND 16" ON CENTER THERE AFTER.
5. 8" BASE FOR ALL MANHOLES LESS THEN 14' DEEP, INCREASE BASE THICKNESS BY 2" PER 6' OF DEPTH BEYOND 14' & REINFORCE WITH 6"X 6" & 10" X 10" MESH.

APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: SUMP MANHOLE
		CITY PLATE No. STD-9



NOTES:
1. MANHOLE INVERT SHALL BE SLOPED TO PROVIDE FLOW FROM INLET TO OUTLET.
2. CONCRETE BASE SHALL BE 6" POURED IN PLACE OR 5" PRECAST SLAB.
3. CONCRETE ADJUSTING RINGS TO BE INSTALLED MAX.7–2" RINGS, MIN 2–2" RINGS.
4. GROUT BETWEEN RINGS, SHIMS SHALL BE METAL, CONCRETE OR PLASTIC.
5. INSPECTION OF MANHOLE REQUIRED BEFORE BACKFILLING.
6. A 10 GAUGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL STORM LINES.
7. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE.
8. STEPS ARE REQUIRED IF STRUCTURE FROM THE CASTING TO THE INVERT IS GREATER THAN 4 FEET.
9. TRACER WIRES ARE TO BE IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS.

1/C2 CATCH BASIN
N.T.S.

DATE	REVISION

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CRAIG J. JOCHUM, P.E.
Date 12/8/20 Lic. No. 23461

DESIGNED BY: CJJ
DRAWN BY: SJJ
CHECKED BY: TAE

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GIGI'S SALON CONSTRUCTION PLANS
CLASSIC CONSTRUCTION

DETAILS

CITY OF RAMSEY, MINNESOTA

SHEET C2 OF C5 SHEETS

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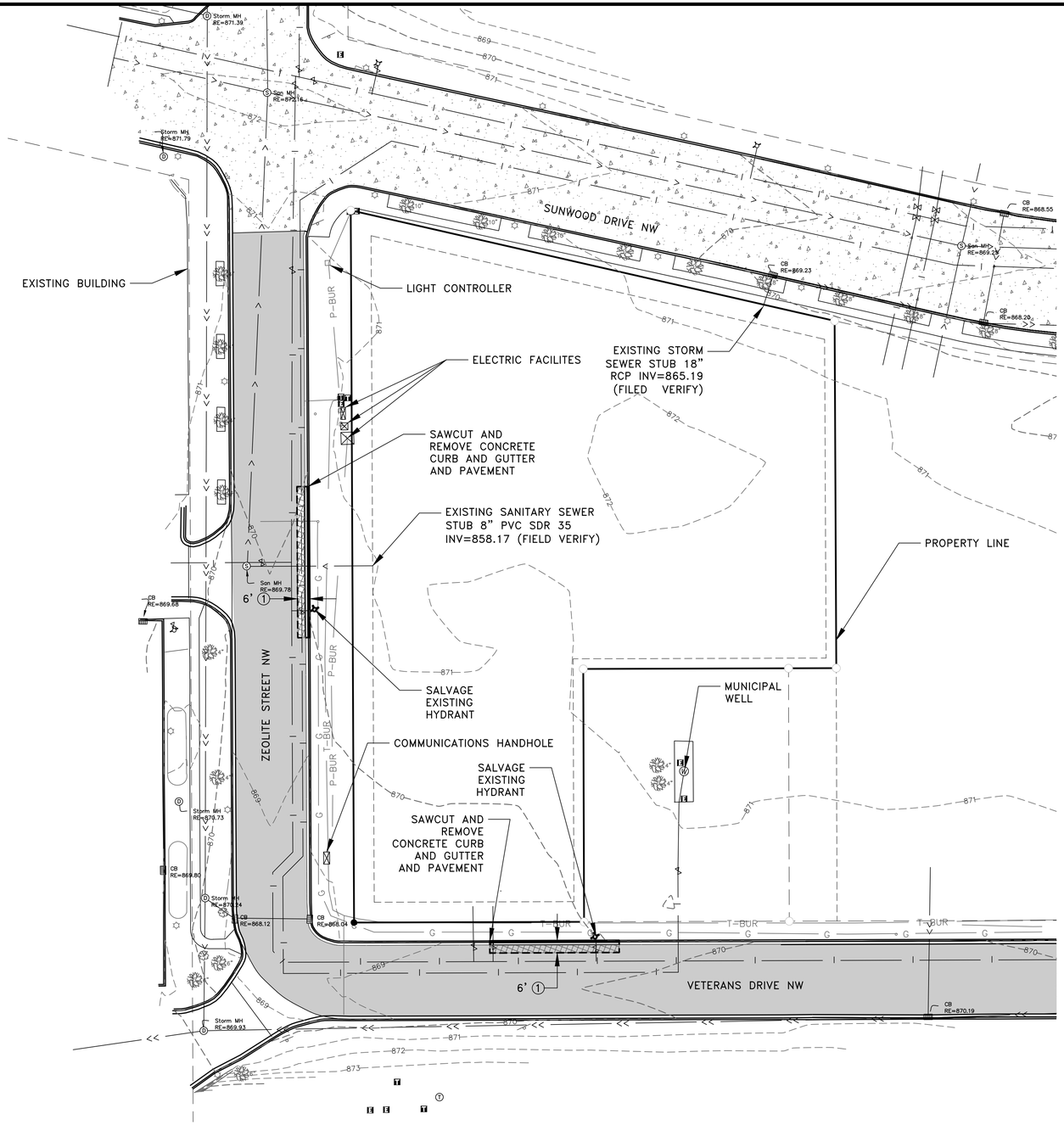

LEGEND

- 906 EXISTING CONTOUR
- DRAINAGE AND UTILITY EASEMENT
- PROPERTY LINE
- P-BUR UNDERGROUND ELECTRIC
- T-BUR UNDERGROUND TELEPHONE
- G UNDERGROUND GAS LINE
- PROPERTY MONUMENT SET
- PROPOSED PROPERTY MONUMENT
- LIGHT POLE
- EXISTING STORM SEWER
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- EXISTING WATER SERVICE
- EXISTING HYDRANT
- EXISTING GATE VALVE
- SALVAGE HYDRANT
- EXISTING CONCRETE CURB
- REMOVE CURB
- SAWCUT CONCRETE CURB AND GUTTER OR BITUMINOUS
- DECIDUOUS AND CONIFEROUS TREES
- 2/3 DETAIL NUMBER / SHEET NUMBER
- EXISTING BITUMINOUS STREET
- EXISTING CONCRETE STREET
- REMOVE BITUMINOUS
- T TELEPHONE HAND HOLE
- T TELEPHONE PEDESTAL
- E ELECTRIC SURFACE UTILITY

REFERENCE NOTES:

(1) CONTRACTOR SHALL SAWCUT AND REMOVE PAVEMENT A MINIMUM OF 6' FROM BACK OF CURB FOR DRIVEWAY CONSTRUCTION. IF NECESSARY, CONTRACTOR SHALL SAWCUT AND REMOVE ADDITIONAL PAVEMENT TO RELOCATE HYDRANT.

30 0 30 60
SCALE IN FEET

DATE	REVISION

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GIGI'S SALON CONSTRUCTION PLANS
CLASSIC CONSTRUCTION

EXISTING TOPOGRAPHY AND REMOVALS PLAN

CITY OF RAMSEY, MINNESOTA

SHEET C3 OF C5 SHEETS

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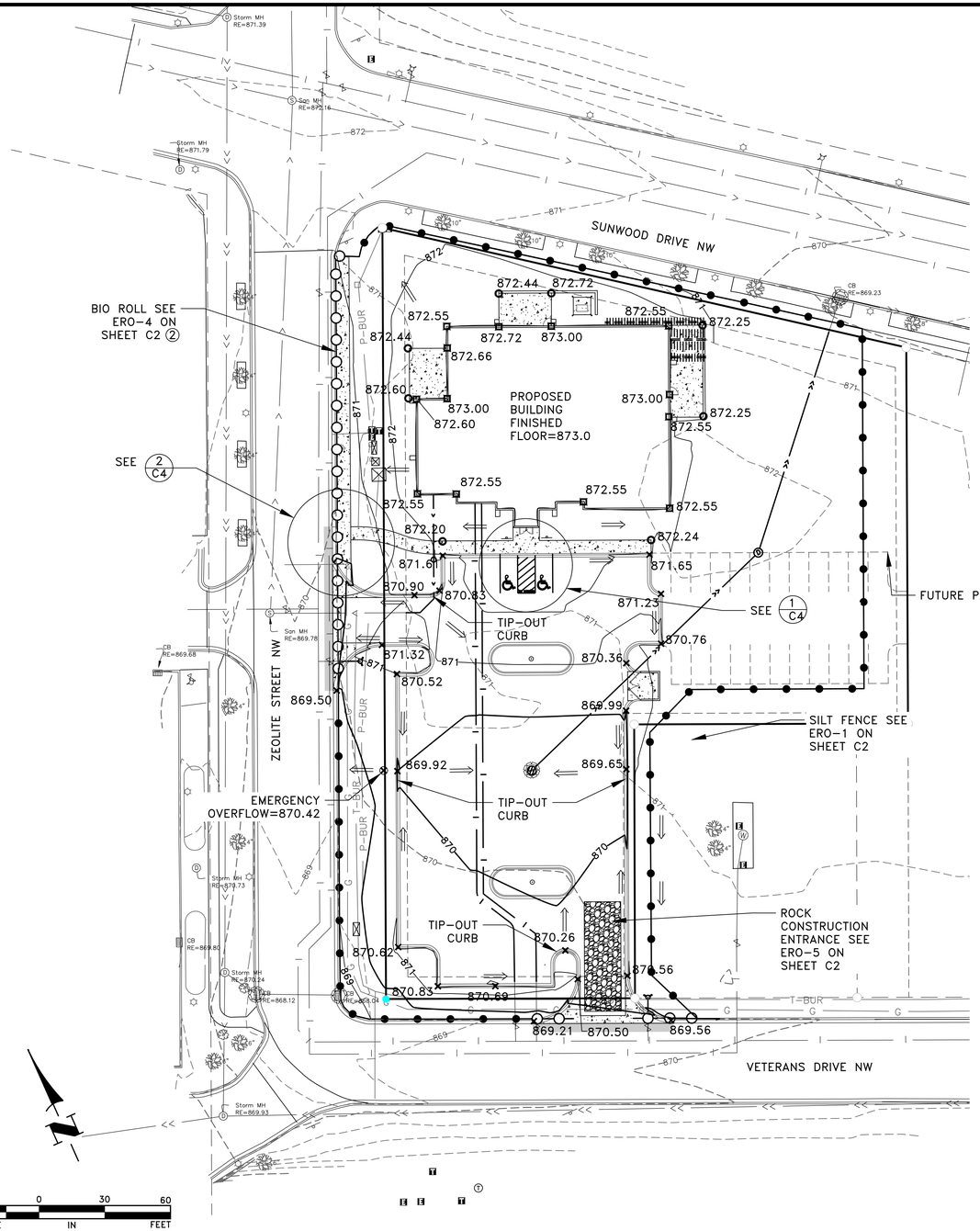
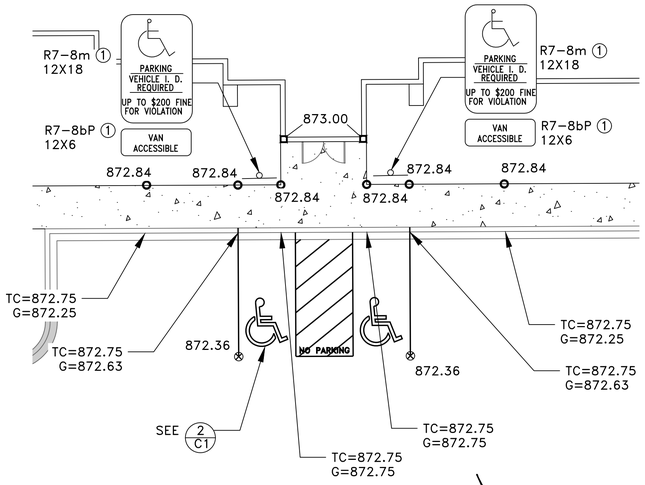
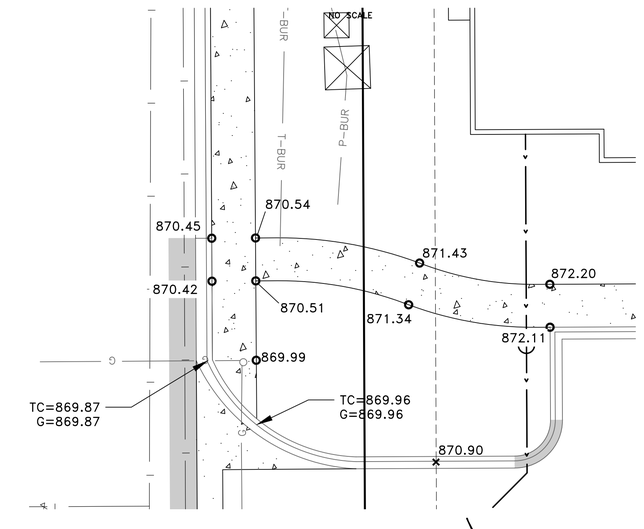




1/C4 BUILDING ENTRANCE DETAIL



2/C4 SIDEWALK RAMP DETAIL

LEGEND

- 906 EXISTING CONTOUR
- DRAINAGE AND UTILITY EASEMENT
- PROPERTY LINE
- P-BUR UNDERGROUND ELECTRIC
- T-BUR UNDERGROUND TELEPHONE
- G UNDERGROUND GAS LINE
- LIGHT POLE
- PROPERTY MONUMENT SET
- PROPOSED PROPERTY MONUMENT
- EXISTING STORM SEWER
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- EXISTING WATERMAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING CONCRETE CURB
- DECIDUOUS AND CONIFEROUS TREES
- 2/3 DETAIL NUMBER / SHEET NUMBER
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED CONCRETE PAVEMENT
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED SILT FENCE
- PROPOSED BIO ROLL
- T TELEPHONE HAND HOLE
- T TELEPHONE PEDESTAL
- E ELECTRIC SURFACE UTILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED WALL
- PROPOSED WATER SERVICE
- PROPOSED HYDRANT LOCATION
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED STORM MANHOLE
- INLET PROTECTION DEVICE
- 871.00 PROPOSED GUTTER ELEVATION
- 872.00 PROPOSED FINISHED GRADE AT BUILDING
- 872.00 PROPOSED CONCRETE ELEVATION
- 872.36 PROPOSED BITUMINOUS ELEVATION
- PROPOSED CONCRETE TIP-OUT CURB AND GUTTER
- DRAINAGE ARROW

GENERAL NOTES

1. BUILDING ENTRANCE GRADING AND PEDESTRIAN CURB RAMPS MUST MEET MNDOT ADA REQUIREMENTS.
2. VERIFY BUILDING DIMENSIONS WITH ARCHITECTURAL PLANS.

REFERENCE NOTES:

① WHITE ON BLUE

② SALVAGE AND REINSTALL OR INSTALL NEW BIOROLL EAST OF THE SIDEWALK ONCE SIDEWALK IS CONSTRUCTED

DATE	REVISION

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GIGI'S SALON CONSTRUCTION PLANS
CLASSIC CONSTRUCTION

GRADING, DRAINAGE, AND EROSION CONTROL PLAN

CITY OF RAMSEY, MINNESOTA

SHEET C4 OF C5 SHEETS

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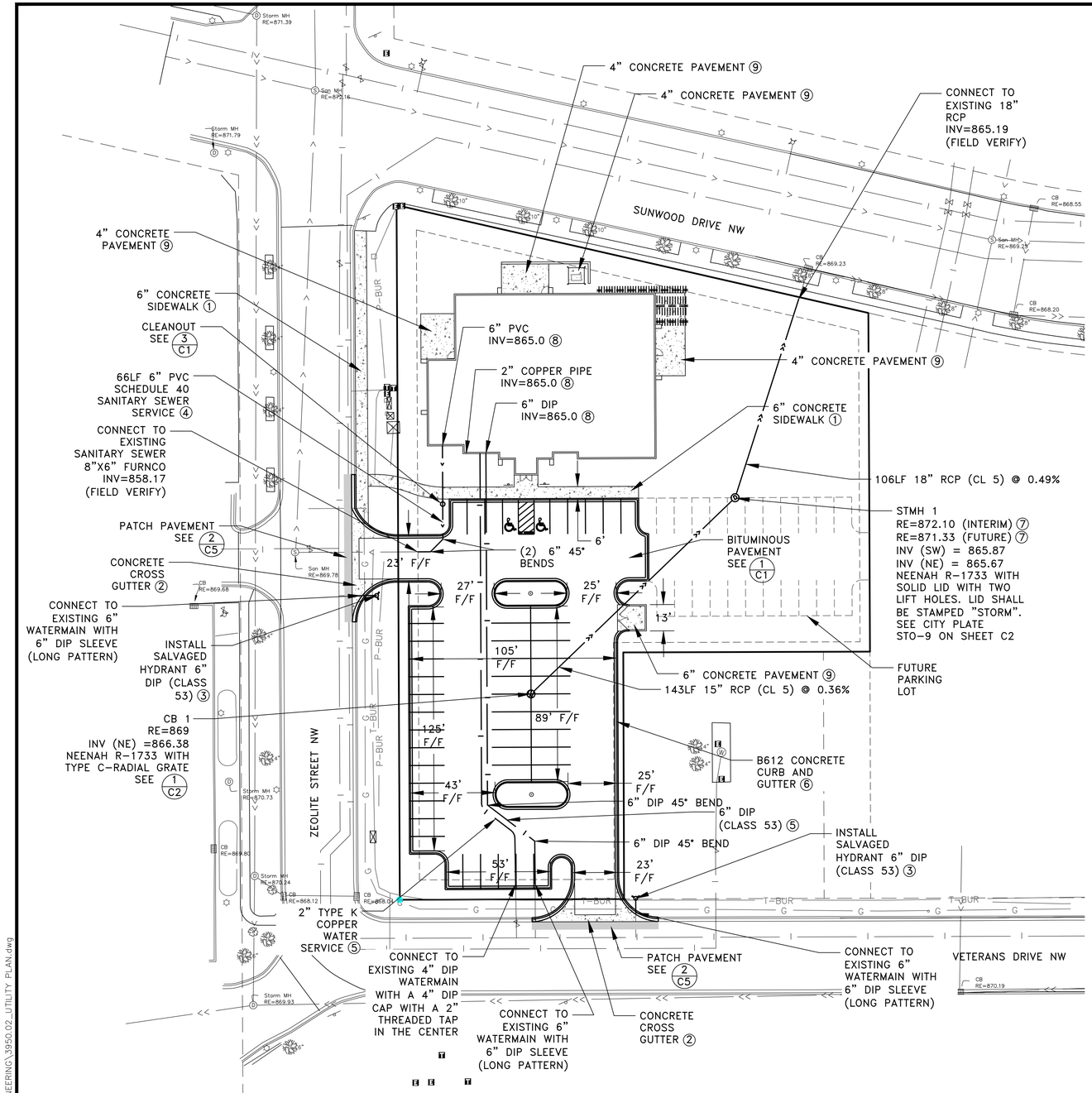

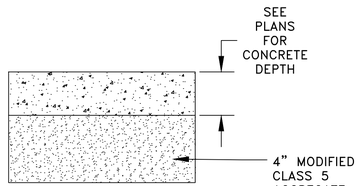

1/C5 CONCRETE PAVEMENT SECTION
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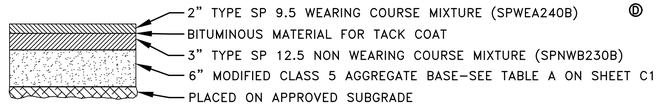

2/C5 BITUMINOUS PAVEMENT PATCH
NO SCALE

REFERENCE NOTES:
1. SEE CITY PLATE STR-3 ON SHEET C1 FOR SIDEWALK CONSTRUCTION.
2. SEE CITY PLATE STR-2 ON SHEET C1 FOR CROSS GUTTER CONSTRUCTION.
3. SEE CITY PLATE WAT-1 ON SHEET C2 FOR HYDRANT INSTALLATION.
4. SEE CITY PLATE SEW-3 ON SHEET C1 FOR SANITARY SEWER SERVICE INSTALLATION NOTES AND BEDDING. MATERIAL SHALL BE SCHEDULE 40 PVC AS INDICATED ON THIS PLAN SHEET.
5. SEE CITY PLATE WAT-5 ON SHEET C2 FOR WATER SERVICE INSTALLATION.
6. SEE CITY PLATE STR-1 ON SHEET C1 FOR CONCRETE CURB AND GUTTER CONSTRUCTION.
7. USE ADDITIONAL RINGS TO ACCOMMODATE THE FUTURE RIM ELEVATION.
8. SEE MECHANICAL PLANS FOR CONTINUATION OF PIPE UNDER BUILDING.
9. SEE DETAIL 1/C5

GENERAL NOTES:
1. SEE DETAIL 1 ON SHEET C4 FOR STRIPING AND SIGN DETAIL FOR HANDICAPPED STALLS.

LEGEND
- DRAINAGE AND UTILITY EASEMENT
- PROPERTY LINE
- P-BUR UNDERGROUND ELECTRIC
- T-BUR UNDERGROUND TELEPHONE
- G UNDERGROUND GAS LINE
- LIGHT POLE
- PROPERTY MONUMENT SET
- PROPOSED PROPERTY MONUMENT
- EXISTING STORM SEWER
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- EXISTING WATERMAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING CONCRETE CURB
- DECIDUOUS AND CONIFEROUS TREES
- 2/3 DETAIL NUMBER / SHEET NUMBER
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED CONCRETE PAVEMENT
- PROPOSED BITUMINOUS PAVEMENT
- T TELEPHONE HAND HOLE
- T TELEPHONE PEDESTAL
- E ELECTRIC SURFACE UTILITY
- PROPOSED WALL
- PROPOSED WATER SERVICE
- PROPOSED HYDRANT
- PROPOSED SANITARY SEWER SERVICE
- PROPOSED STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED STORM MANHOLE

30 0 30 60
SCALE IN FEET

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Date 12/8/20 Lic. No. 23461

DESIGNED BY: CJJ
DRAWN BY: SJJ
CHECKED BY: TAE

Hakanson Anderson
Civil Engineers and Land Surveyors
3601 Thurston Ave., Anoka, Minnesota 55303
763-427-5860 FAX 763-427-0520
www.hakanson-anderson.com

GIGI'S SALON CONSTRUCTION PLANS
CLASSIC CONSTRUCTION

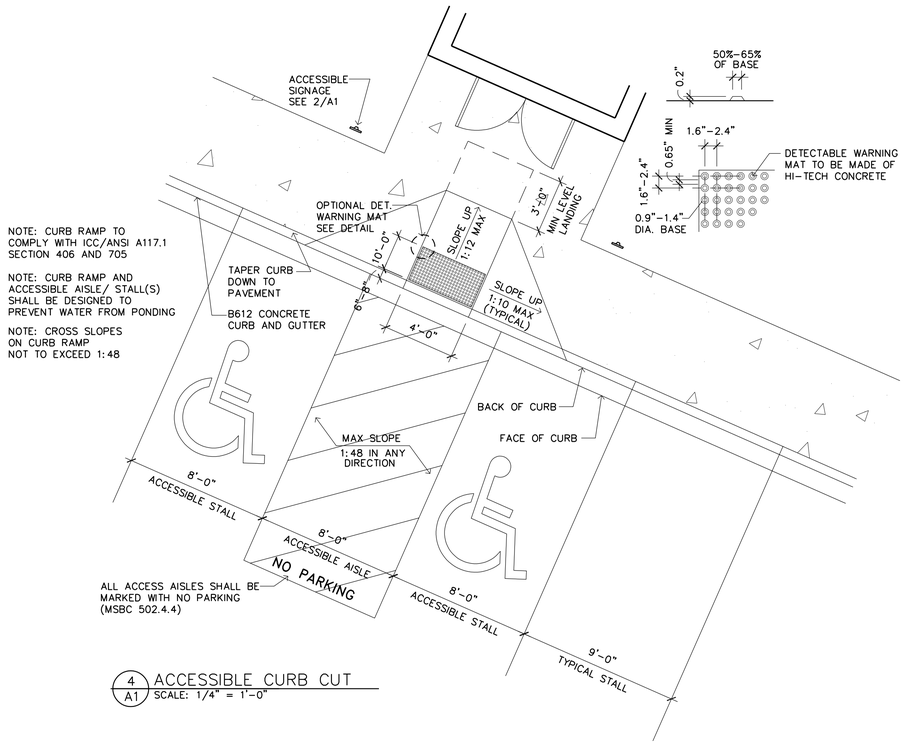
UTILITY AND PAVEMENT PLAN

CITY OF RAMSEY, MINNESOTA

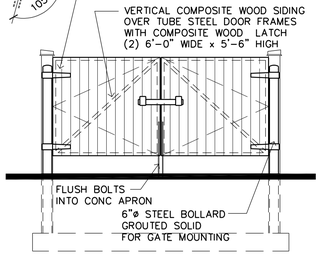
SHEET C5 OF C5 SHEETS

3950.02

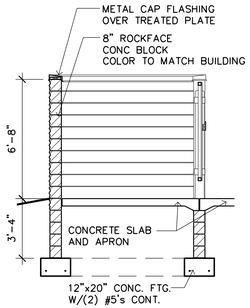
Dec 08, 2020 - 3:18pm
K:\PRIVATE\3950.02\ENGINEERING\3950.02_UTILITY PLAN.dwg



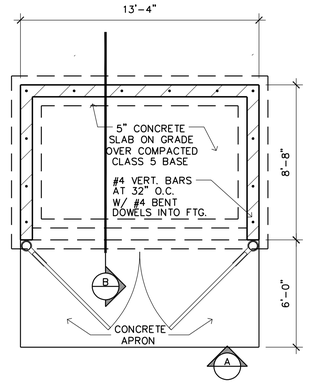
4 / A1 ACCESSIBLE CURB CUT
SCALE: 1/4" = 1'-0"



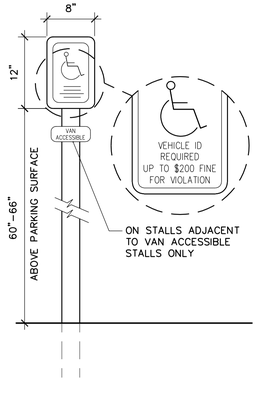
ELEVATION 'A'



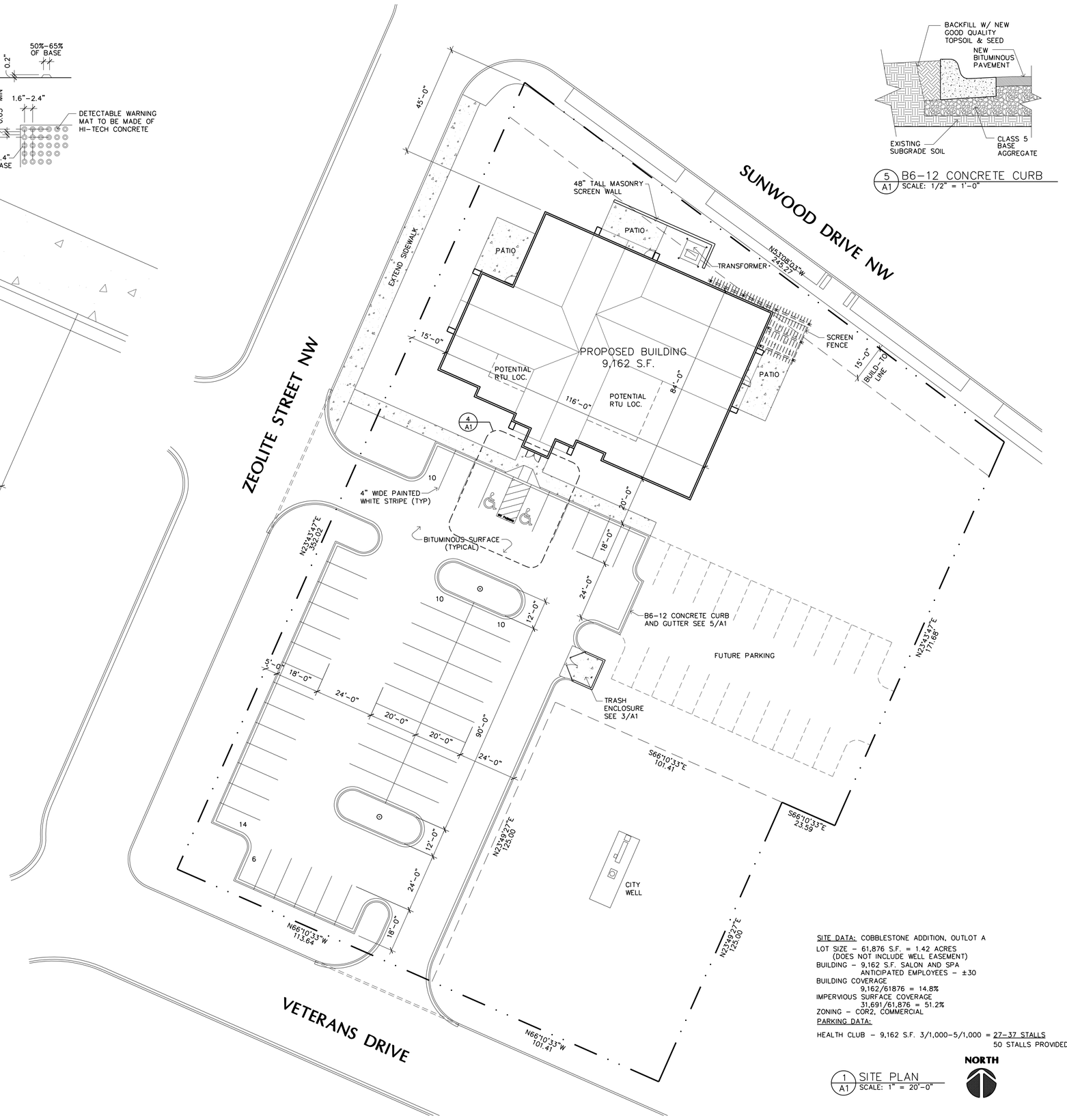
SECTION 'B'



3 / A1 TRASH ENCLOSURE
SCALE: 1/4" = 1'-0"



2 / A1 ACCESSIBLE PARKING SIGN
1" = 1'-0"



BACKFILL W/ NEW GOOD QUALITY TOPSOIL & SEED
NEW BITUMINOUS PAVEMENT
EXISTING SUBGRADE SOIL
CLASS 5 BASE AGGREGATE

5 / A1 B6-12 CONCRETE CURB
SCALE: 1/2" = 1'-0"

SITE DATA: COBBLESTONE ADDITION, OUTLOT A
LOT SIZE – 61,876 S.F. = 1.42 ACRES
(DOES NOT INCLUDE WELL EASEMENT)
BUILDING – 9,162 S.F. SALON AND SPA
ANTICIPATED EMPLOYEES – ±30
BUILDING COVERAGE
9,162/61876 = 14.8%
IMPERVIOUS SURFACE COVERAGE
31,691/61,876 = 51.2%
ZONING – COR2, COMMERCIAL
PARKING DATA:
HEALTH CLUB – 9,162 S.F. 3/1,000–5/1,000 = 27–37 STALLS
50 STALLS PROVIDED

NORTH

1 / A1 SITE PLAN
SCALE: 1" = 20'-0"

Filename: GIGIS SALON AND SPA\GIGIS SALON AND SPA-A1

LAMPERT ARCHITECTS
420 Summit Avenue
St. Paul, MN 55102
Phone:763.755.1211 Fax:763.757.2849
lampert@lampert-arch.com

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SIGNATURE
LEONARD LAMPERT
PRINT NAME
13669
LICENSE NUMBER
10/6/20
DATE

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Ramsey, Minnesota

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Project Designer: JAMES B
Drawn By: JRB
Checked By: LL
Revisions

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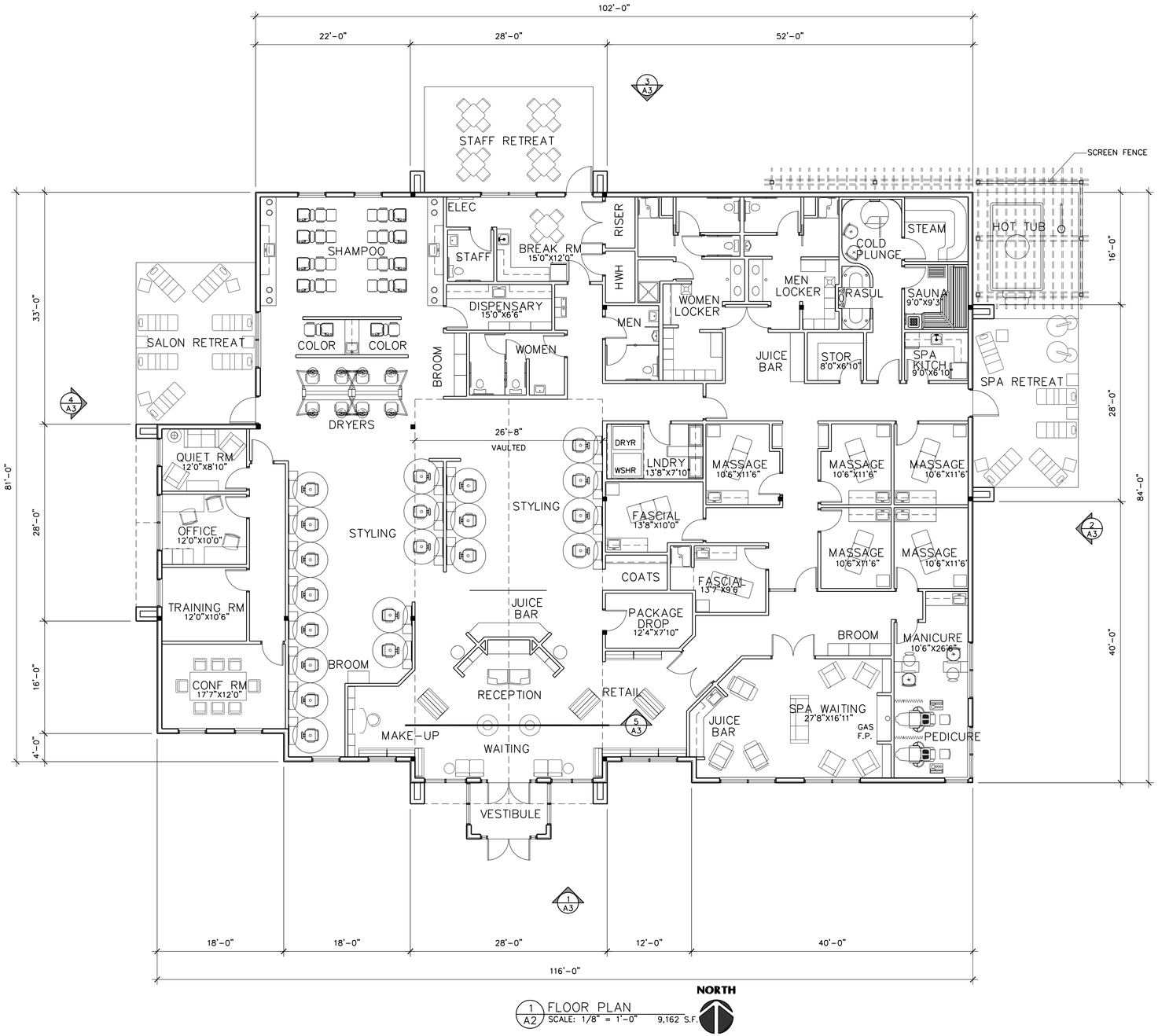
10/22/20	BUDGET PRICING
11/17/20	CITY SUBMITTAL

SITE PLAN

Sheet Number
A1
Project No. 200401–1



1 A2 FLOOR PLAN
SCALE: 1/8" = 1'-0" 9,162 S.F.

Filename: GIGIS SALON AND SPA\GIGIS SALON AND SPA-A2

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St. Paul, MN 55102
Phone:763.755.1211 Fax:763.757.2849
lampert@lampert-arch.com

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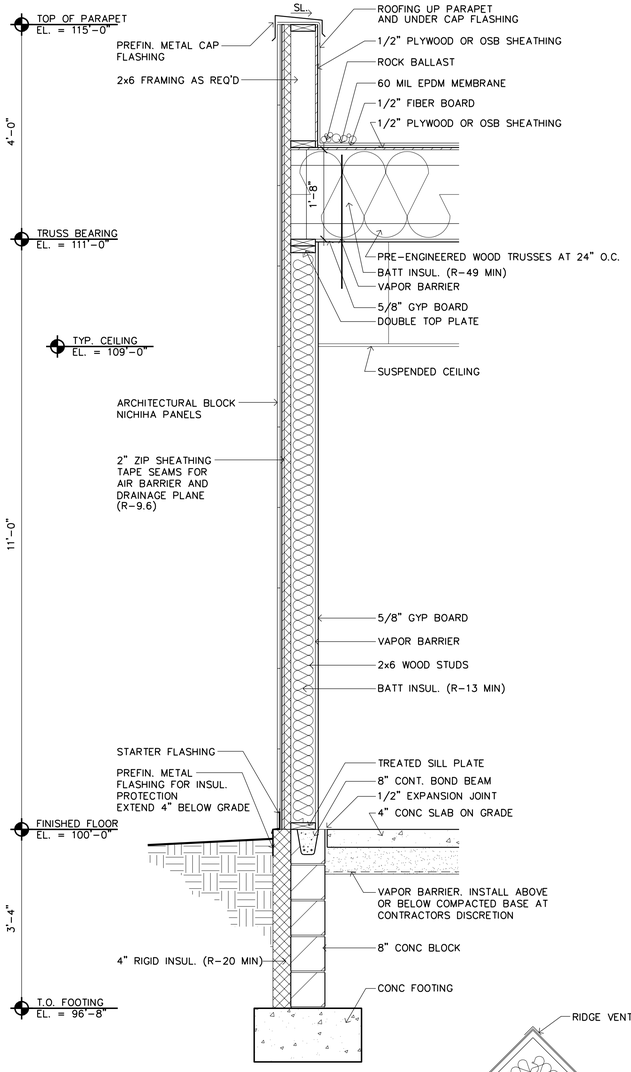
10/22/20	BUDGET PRICING
11/17/20	CITY SUBMITTAL

FLOOR PLAN

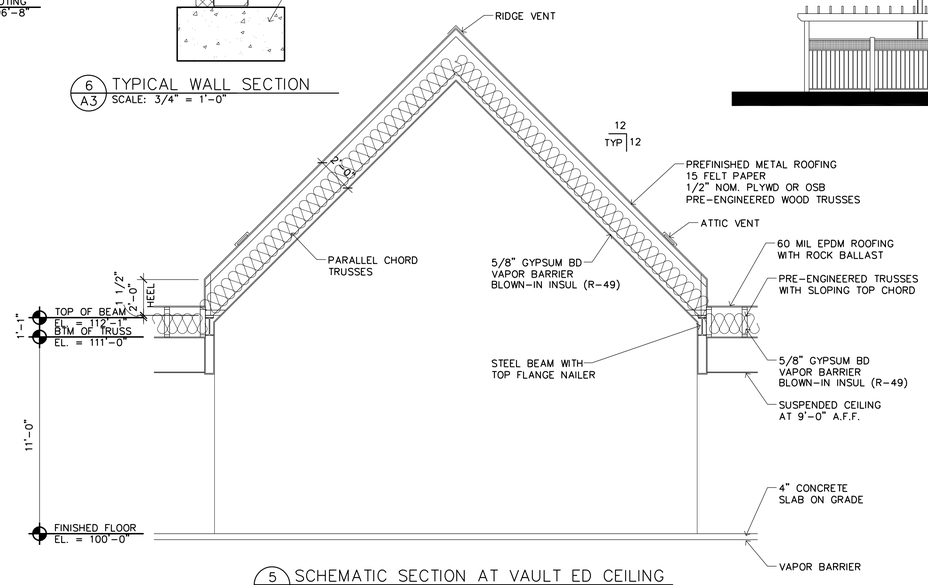
Sheet Number

A2

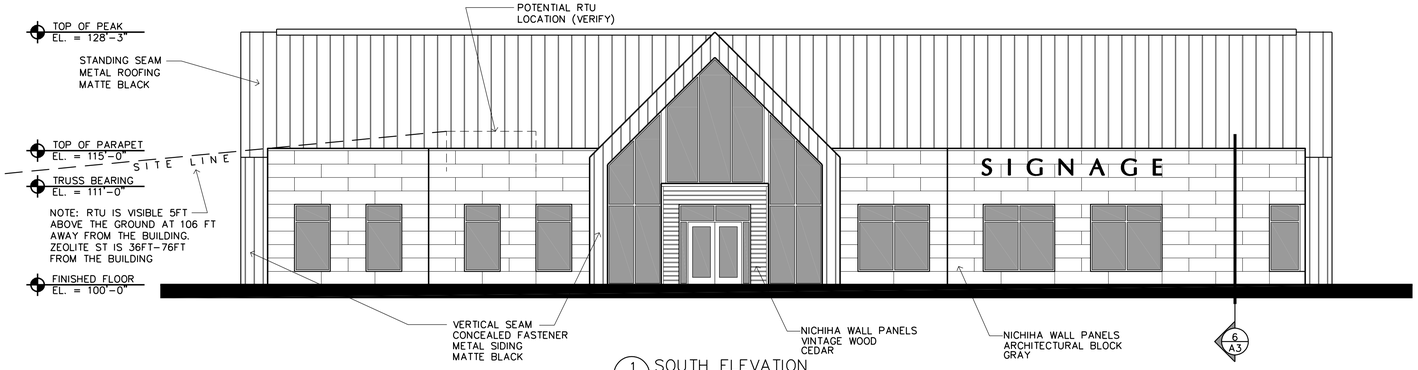
Project No. 200401-1



6 A3 TYPICAL WALL SECTION
SCALE: 3/4" = 1'-0"

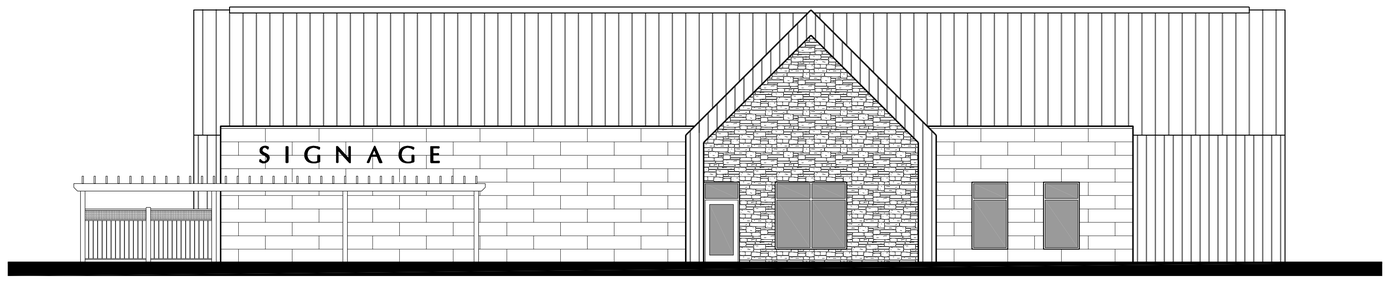


5 A3 SCHEMATIC SECTION AT VAULT ED CEILING
SCALE: 1/4" = 1'-0"



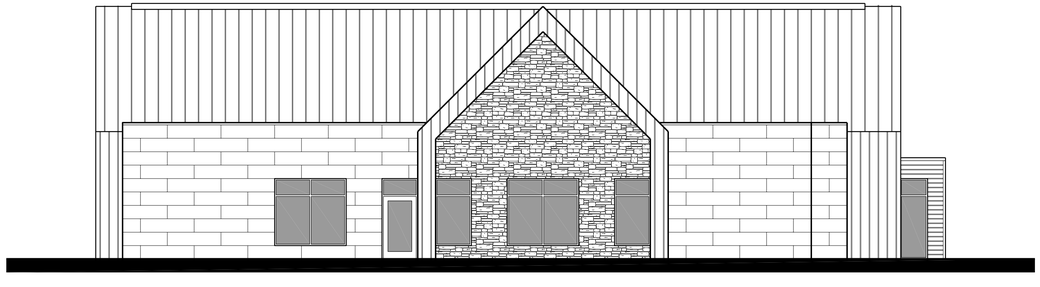
1 A3 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

2 A3 EAST ELEVATION
SCALE: 1/8" = 1'-0"



3 A3 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

NOTE: RTU IS VISIBLE 5FT
ABOVE THE GROUND AT 106 FT
AWAY FROM THE BUILDING.
ZEOLITE ST IS 50FT-90FT
FROM THE BUILDING



4 A3 WEST ELEVATION
SCALE: 1/8" = 1'-0"

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Ramsey, Minnesota

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Project Designer: JAMES B
Drawn By: JRB
Checked By: LL

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11/17/20	CITY SUBMITTAL

BUILDING ELEVATIONS

Sheet Number

A3

Project No. 200401-1

Filename: GIGIS SALON AND SPA\GIGIS SALON AND SPA-A3

SOUTH ELEVATION

EAST ELEVATION

NORTH ELEVATION

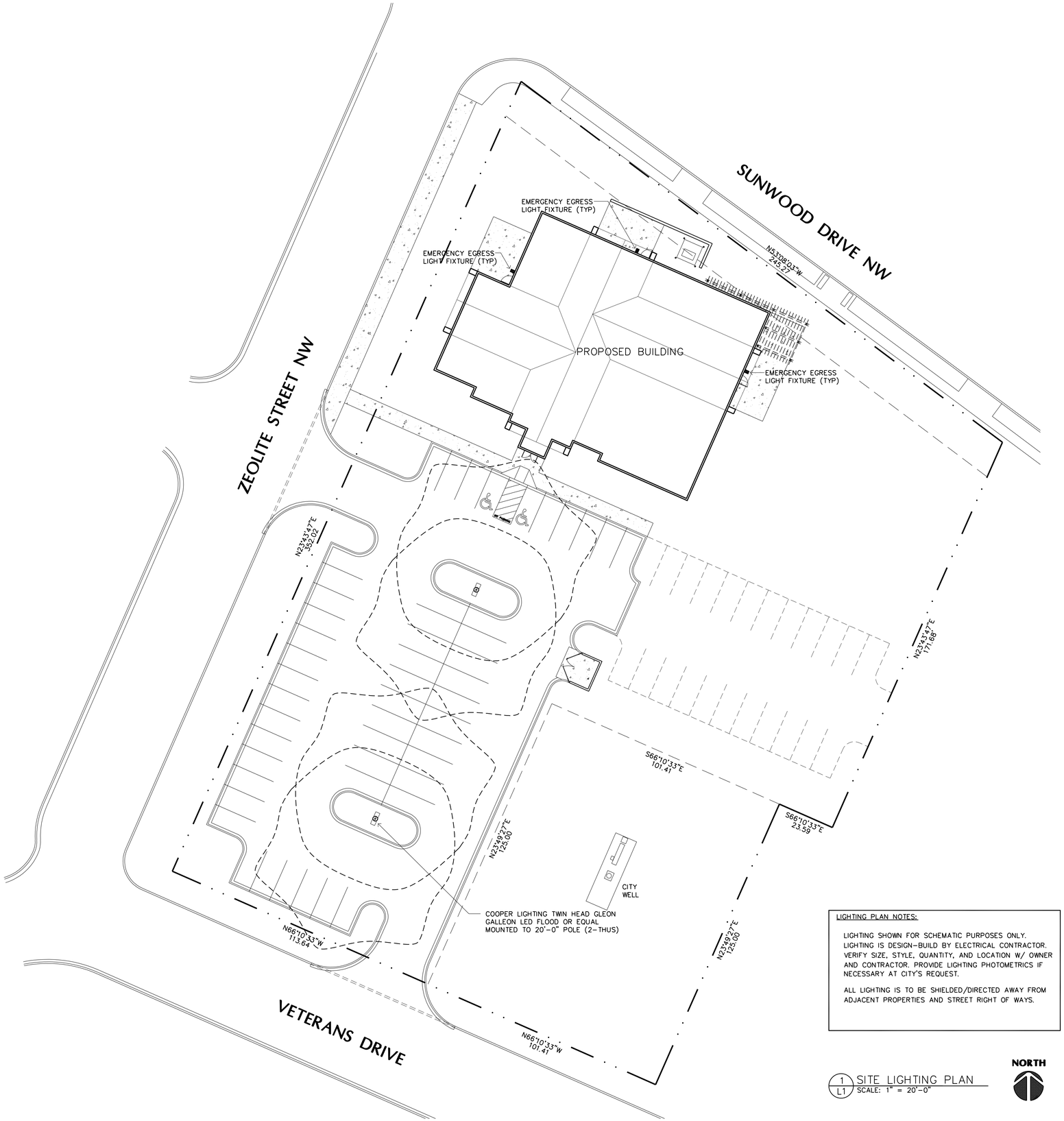
WEST ELEVATION

GIGI'S SALON AND SPA

Ramsey, Minnesota

NOTE: THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL COLORS NEED TO BE FIELD VERIFIED.

LA ARCHITECTS



LIGHTING PLAN NOTES:

LIGHTING SHOWN FOR SCHEMATIC PURPOSES ONLY. LIGHTING IS DESIGN-BUILD BY ELECTRICAL CONTRACTOR. VERIFY SIZE, STYLE, QUANTITY, AND LOCATION W/ OWNER AND CONTRACTOR. PROVIDE LIGHTING PHOTOMETRICS IF NECESSARY AT CITY'S REQUEST.

ALL LIGHTING IS TO BE SHIELDED/DIRECTED AWAY FROM ADJACENT PROPERTIES AND STREET RIGHT OF WAYS.

1 / L1 SITE LIGHTING PLAN
SCALE: 1" = 20'-0"

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00.00.00

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Ramsey, Minnesota

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11/17/20	CITY SUBMITTAL

SCHEMATIC SITE LIGHTING PLAN

Sheet Number

L1

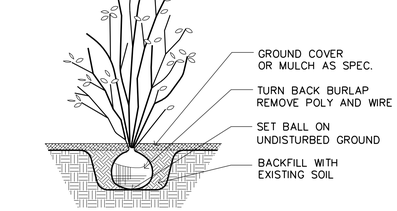
Project No. 200401-1

Filename: GIGIS SALON AND SPA\GIGIS SALON AND SPA-L1

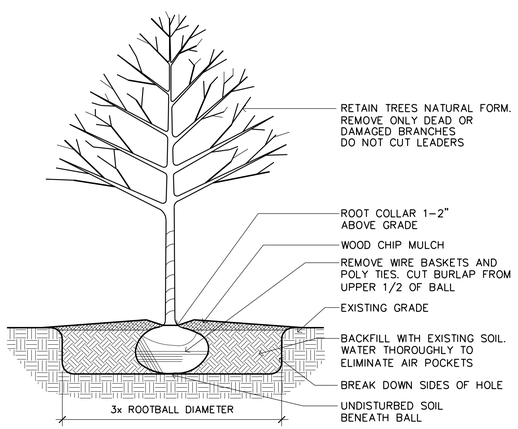
PLANTING SCHEDULE						
QTY.	KEY	COMMON NAME	BOTANICAL NAME	SIZE	MTHD	REMARKS
10	SH	SKYLINE HONEYLOCUST	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SKYLINE'	2.5" CAL.	BB	
6	KC	KELSEY CRABAPPLE	MALUS 'KELSEY'	1.5" CAL.	BB	
2	DA	DOWNY ARROWWOOD	VIBURNUM RAFINESQUIANUM	18-24" TALL	CONT.	
42	RS	ROUNDLEAF SERVICEBERRY	AMELANCHIER SNGUINEA	18-24" TALL	CONT.	
21	GC	GLOSSY BLACK CHOKEBERRY	ARONIA MELONOCARPA	18-24" TALL	CONT.	

LANDSCAPE NOTES:

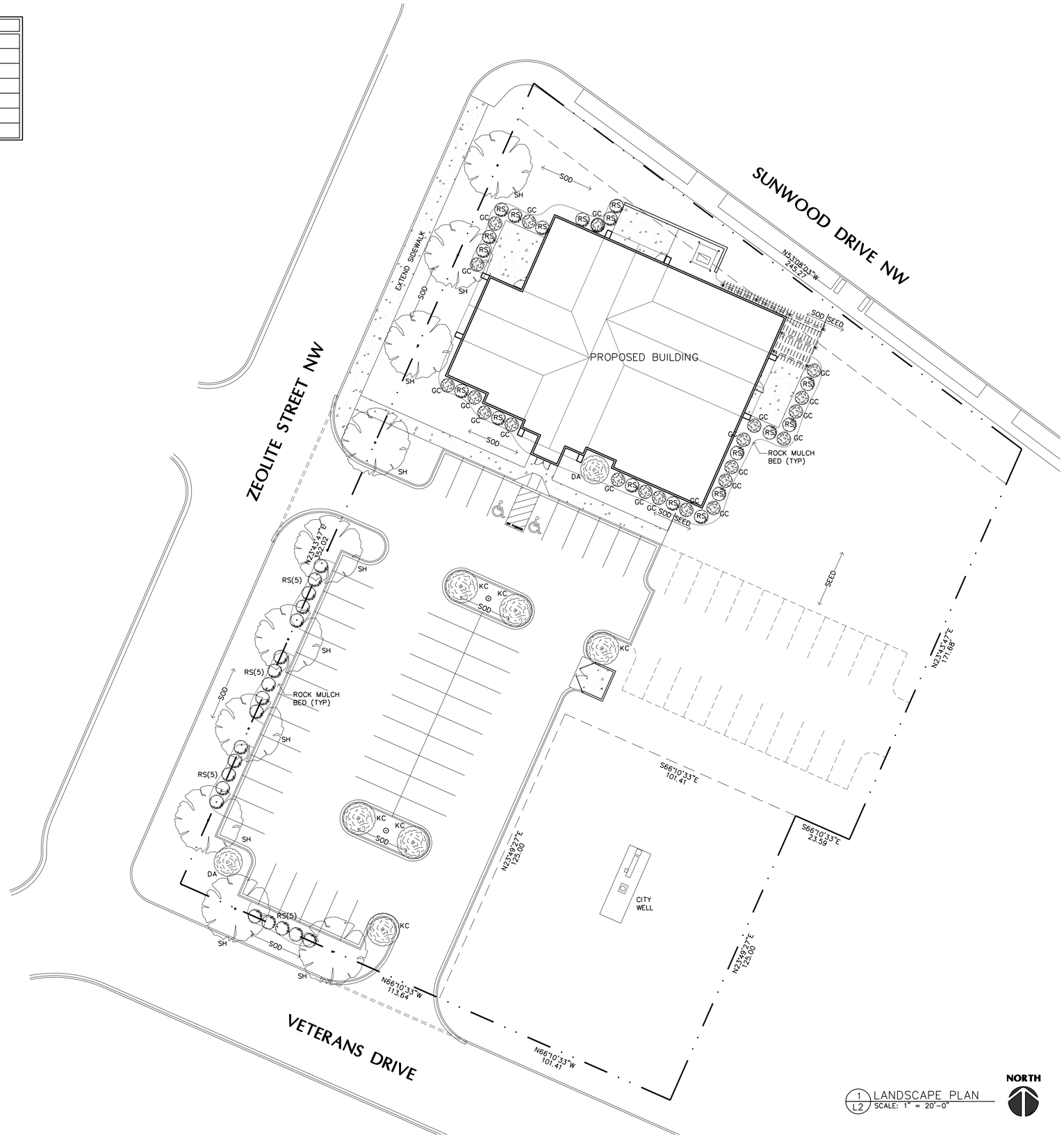
1. SEED/SOD AREAS AS SHOWN ON THE PLAN.
2. SEE PLAN FOR PLANTINGS LOCATED IN ROCK MULCH BED. ROCK MULCH BEDS SEPARATED FROM SOD BY BLACK VINYL EDGER. OTHER PLANTINGS TO HAVE WOOD MULCH RING TO PREVENT WEED GROWTH AND CONSERVE WATER.
3. UNDERGROUND IRRIGATION SYSTEM TO BE PROVIDED FOR ALL FOUNDATION PLANTINGS AND TURF AREAS. PROVIDE MOISTURE SENSOR. IRRIGATION DESIGN BY CONTRACTOR.



3 L2 SHRUB PLANTING DETAIL
SCALE: NOT TO SCALE



2 L2 TREE PLANTING DETAIL
SCALE: NOT TO SCALE



1 L2 LANDSCAPE PLAN
SCALE: 1" = 20'-0"

NORTH

Filename: GIGIS SALON AND SPA\GIGIS SALON AND SPA-L2

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GIGI'S SALON AND SPA

Ramsey, Minnesota

Drawn By: JRB
Checked By: LL
Revisions

10/6/20	PRELIMINARY
10/22/20	BUDGET PRICING
10/17/20	CITY SUBMITTAL

LANDSCAPE PLAN

Sheet Number

L2

Project No. 200401-1

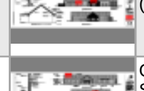
ProjectDox

Changemarks Report

Project Name: Gigi's Salon and Gigi Addition

Workflow Started: 11/23/2020 3:42 PM

Report Generated: 12/29/2020 11:36 AM

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	6	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A1 24x36 (1).pdf	Tim Gladhill	Widen Sidewalk	Must show widening of sidewalk consistent with remainder of corridor.	12/08/2020 3:54 PM	Tim Gladhill	
		7	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A1 24x36 (1).pdf	Tim Gladhill	Cross Access Easement	Must include Cross Access Easement - unless City Council removes previous requirement.	12/08/2020 3:54 PM	Tim Gladhill	
		8	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A1 24x36 (1).pdf	Tim Gladhill	Mechanical Units	Concerned about visibility of mechanical units on pitched roof. Please submit proposal to screen mechanical units.	12/08/2020 3:54 PM	Tim Gladhill	
		1	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A3 24x36 (1).pdf	Tim Gladhill	Architectural View from Sunwood	Need more window openings on Sunwood Drive side. Sunwood Drive should be primary architectural focal point.	12/08/2020 3:52 PM	Tim Gladhill	
		2	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A3 24x36 (1).pdf	Tim Gladhill	Match South Elevation Gabled End Facade	Must be 4 sided architecture.	12/08/2020 3:52 PM	Tim Gladhill	
		3	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A3 24x36 (1).pdf	Tim Gladhill	Color Elevations	Need color elevations.	12/08/2020 3:52 PM	Tim Gladhill	
		4	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A3 24x36 (1).pdf	Tim Gladhill	True Stone	In exchange for allowing Nichia siding - can we switch to true stone - not faux stone?	12/08/2020 3:52 PM	Tim Gladhill	

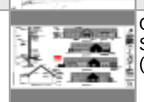
ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	5	False	Unresolved	Community Development Director		GIGIS SALON AND SPA-A3 24x36 (1).pdf	Tim Gladhill	Roof Materials	Will need Council direction on this material. Not specifically listed as permitted by administrative approval. Possible that City Council may approve.	12/08/2020 3:52 PM	Tim Gladhill	
	2	24	False	Unresolved	City Planner		015674-000-V-BDRY-SITE PLAN-Gigi Addition-DRAFT-2020-11-23.pdf	Chloe	Cross Access Easement	Will need a cross access agreement with neighboring property parking lot	12/29/2020 11:34 AM	Chloe McGuire Brigl	
		21	False	Unresolved	City Planner		GIGIS SALON AND SPA-COLOR A 24x36 (1).pdf	Chloe	Trash Enclosure	Add trash enclosure sheet to show architecture of it	12/29/2020 11:32 AM	Chloe McGuire Brigl	
		22	False	Unresolved	City Planner		GIGIS SALON AND SPA-COLOR A 24x36 (1).pdf	Chloe	Additional windows	This needs additional windows and articulation	12/29/2020 11:32 AM	Chloe McGuire Brigl	
		23	False	Unresolved	City Planner		GIGIS SALON AND SPA-COLOR A 24x36 (1).pdf	Chloe	Additional Windows	Add window to right side of this elevation	12/29/2020 11:31 AM	Chloe McGuire Brigl	
		20	False	Unresolved	Engineering Tech		C4.pdf	Logan Czech	Pedestrian Ramps	Along with extending sidewalk, per Joe's note, pedestrian ramps with steel truncated domes will be required at both entrances.	12/29/2020 9:36 AM	Logan Czech	
		19	False	Unresolved	Engineering Tech		GIGIS SALON AND SPA-A1 24x36 (1).pdf	Logan Czech	Accessible Stall	Should be noted that future parking addition will require at least one more accessible stall.	12/29/2020 9:10 AM	Logan Czech	

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	2	18	False	Unresolved	Engineering Tech		C1.pdf	Logan Czech	Mix Design	City mix design has changed, Wear and Base should be switched to SPWEA340C and SPNWB330C, respectively.	12/29/2020 8:39 AM	Logan Czech	
		17	False	Unresolved	Civil Engineer II		C4.pdf	JF	Sidewalk	Sidewalk must extend down to Veterans, and along Veterans Drive to east lot line.	12/28/2020 2:05 PM	Joe Feriancek	
		16	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-A3 24x36 (1).pdf	CA	Signage	Signage requires application for Permanent Sign Permit and review of signage occurs at that point.	12/23/2020 1:58 PM	Chris Anderson	
		15	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L1 24x36 (1).pdf	CA	Street Lights Plan	Add in proposed street lights in accordance with The COR Master Street Lighting Plan.	12/23/2020 1:53 PM	Chris Anderson	
		9	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L2 24x36.pdf	CA	Sidewalk	A 6 foot wide concrete sidewalk shall be added to plan set along Veterans Drive and Zeolite St.	12/23/2020 1:51 PM	Chris Anderson	
		10	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L2 24x36.pdf	CA	Different Species	Please utilize an alternative species from the Connector Street list of acceptable species since these 2 are along a separate street. This will help maintain diversity and protect again disease/pest outbreaks.	12/23/2020 1:51 PM	Chris Anderson	

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	2	11	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L2 24x36.pdf	CA	Boulevard Width	Along Zeolite St, boulevard shall be at least six (6) feet in width. Since there is an existing boulevard pattern established further east along Veterans Drive, the segment of boulevard can match that.	12/23/2020 1:51 PM	Chris Anderson	
		12	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L2 24x36.pdf	CA	Shift Sidewalk East	Sidewalk shall be shifted east to create a 6 foot wide sodded boulevard. Tree plantings shall be in the boulevard.	12/23/2020 1:51 PM	Chris Anderson	
		13	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L2 24x36.pdf	CA	Protect Existing Streetscape	Barriers must be installed to protect existing streetscape. Any damage shall be subject to correction up to and including replacement. Include barriers in plan set.	12/23/2020 1:51 PM	Chris Anderson	
		14	False	Unresolved	Environmental Review		GIGIS SALON AND SPA-L2 24x36.pdf	CA	Add Topsoil Note	Add note stating that 4 inches of topsoil with no more than 35% sand content is required over all areas not otherwise improved with impervious surfacing. Topsoil must be inspected before installation of sod/landscaping.	12/23/2020 1:51 PM	Chris Anderson	

CITY OF RAMSEY LAND USE APPLICATION
TECHNICAL REVIEW FILE

DATE	December 29, 2020	**PROJECT ADDRESS**	
PROJECT. TITLE	Gigi's Salon Preliminary and Final Plat, Site Plan		
ESCROW #			
DEPARTMENT:	Community Development: Planning Division (Zoning Code)		
TECHNICAL REVIEWER:	Chloe McGuire, Senior Planner		

Preliminary and Final Plat Review

General. The purpose of this file is to review the official Preliminary Plat, Final Plat, and Site Plan applications made by Gigi's Salon. The applicant is requesting approval for one (1) commercial lot and two (2) outlots.

This case is being reviewed per City Code Section 117-118 entitled The COR, and Chapter 117, Article III entitled Subdivisions.

Staff provides the following comments for general review of applications:

Land Use and Zoning. The Property is guided as Mixed Use in the Comprehensive Plan and is zoned The COR. The intent of the Mixed Use land use designation is to allow for the construction of a variety of uses including retail, commercial, entertainment, office, institutional, high density residential, transit hubs and park and recreation uses with access to municipal sewer and water. The proposed use is consistent with this land use guidance. The project is located within the COR 2 Commercial subdistrict. This subdistrict is intended to provide space for commercial operations with a mix of large and small floor plates accommodating auto-oriented uses. The use of a salon meets the intent of this district.

Lot Dimensions. There is no minimum lot size in The COR 2 Commercial subdistrict. The minimum lot width is 80 feet, measured at the building setback line, and the minimum lot depth is 100 feet. The proposed lot and Outlot A meet these requirements. Outlot B does not meet these requirements because it is for a utility easement and will not be a future buildable lot.

Setbacks and Dimensional Standards.

The COR2 Subdistrict	
Required	**Proposed**
Minimum Lot Width: 80 feet **Minimum Lot Depth: 100 feet**	**245 feet** **352 feet**
Build to Line: 30 feet (located on a local street) **Building Height: 1-4 stories**	**14 feet (closest) and 37 feet (furthest – because road is at diagonal)** **2 story**

Landscaping. See landscape review in ProjectDox.

Development Fees: Development Fees will be due with the Plat including, but not limited to, Park Dedication, Trail Development, and Stormwater Management. These fees are collected at the time the Final Plat is recorded and at the rate in effect when the plat is recorded.

Development Agreement: An executed Development Agreement for the site improvements will be required prior to releasing the plat for recording.

Site Plan Review

Surfacing: The Applicant is proposing a completely bituminous parking lot which is an acceptable material within The COR. The current plan set shows a bituminous parking lot with entrances off of Zeolite Street and Veterans Drive. The Applicant has set up the parking lot for future expansion to the east to connect to the future development. This will require a cross-access easement recorded against the properties.

Waste Storage: Elevations provided show the trash enclosure in the parking lot near the outlot for the transformer.

Lighting: The plan set shows two (2) lighting fixtures, one each in the center of the center parking medians. City Code requires that lighting used to illuminate an off-street parking area be arranged to deflect light away from adjacent residential districts or public streets. The photometric plan indicates that no illumination will spread beyond the bounds of the site which is in compliance with City Code.

Parking: City Code Section 117-356 addresses commercial development off-street parking requirements. That code indicates that for 90 degree parking stalls, that the stall widths be a minimum of 9 feet wide, that the stall depth be a minimum of 18 feet deep, and that the drive aisle between stalls be a minimum of 24 feet deep. The plans provided show parking stalls and drive aisles which adhere to those dimensional requirements.

The plans provided show a total of 50 parking spaces including 2 handicap parking spaces. The City's Zoning Code lays out requirements for health clubs at 3 spaces per 1000 square feet, which would allow for 27 – 37 stalls. The Applicant has proposed 50 stalls. This is a unique use with a juice bar, salon, small areas for outdoor dining, and anticipated 30 employees. The proposed parking does feel adequate for the proposed use.

Sidewalks: Boulevards shall be six (6) feet in width and shall be clearly labeled on plan sheets. Sidewalks shall also be six (6) feet in width and be clearly labeled on plan sheets. A sidewalk will be required on Zeolite, Veteran's Drive, and Sunwood Drive.

Architectural Review

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-thrus 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.

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 locationsvisible to public areas. Emphasis will be on great design along public street frontage.

The Applicant provided building elevations for feedback from the City's Planning Commission. Staff recommended revisions are below.

Please make the following revisions to the plan set.

- **Please revise any materials that are not glass, stone, brick, windows, or canvas awnings, except as a complimentary material (less than 25% of the façade).**
- **Use clear or lightly tinted glass for all windows and doors – reflective or highly tinted glass is not acceptable**
- **Revise architectural elevation to show trash enclosure.**
- **Revise plan sheets to show sidewalks on Zeolite Street, Sunwood Drive, and Veteran's Drive.**
- **Additional windows need to be added to the North elevation.**

Subject to Planning Commission Approval – make further modifications to draw attention/direction from patrons parking on Sunwood Drive to the main entrance on the south façade.

- **The Planning Commission must specifically approve any trash enclosure that is not designed internal to the building.**
- At least 50% of the ground level façade along Sunwood Drive must demonstrate 'great design' consisting of window openings, brick, stone, or other comparable material.
- A minimum of 40% of the Sunwood Drive façade must be real window openings.
- The Developer is responsible for compliance with all provisions of design from the Design Framework including, but not limited to the following pages.
    - Pages 26-29
    - Pages 49-53
    - Pages 57-59

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

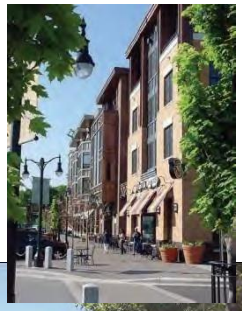
Guideline Recommendations

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.



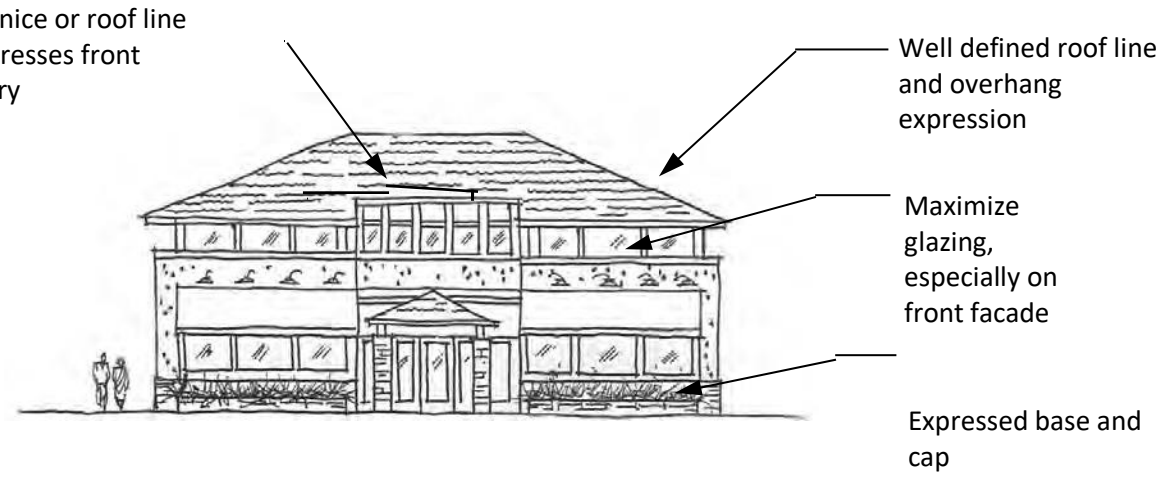
Architectural Overview

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

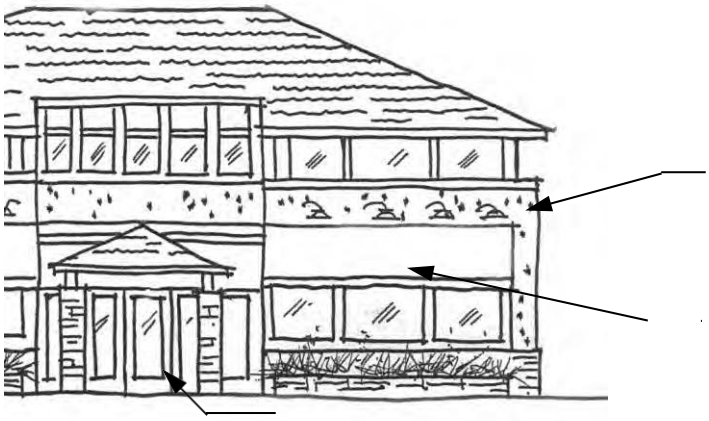
Of all the layers that combine to form The COR Development Plan, architecture will typically be the most prominent development component. Both visually and physically, architecture will play a major role in defining the overall design character and mix of uses for The COR. It is crucial that the design and location of buildings address these architectural guidelines, with specific emphasis on the following:

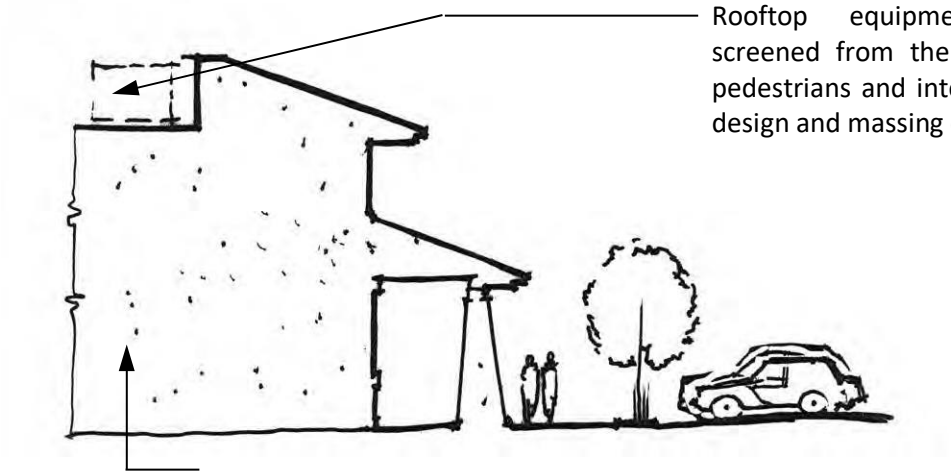
- An animated street presence with a mix of street-level uses, interesting building façades, many doors and windows on the street, careful design of lighting, awnings, signage and other elements that animate the pedestrian experience



- 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"

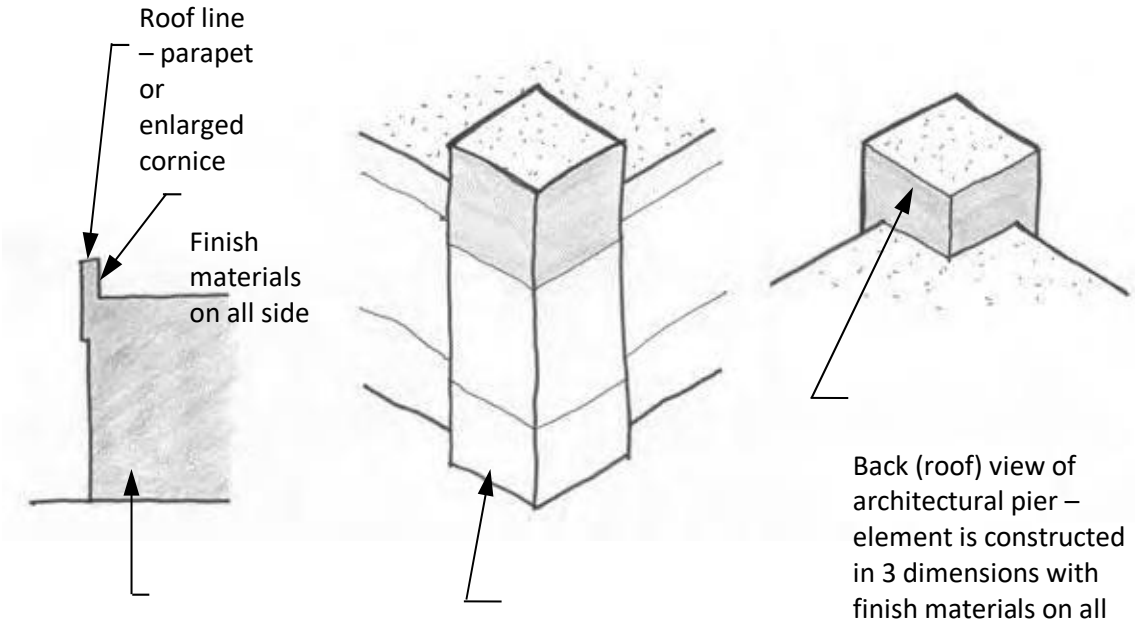
- Buildings will be located at the street right-of-way line (zero setback), but also allow recessed space for outdoor dining and other street level activities providing some minor deviation for variety. Greater emphasis should be given to architectural elements, materials and other design features for 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





Retail/Commercial Building

- 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.



Retail/Commercial Building

Front corner view of architectural pier

Back (roof) view of architectural pier – element is constructed in 3 dimensions with finish materials on all sides

November 27, 2012

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 (**Error! Reference source not found.**). 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.

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.

Regular Planning Commission **6. 1.**

Meeting Date: 01/07/2021

By: Chloe McGuire Brigl, Community Development

Information

Title:

PUBLIC HEARING: Review Resolution #21-007 Approving Preliminary Plat for Northfork Meadows, Case of Lennar (Project #20-135)

Purpose/Background:

The purpose of this case is to review a request from Lennar (the "Applicant") for a Preliminary Plat application for Northfork Meadows. The Subject Property is located east of Puma/Okapi Street and south of Alpine Dr and is approximately 33 acres. The Subject Property has a split zoning with R-1 Residential (MUSA - Detached Single Family Homes) (80 foot wide lots) along the eastern and southern boundary, with the remainder of the property zoned R-1 Residential (MUSA - Detached Villas) (65 foot wide lots).

Notification:

The City attempted to notify Property Owners, as reflected in the Anoka County Property Records, within 700 feet of the Subject Property of the request.

The Public Hearing Notice was also properly posted in the Anoka County UnionHerald, the City's Official Newsletter.

Observations/Alternatives:

Summary

This project is a culmination of a few years of work with the property owner and Applicant. Staff worked with the Planning Commission, City Council, and Property Owner to amend the zoning and comprehensive plans to meet the Property Owner's vision for this area. City Staff has worked with the neighborhood directly to the west throughout that time, and this project represents a compromise scenario that both property owner, applicant, City Council, and residents were comfortable with at time of rezoning and preliminary plat.

Below is a summary of the project:

- Site Acreage: Approximately 33 acres
- Proposed Number of Lots: 88 lots (41 80-foot wide lots, 47 65-foot wide lots)
- Current Zoning: R-1 Residential (MUSA - Detached Single Family Homes) 80-foot wide lots (eastern and southern boundary), and R-2 Residential (MUSA - Detached Villa) 65-foot wide lots (remainder)
- Proposed Density: 3.35 units per acre

The Preliminary Plat appears to meet all of the bulk standards of the current zoning districts and does not propose a change to the Comprehensive Plan or approved zoning districts. The proposed plat also falls within the approved density range for low density residential subdivisions, from 1 - 4 units per acre.

Roads and Access

The proposed preliminary plat includes public roads with access points off of Puma Street (likely renamed Okapi Street in the future) to the west and an access off Alpine Drive to the north.

Density Transitioning

The attached plans show a berm separating the 80 foot wide lots on the eastern edge of this property from the existing residential neighborhood just east of this property. All adjacent residential units will be buffered with

landscaping and a berm, meeting the intent of the density transitioning requirements and previous direction from City Council.

Next Steps
Next steps in the platting process include formal approval of the preliminary plat by the City Council, then final platting which allows for building on the property. The attached resolution includes standard contingencies for approval.

City Code Sections

- Section 117-111: R-1 Residential (MUSA - Detached Single Family Homes) and (MUSA - Detached Villa) (Existing and Proposed Zoning)
- Section 117-588: Major Plat
- Section 117-614: Subdivision Design Standards

Funding Source:
The Applicant is responsible for all costs associated with project review.

Recommendation:
Staff recommends adoption of Resolution #21-007.

Action:
Motion to recommend the City Council adopt Resolution #21-007.

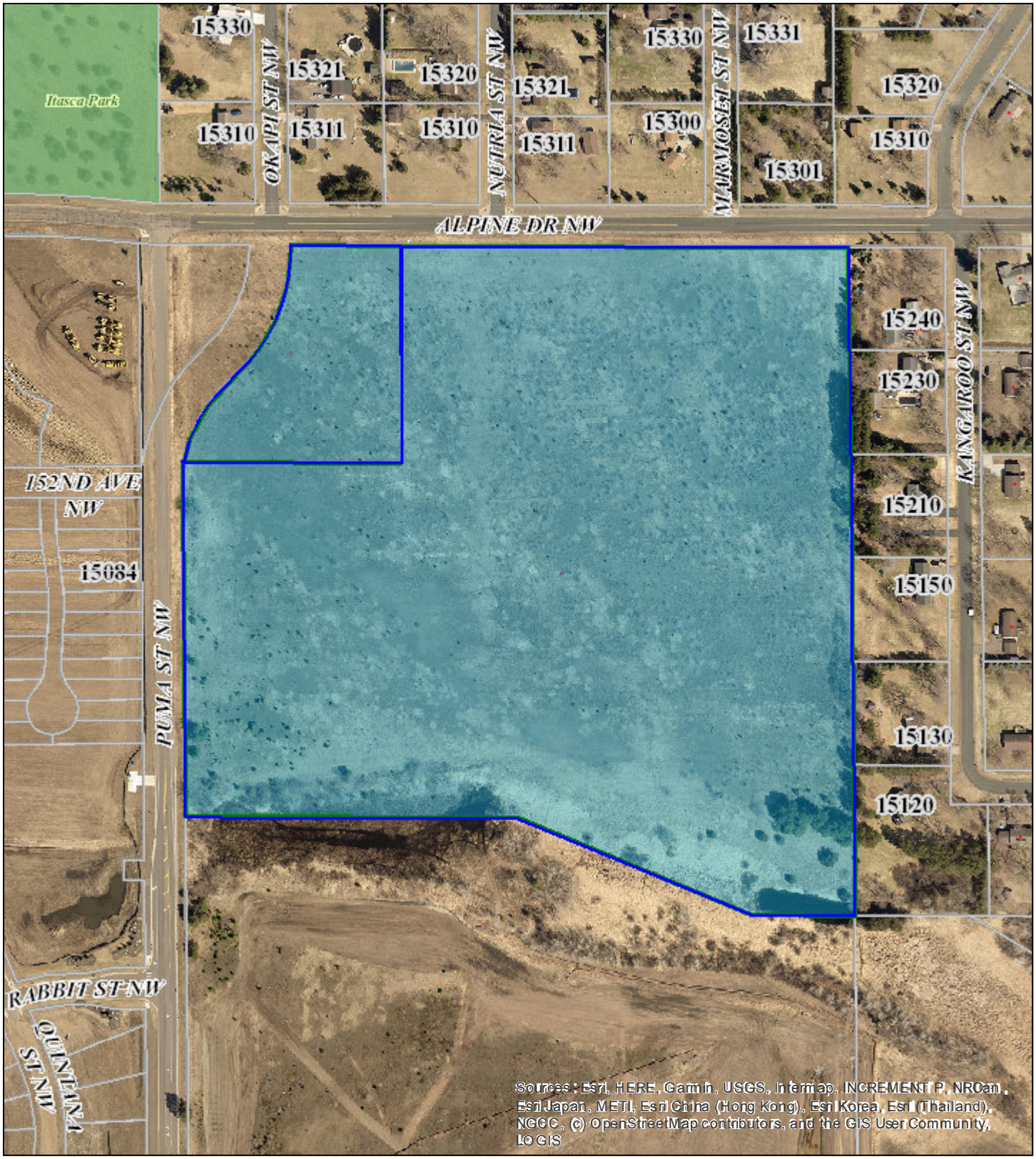
Attachments

Site Location Map
Preliminary Plat Sheet
Plan Set
Proposed Architecture
Preliminary Staff Comments (ProjectDox)
Staff Review
DRAFT Resolution #21-007

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/29/2020 08:46 AM
Tim Gladhill	Chloe McGuire Brigl	12/29/2020 01:01 PM
Tim Gladhill	Tim Gladhill	12/29/2020 03:21 PM

Form Started By: Chloe McGuire Brigl
Started On: 12/28/2020 09:04 AM
Final Approval Date: 12/29/2020



Site Location Map

Northfork Meadows

Legend

Site

Parcels

N

October 20th, 2020

0 0.075 0.15 mi

NORTH FORK MEADOWS

EXISTING LEGAL DESCRIPTION:
(per client)

Outlot A, ALPHA DEVELOPMENT, Anoka County, Minnesota

AND

Outlot B, ALPHA DEVELOPMENT 2ND ADDITION, Anoka County, Minnesota

OWNERS / DEVELOPERS:
Lennar Corporation
16305 36th Avenue North
Plymouth, MN 55446
952-373-0485

SURVEYOR:
ISG
7900 International Drive Suite 550
Minneapolis, MN 55425
952-426-0699

AREA TABLE:
Outlot A, ALPHA DEVELOPMENT = 1,328,912 sq. ft. - 30.51 acres
Outlot B, ALPHA DEVELOPMENT 2ND ADDITION = 126,690 sq. ft. - 2.91 acres
Total = 1,455,602 sq. ft. - 33.42 acres

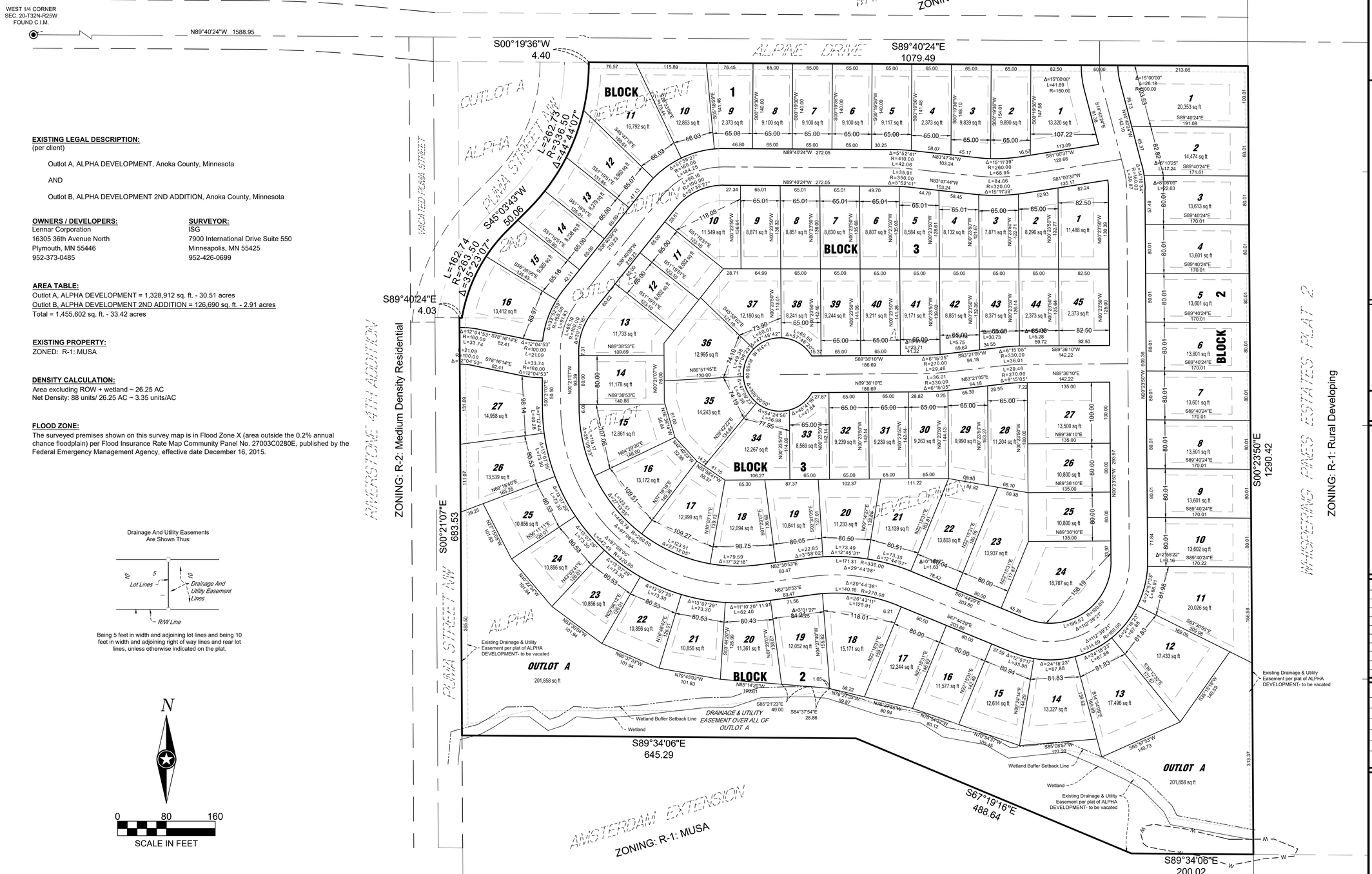
EXISTING PROPERTY:
ZONED: R-1: MUSA

DENSITY CALCULATION:
Area excluding ROW + wetland ~ 26.25 AC
Net Density: 88 units/ 26.25 AC ~ 3.35 units/AC

FLOOD ZONE:
The surveyed premises shown on this survey map is in Flood Zone X (area outside the 0.2% annual chance floodplain) per Flood Insurance Rate Map Community Panel No. 27003C0280E, published by the Federal Emergency Management Agency, effective date December 16, 2015.

Drainage And Utility Easements
Are Shown Thus:

Being 5 feet in width and adjoining lot lines and being 10 feet in width and adjoining right of way lines and rear lot lines, unless otherwise indicated on the plat.



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MARK A. SCHWANZ

DATE _____ LIC. NO. 45817

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 PRELIM
DRAWN BY	MAS
DESIGNED BY	
REVIEWED BY	MAS
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

PRELIMINARY PLAT

SHEET

3

OF 32

LENNAR HOMES
NORTH FORK MEADOWS DEVELOPMENT

RAMSEY, MINNESOTA

PRELIMINARY PLAT

ISG PROJECT # 20-24580

LEGEND

EXISTING

- CITY LIMITS
- SECTION LINE
- QUARTER SECTION LINE
- RIGHT OF WAY LINE
- PROPERTY / LOTLINE
- EASEMENT LINE
- ACCESS CONTROL
- WATER EDGE
- WETLAND BOUNDARY
- WETLAND / MARSH
- FENCE LINE
- CULVERT
- STORM SEWER
- SANITARY SEWER
- SANITARY SEWER FORCEMAIN
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- UNDERGROUND FIBER OPTIC
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- MANHOLE/STRUCTURE
- CATCH BASIN
- HYDRANT
- VALVE
- CURB STOP
- POWER POLE
- UTILITY PEDESTAL / CABINET

PROPOSED

- LOT LINE
- RIGHT OF WAY
- EASEMENT
- CULVERT
- STORM SEWER
- STORM SEWER (PIPE WIDTH)
- SANITARY SEWER
- SANITARY SEWER (PIPE WIDTH)
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TV
- CONTOUR
- MANHOLE (STORM, SANITARY)
- CATCH BASIN
- HYDRANT
- VALVE

LOCATION MAP

SCALE IN FEET

0 500 1000

ABBREVIATIONS:

AC	ACRE	CMP	CORRUGATED METAL PIPE	FDN	FOUNDATION	HR	HOUR	MB	MAIL BOX	PVC	POLYVINYL CHLORIDE	TEL	TELEPHONE
ADA	AMERICANS WITH DISABILITIES ACT	CO	CLEANOUT	FFE	FINISHED FLOOR ELEVATION	HWL	HIGH WATER LEVEL	MECH	MECHANICAL	PVMT	PAVEMENT	TEMP	TEMPORARY
ADD	ADDENDUM	CONC	CONCRETE	FPM	FEET PER MINUTE	HWY	HIGHWAY	MH	MANHOLE	QTY	QUANTITY	THRU	THROUGH
AFF	ABOVE FINISHED FLOOR	CONST	CONSTRUCTION	FPS	FEET PER SECOND	HYD	HYDRANT	MIN	MINIMUM	RAD	RADIUS	TNFH	TOP NUT OF FIRE HYDRANT
AGG	AGGREGATE	CONT	CONTINUOUS	FT	FOOT, FEET	I	INVERT	MISC	MISCELLANEOUS	RCP	REINFORCED CONCRETE PIPE	TRANS	TRANSFORMER
APPROX	APPROXIMATE	CY	CUBIC YARD	FTG	FOOTING	ID	INSIDE DIAMETER	NO	NUMBER	RD	ROOF DRAIN	TV	TELEVISION
ARCH	ARCHITECT, ARCHITECTURAL	C&G	CURB AND GUTTER	GA	GAUGE	IN	INCH	NTS	NOT TO SCALE	REBAR	REINFORCING BAR	T/W	TOP OF WALL
BFE	BASEMENT FLOOR ELEVATION	DEMO	DEMOLITION	GAL	GALLON	INV	INVERT	NWL	NORMAL WATER LEVEL	REM	REMOVE	TYP	TYPICAL
BIT	BITUMINOUS	DIA	DIAMETER	GALV	GALVANIZED	IP	IRON PIPE	OC	ON CENTER	ROW	RIGHT OF WAY	UT	UTILITY, UNDERGROUND
CAD	COMPUTER-AIDED DESIGN	DIM	DIMENSION	GC	GENERAL CONTRACTOR	IPS	IRON PIPE SIZE	OCEW	ON CENTER EACH WAY	R/W	RIGHT OF WAY		TELEPHONE
CB	CATCH BASIN	DS	DOWNSPOUT	GFE	GARAGE FLOOR ELEVATION	J-BOX	JUNCTION BOX	OH	OVERHEAD	SAN	SANITARY	VCP	VITRIFIED CLAY PIPE
CFS	CUBIC FEET PER SECOND	EA	EACH	GL	GUTTER LINE	JT	JOINT	OHD	OVERHEAD DOOR	SCH	SCHEDULE	W/O	WITHOUT
CF	CUBIC FOOT	ELEC	ELECTRICAL	GPM	GALLONS PER MINUTE	LF	LINEAR FEET	OZ	OUNCE	SF	SQUARE FOOT	W/	WITH
CI	CAST IRON	ELEV	ELEVATION	GV	GATE VALVE	LIN	LINEAR	PED	PEDESTAL, PEDESTRIAN	SPEC	SPECIFICATION	YD	YARD
CIP	CAST IRON PIPE	EOF	EMERGENCY OVERFLOW	HDPE	HIGH DENSITY POLYETHYLENE	LPS	LOW PRESSURE STEAM	PERF	PERFORATED	SQ	SQUARE	YR	YEAR
CIPC	CAST IN PLACE CONCRETE	EQ	EQUAL	HD	HEAVY DUTY	LS	LUMP SUM	PL	PROPERTY LINE	STA	STATION		
CJ	CONTROL JOINT	EX	EXISTING	HH	HANDHOLE	LSO	LOWEST STRUCTURAL OPENING	PP	POLYPROPYLENE	SY	SQUARE YARD		
CL	CENTERLINE	FDC	FIRE DEPARTMENT CONNECTION	HORIZ	HORIZONTAL	MAX	MAXIMUM	PSI	POUNDS PER SQUARE INCH	T/C	TOP OF CURB		

SHEET INDEX

1	TITLE SHEET
2	EXISTING & REMOVALS PLAN
3	PRELIMINARY PLAT
4	OVERALL PUD MASTER SITE PLAN
5	OVERALL GRADING PLAN
6	GRADING DETAILS
7	STORMWATER POLLUTION PREVENTION PLAN
8	SWPPP DETAILS
9-12	OVERALL UTILITY PLANS
13-22	ROADWAY PLAN & PROFILES
23	TYPICAL STREET SECTION
24-27	SITE DETAILS
28-29	MnDOT DETAILS
30-32	SITE RESTORATION PLANS
	THIS PLAN SET INCLUDES 32 SHEETS

PROJECT GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, THE OWNER - CONTRACTOR AGREEMENT, THE PROJECT MANUAL (WHICH INCLUDES GENERAL SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS), DRAWINGS OF ALL DISCIPLINES AND ALL ADDENDA, MODIFICATIONS AND CLARIFICATIONS ISSUED BY THE ARCHITECT/ENGINEER.
2. CONTRACT DOCUMENTS SHALL BE ISSUED TO ALL SUBCONTRACTORS BY THE GENERAL CONTRACTOR IN COMPLETE SETS IN ORDER TO ACHIEVE THE FULL EXTENT AND COMPLETE COORDINATION OF ALL WORK.
3. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
4. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPE OF DETAILING REQUIRED THROUGHOUT THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO DETAILS SHOWN. WHERE SPECIFIC DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
6. ALL MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISCREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
7. ALL DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION.
8. THE LOCATION AND TYPE OF ALL INPLACE UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF I & S GROUP, INC. (ISG). NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS AND ELEVATIONS OF ALL INPLACE UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN.
9. THE CONTRACTOR IS TO CONTACT "GOPHER STATE ONE CALL" FOR UTILITY LOCATIONS, MINIMUM 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION / CONSTRUCTION (1-800-252-1166).

PROJECT INDEX:

OWNER:

LENNAR HOMES
16305 36TH AVENUE NORTH
PLYMOUTH, MN 55446

PROJECT ADDRESS / LOCATION:

SEC. 22/ TOWNSHIP 32N/ RANGE 25W

ANOKA COUNTY
RAMSEY MINNESOTA

MANAGING OFFICE:

MANKATO OFFICE
115 EAST HICKORY STREET
SUITE 300
MANKATO, MN 56001
PHONE: 507.387.6651
FAX: 507.387.3583

PROJECT MANAGER: NATHAN HERMER
EMAIL: NATHAN.HERMER@ISGINC.COM

SPECIFICATIONS REFERENCE

ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF RAMSEY REQUIREMENTS AND MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2018 EDITION, AND THE STANDARD SPECIFICATIONS FOR SANITARY SEWER, STORM DRAIN AND WATERMAIN AS PROPOSED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA 2013, UNLESS DIRECTED OTHERWISE.

PROJECT DATUM

HORIZONTAL COORDINATES HAVE BEEN REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), 1996 ADJUSTMENT (NAD83(1996)) ON THE ANOKA COUNTY COORDINATE SYSTEM, IN U.S. SURVEY FEET.
ELEVATIONS HAVE BEEN REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
RTK GPS METHODS WERE USED TO ESTABLISH HORIZONTAL AND VERTICAL COORDINATES FOR THIS PROJECT.

B.M. ELEVATION=888.56

TNFH SE QUADRANT AT THE INTERSECTION OF PUMA ST NW AND ALPINE DR

TOPOGRAPHIC SURVEY

THIS PROJECT'S TOPOGRAPHIC SURVEY CONSISTS OF DATA COLLECTED IN OCTOBER/2020 BY ISG.

NOTE:
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NATHAN HERMER

DATE XX/XX/XXXX LIC. NO. XXXXX

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 1 TITLE
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

TITLE SHEET

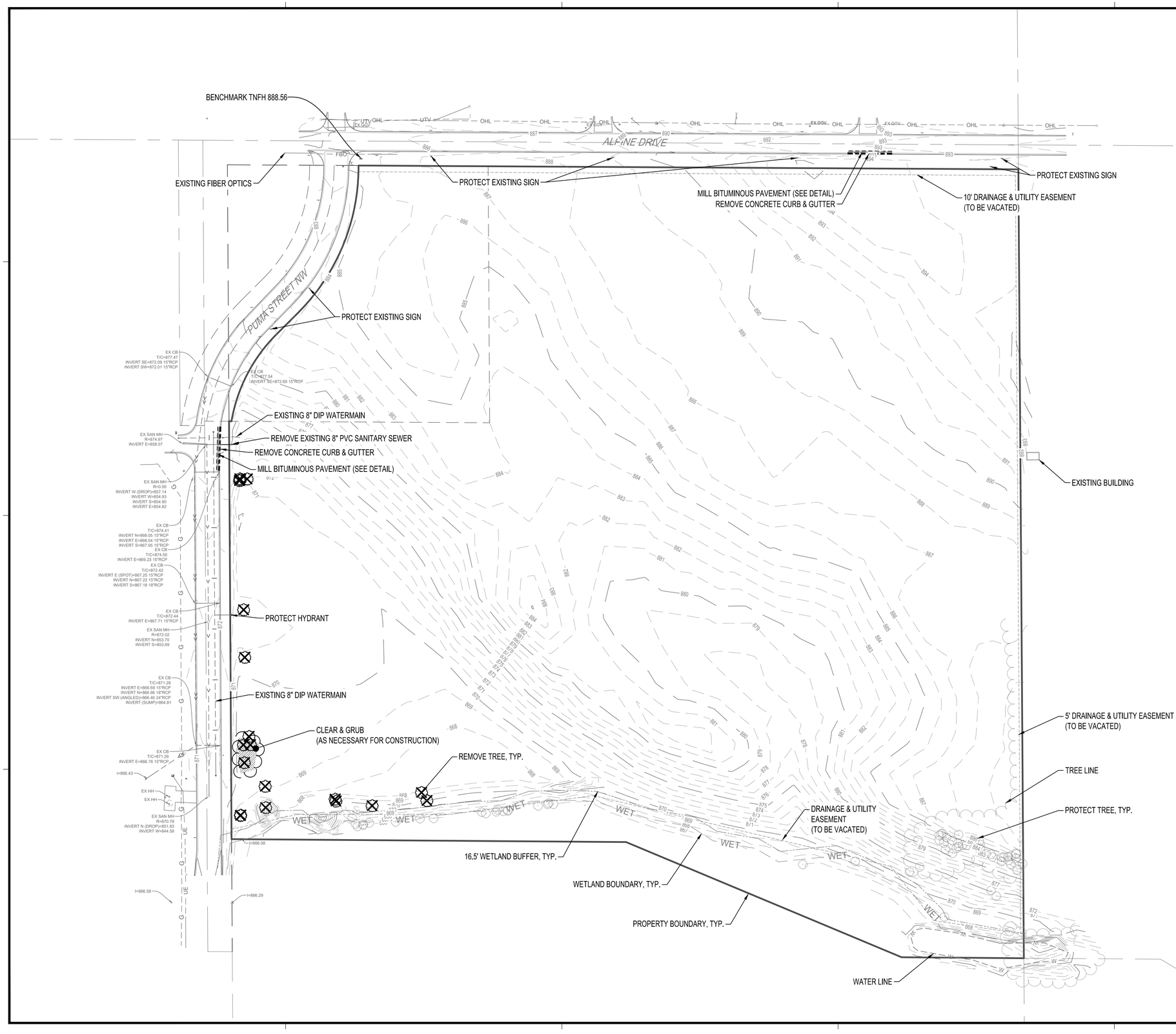
SHEET

1

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

PRELIMINARY NOT FOR CONSTRUCTION



REMOVAL LEGEND

SYMBOL	DESCRIPTION
	REMOVE BITUMINOUS PAVEMENT
	CLEAR & GRUB TREES & UNDERBRUSH
	REMOVE DECIDUOUS TREE (CLEAR & GRUB)
	REMOVE CONIFEROUS TREE (CLEAR & GRUB)

CONTRACTOR SHALL VERIFY EXISTING PAVEMENT SECTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

PAVEMENT REMOVALS SHALL INCLUDE FULL DEPTH SAWCUT & SECTION REMOVAL.

TREE PRESERVATION NOTES

1. ALL TREES TO REMAIN IN PLACE SHALL BE FENCED OFF WITH SAFETY NETTING AND STEEL STAKES BEYOND THE DRIPLINE OF THE TREE.
2. ALL TREES TO REMAIN SHALL RECEIVE SILT FENCING AROUND THE OUTSIDE OF THE SAFETY NETTING TO ENSURE NO CHEMICAL OR RUNOFF FROM CONSTRUCTION DAMAGES THE TREE OR THE SOIL SURROUNDING THE TREE.
3. PROTECT TREES TO REMAIN FROM ANY DAMAGE, INCLUDING BUT NOT LIMITED TO SOIL COMPACTION, VEHICLE DAMAGE, AND CHEMICAL EXPOSURE TO THE TREE OR THE SOIL SURROUNDING THE TREE.
4. ANY TREES TO REMAIN DAMAGED DURING THE CONSTRUCTION PROCESS SHALL BE REPLACED IN KIND BY THE CONTRACTOR.

TOTAL EXISTING TREES = 82
TOTAL TREES TO BE REMOVED = 19 (23%)
TOTAL TREES TO REMAIN = 63 (77%)

ISG

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 4 EXISTING
DRAWN BY	EH
DESIGNED BY	ART,WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

EXISTING SITE & REMOVALS PLAN

SHEET

2

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

NORTH FORK MEADOWS

EXISTING LEGAL DESCRIPTION:
(per client)

Outlot A, ALPHA DEVELOPMENT, Anoka County, Minnesota

AND

Outlot B, ALPHA DEVELOPMENT 2ND ADDITION, Anoka County, Minnesota

OWNERS / DEVELOPERS:
Lennar Corporation
16305 36th Avenue North
Plymouth, MN 55446
952-373-0485

SURVEYOR:
ISG
7900 International Drive Suite 550
Minneapolis, MN 55425
952-426-0699

AREA TABLE:
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Outlot B, ALPHA DEVELOPMENT 2ND ADDITION = 126,690 sq. ft. - 2.91 acres
Total = 1,455,602 sq. ft. - 33.42 acres

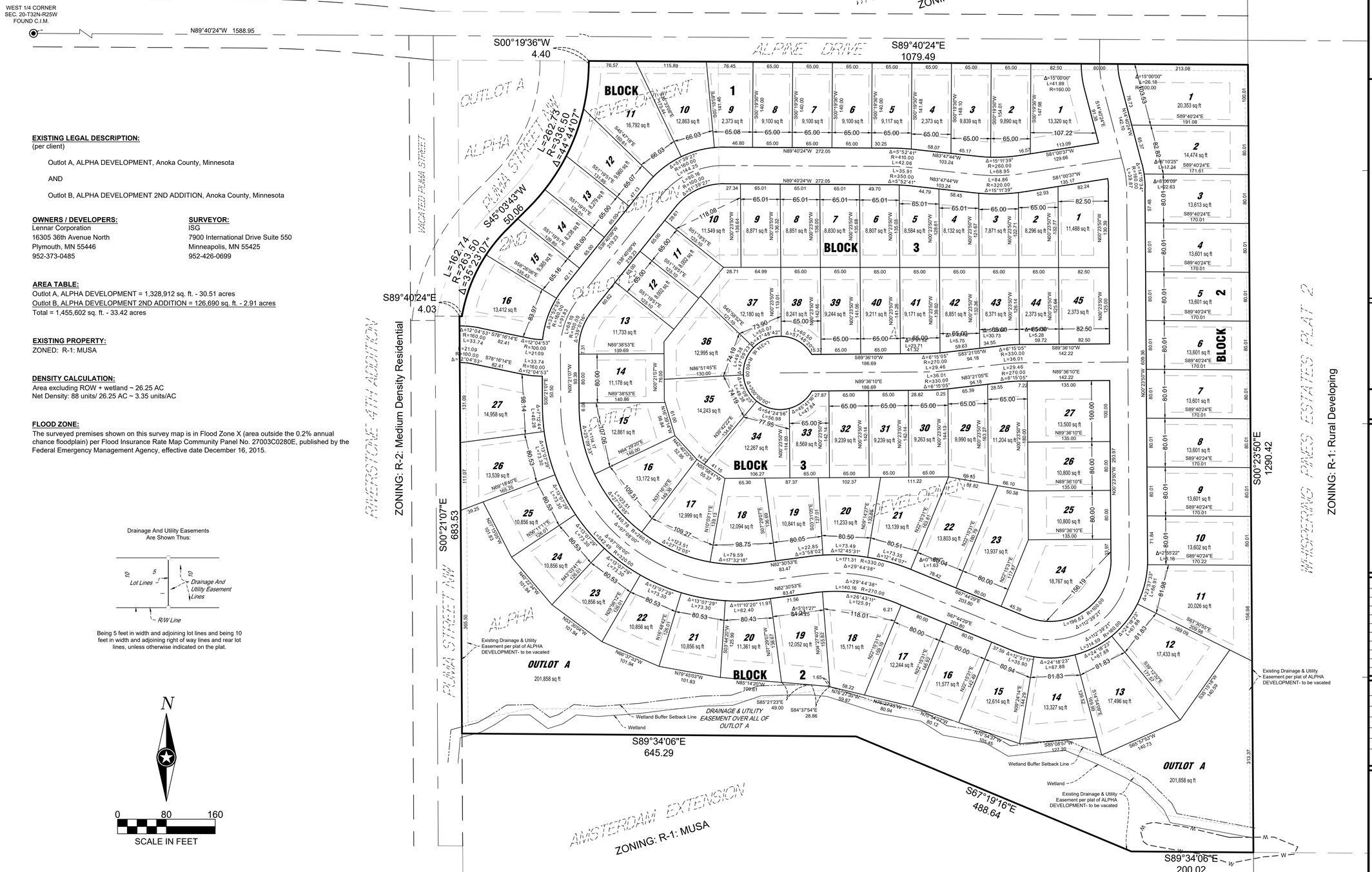
EXISTING PROPERTY:
ZONED: R-1: MUSA

DENSITY CALCULATION:
Area excluding ROW + wetland ~ 26.25 AC
Net Density: 88 units/ 26.25 AC ~ 3.35 units/AC

FLOOD ZONE:
The surveyed premises shown on this survey map is in Flood Zone X (area outside the 0.2% annual chance floodplain) per Flood Insurance Rate Map Community Panel No. 27003C0280E, published by the Federal Emergency Management Agency, effective date December 16, 2015.

Drainage And Utility Easements
Are Shown Thus:

Being 5 feet in width and adjoining lot lines and being 10 feet in width and adjoining right of way lines and rear lot lines, unless otherwise indicated on the plat.



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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 PRELIM
DRAWN BY	MAS
DESIGNED BY	
REVIEWED BY	MAS
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

PRELIMINARY PLAT

SHEET

3

OF 32

SITE SUMMARY				
LOT TYPES	UNIT COUNT	FULL BASEMENT	LOOKOUT	WALKOUT
60' SINGLE FAMILY LOTS	88	55	25	8

DEVELOPMENT REGULATIONS (PUD)	
SINGLE FAMILY LOTS	
FRONT SETBACK	VARIES 25'-30'
SIDE SETBACK	VARIES 5'-10'
REAR SETBACK	VARIES 20'-30'
CORNER SETBACK	VARIES 25'-30'

PAVEMENT LEGEND	
SYMBOL	DESCRIPTION
	BITUMINOUS PAVEMENT
	CONCRETE WALK
	CONCRETE PAVEMENT

BENCHMARK TNFH 888.56

ALPINE DRIVE

PUMA STREET NW

ROAD A

ROAD B

ROAD C

ROAD B

BLOCK 1

BLOCK 3

BLOCK 3

BLOCK 2

BLOCK 2

OUTLOT A

ST-1 ST-2 ST-3 ST-4 ST-5 ST-6 ST-7 ST-8 ST-9 ST-10

BASIN A
BOTTOM = 862.60'
MWL= 866.60'
100-YR HWL = 871.79'

WET

UE

DRIVEWAY, TYP.
(BY OTHERS)

SWALE, TYP.

BUILDING SETBACK, TYP.

PROPOSED LOT LINE, TYP.

TREE LINE, TYP.

PROTECTED TREE, TYP.

CONCRETE MAINTENANCE ACCESS
(SEE DETAIL)

16.5' WETLAND SETBACK, TYP.

WETLAND BOUNDARY, TYP.

WETLAND SIGN, TYP.
INSTALLED AT PROPERTY LINE

PROPERTY BOUNDARY, TYP.

WATER LINE, TYP.

N

0 80 160
SCALE IN FEET

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 6 PROPOSED
DRAWN BY	EH
DESIGNED BY	ART,WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

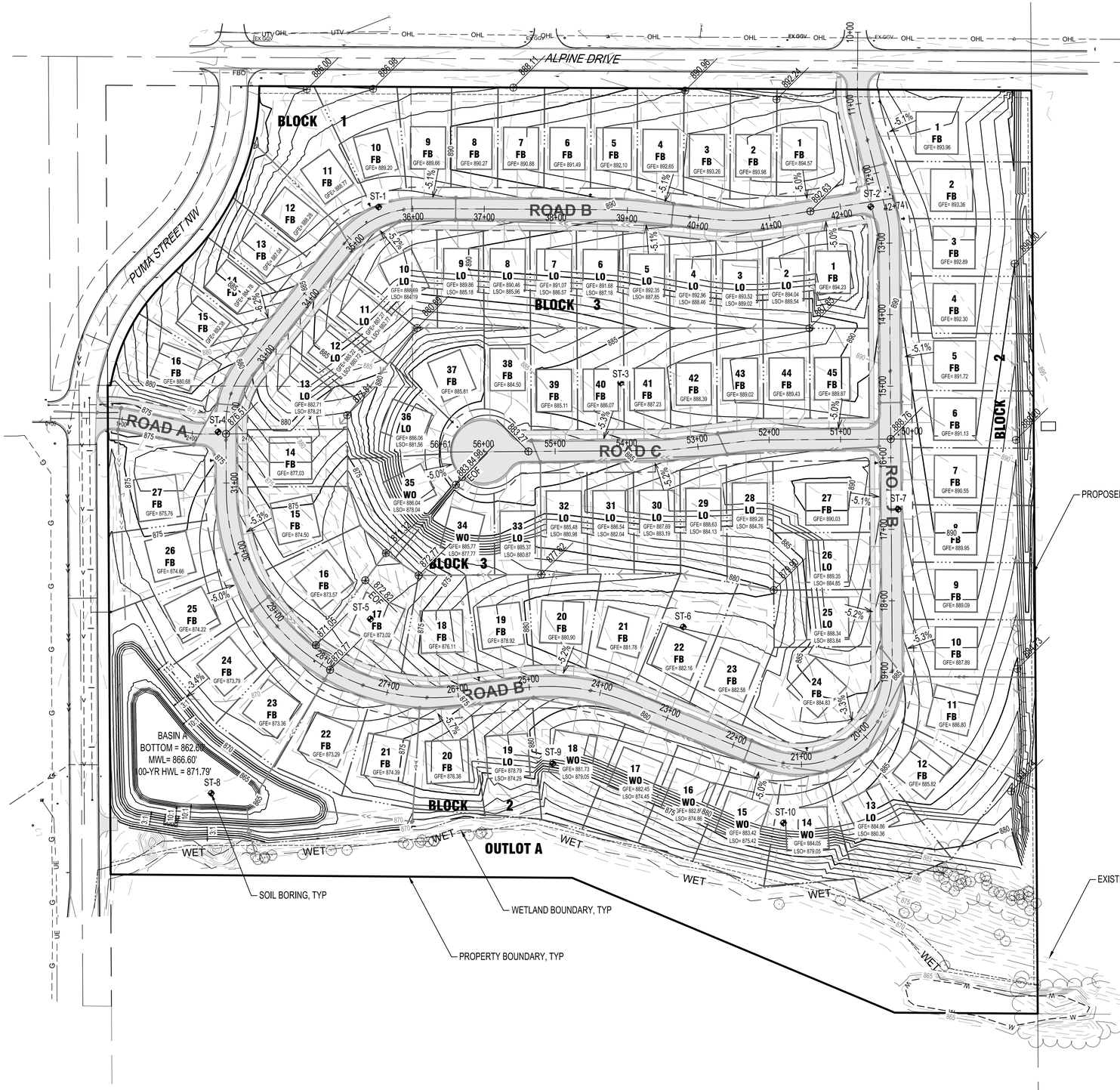
OVERALL PUD MASTER SITE PLAN

SHEET

4

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

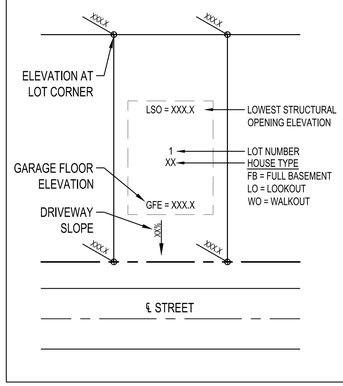


GRADING LEGEND

·101·	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)
-X.X%	SURFACE GRADE / DIRECTION

LOT INFORMATION

(NOT TO SCALE)



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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 C4-GRADE
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

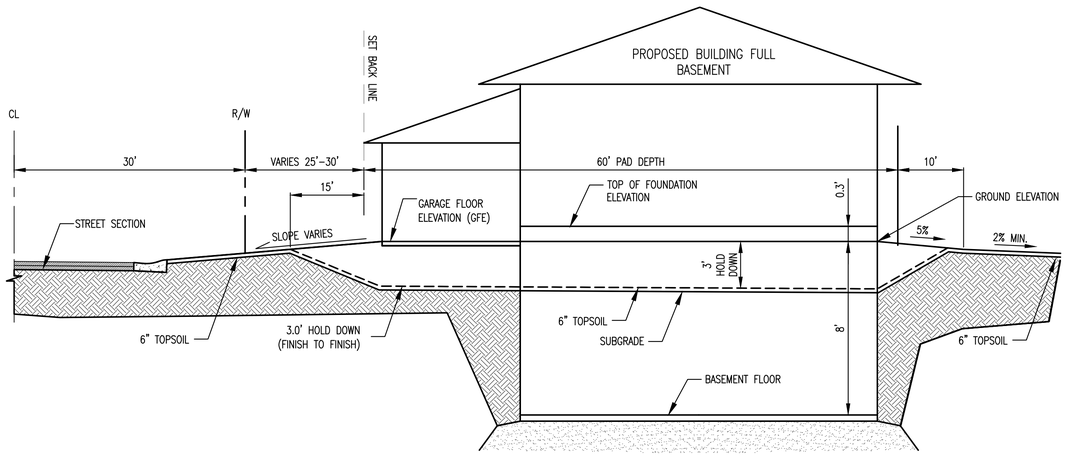
OVERALL GRADING PLAN

SHEET

5

OF 32

PRELIMINARY NOT FOR CONSTRUCTION



SINGLE FAMILY FULL BASEMENT (FB)
3.0' HOLD DOWN

N.T.S.

NOTE:

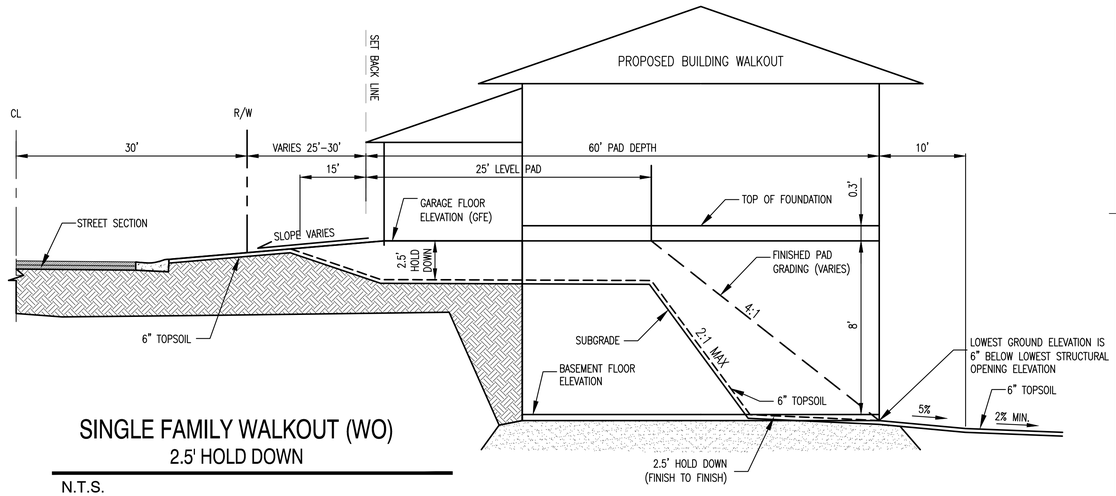
FB = FULL BASEMENT

LO = LOOK OUT BASEMENT

WO = WALKOUT BASEMENT

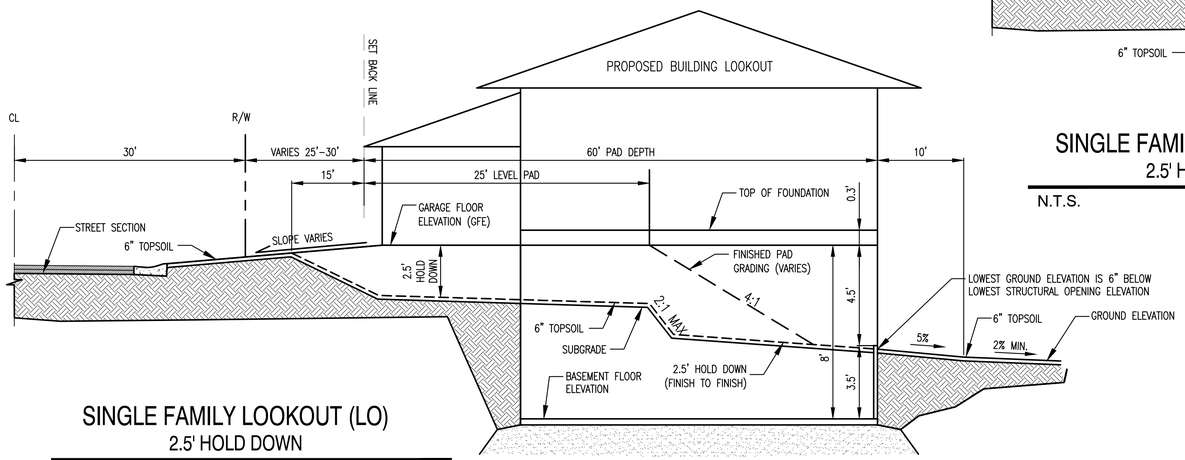
THE FIRST ELEVATION LISTED REFERS TO THE GARAGE FLOOR ELEVATION (GFE). THE SECOND ELEVATION LISTED REFERS TO THE LOWEST STRUCTURAL OPENING (LSO). IF NO SECOND ELEVATION IS LISTED THEN THE PRIMARY ELEVATION IS THE LOWEST STRUCTURAL OPENING.

SEE DETAILS OF EACH TYPE.



SINGLE FAMILY WALKOUT (WO)
2.5' HOLD DOWN

N.T.S.



SINGLE FAMILY LOOKOUT (LO)
2.5' HOLD DOWN

N.T.S.

NOTE:

THESE DETAILS ARE FOR 60-FT WIDE SINGLE FAMILY HOME PRODUCTS.

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NATHAN HERMER

DATE XX/XX/XXXX LIC. NO. XXXXX

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 2 DETAILS
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

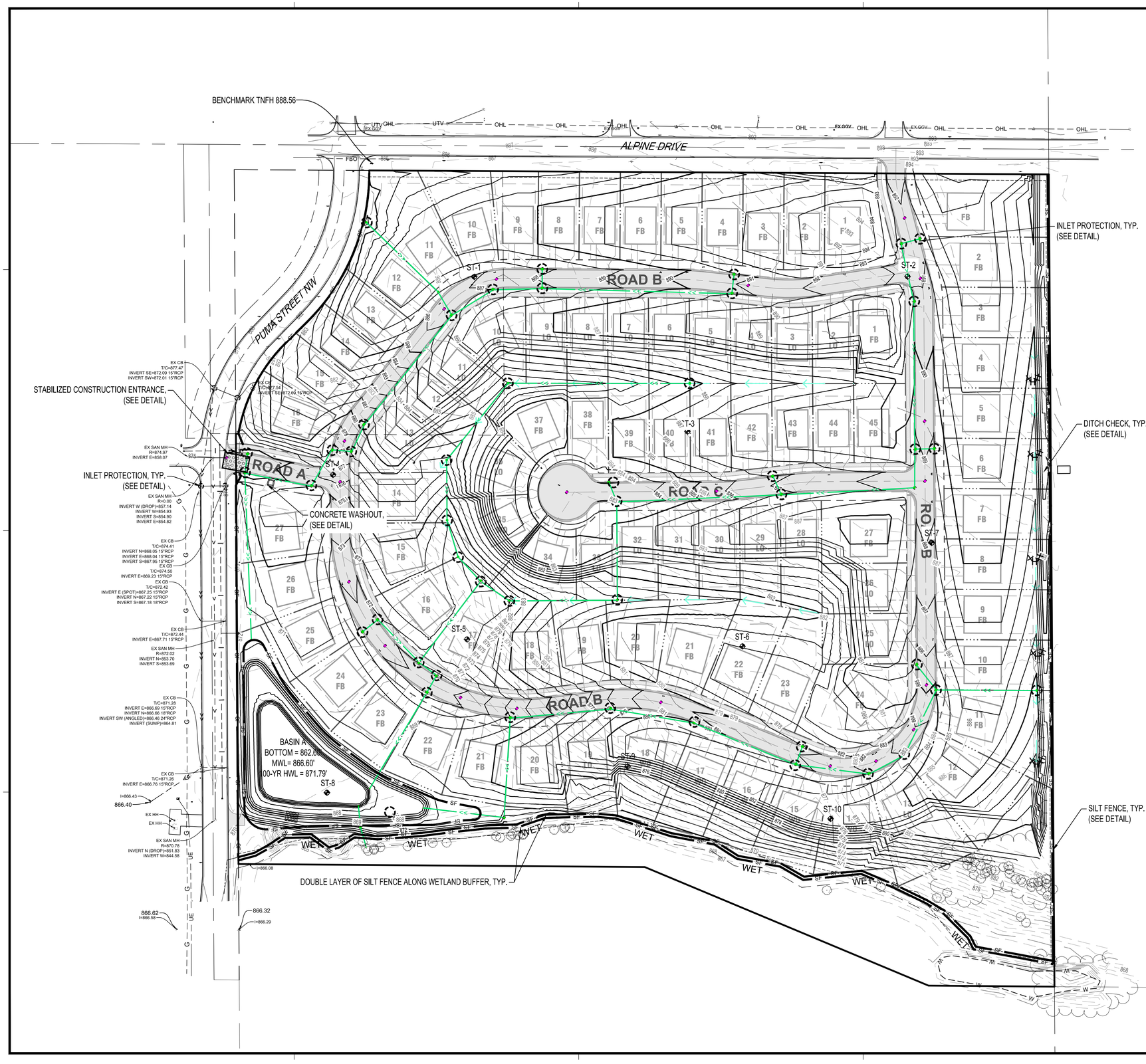
GRADING DETAILS

SHEET

6

OF 32

PRELIMINARY NOT FOR CONSTRUCTION



EROSION CONTROL LEGEND

SYMBOL	DESCRIPTION
	RANDOM RIPRAP, CLASS 3
SF	SILT FENCE, PREASSEMBLED
	STORM DRAIN INLET PROTECTION
	SEDIMENT CONTROL LOG
	STABILIZED CONSTRUCTION EXIT
	CONCRETE WASHOUT AREA
	EXISTING DRAINAGE ARROW
	PROPOSED DRAINAGE ARROW
101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)

PERIMETER CONTROL SHALL BE SILT FENCE.

SEE SITE RESTORATION PLAN FOR FINAL TURF ESTABLISHMENT.

NOTE: SWPPP COVERAGE INCLUDES ELECTRIC, GAS, TELEPHONE, AND CABLE INSTALLATION. EACH COMPANY OR THEIR SUBCONTRACTOR IS RESPONSIBLE TO FOLLOW THE REQUIREMENTS OF THIS SWPPP INCLUDING PROVIDING THEIR OWN RESTORATION IF INSTALLATION OCCURS AFTER PRIMARY INSTALLATION OF SEEDING/SODDING/MULCHING DURING CONSTRUCTION OF EACH UTILITY.

CITY OF RAMSEY TOPSOIL NOTES:

1. INSTALLATION OF 4" OF TOPSOIL IS REQUIRED ACROSS ALL DISTURBED AREAS.
2. TOPSOIL IS DEFINED AS BLACK DIRT COMPOSED OF UNCONSOLIDATED MATERIAL, LARGELY UN-DECOMPOSED ORGANIC MATTER WHICH IS SUITABLE FOUNDATION FOR VEGETATIVE GROWTH.
3. THE COMPOSITION OF TOPSOIL SHOULD CONTAIN NO MORE THAN THIRTY-FIVE (35) PERCENT SAND CONTENT.

N

0 80 160

SCALE IN FEET

ISG

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 3 SWPPP
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

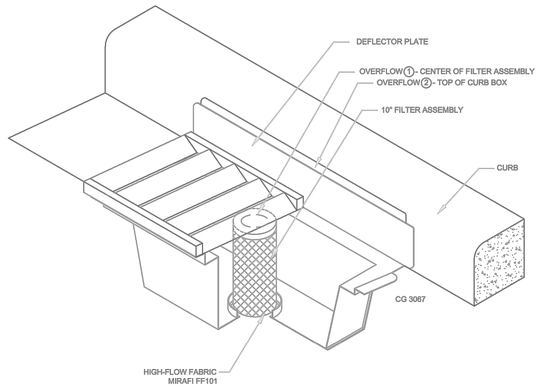
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

SHEET

7

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

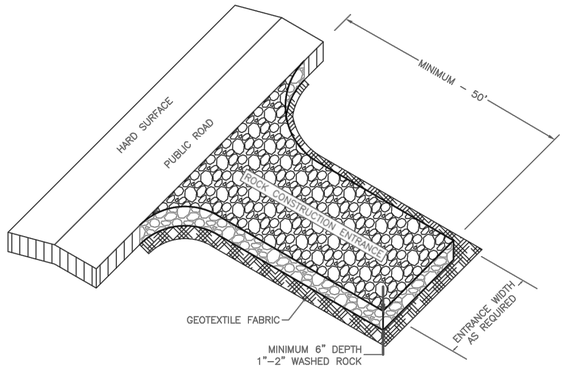


INLET PROTECTION – WIMCO OR EQUAL

N.T.S.

NOTE:
THIS INLET PROTECTION SHALL BE USED IMMEDIATELY FOLLOWING CURB & GUTTER CONSTRUCTION. INLET PROTECTION SHALL REMAIN INSTALLED AND MAINTAINTED UNTIL ALL HOME CONSTRUCTION IS COMPLETE.

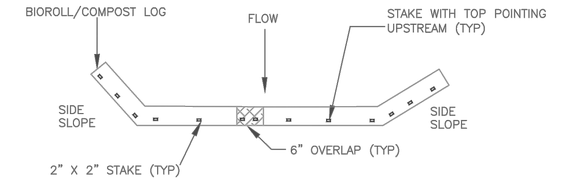
APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: INLET PROTECTION
		CITY PLATE No. ERO–2



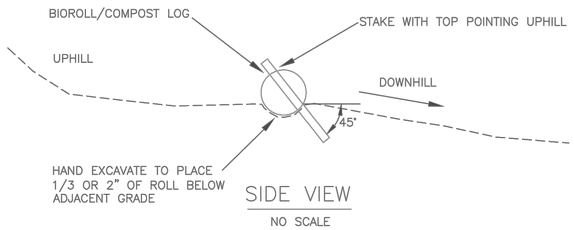
NOTE:
1. MINIMUM CONSTRUCTION ENTRANCE WIDTH EQUAL TO PROPOSED ROADWAY WIDTH.
2. WIDTH OF RADIUS AS REQUIRED TO ENSURE VEHICLES DO NOT TRACK ONTO PUBLIC ROAD.
3. MAINTAINENCE AS REQUIRED TO PREVENT TRACKING ONTO PUBLIC ROADS. THIS MAY REQUIRE TOP DRESSING WITH ADDITIONAL ROCK OR REMOVAL AND REINSTALLATION OF THE ENTRANCE AS NEEDED.

NOT TO SCALE

APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: ROCK CONSTRUCTION ENTRANCE
		CITY PLATE No. ERO–5



PLAN VIEW

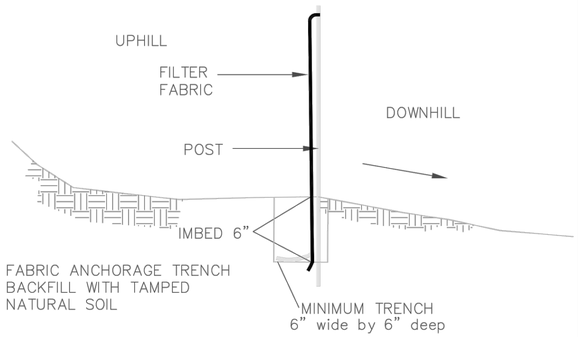


SIDE VIEW

NO SCALE

NOTE:
STAKE INTO GROUND WITH WOOD STAKES DRIVING STAKE 6" INTO GROUND AND PROTRUDING 2" ABOVE LOG
WOOD STAKES ARE A MINIMUM 0.5" X 2" X 16" AND PLACED EVERY 1' UNLESS PRECLUDED BY A ROCK
WHEN MORE THAN 1 BIOROLL/COMPOST LOG IS NEEDED, OVERLAP ENDS A MINIMUM OF 6" AND STAKE
WOOD STAKES ARE DRIVEN THROUGH BACK HALF OF BIOROLL OR COMPOST LOG AT 45° ANGLE WITH TOP OF STAKE POINTING UPHILL

APPROVED: 3 – 2016	City of RAMSEY	STANDARD DETAILS: BIO ROLL (COMPOST LOG)
		CITY PLATE No. ERO–4

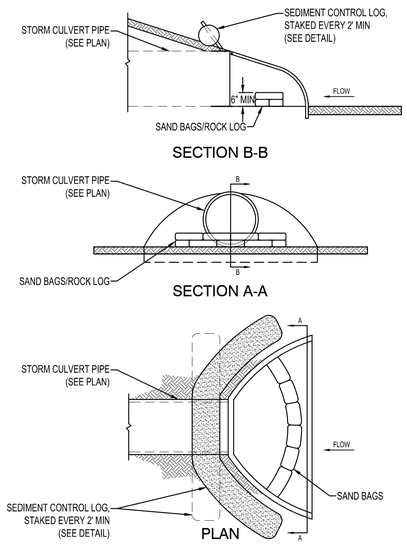


INSTALL AS PER FILTER FABRIC MANUFACTURER'S RECOMMENDATIONS

SILT FENCE DETAIL

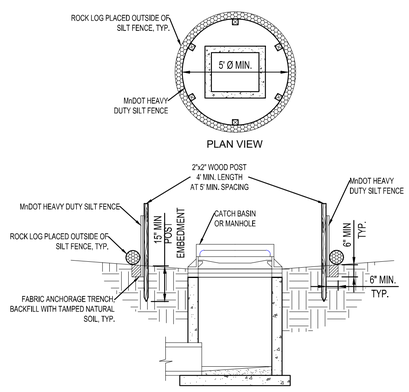
NO SCALE

APPROVED: 1 – 2016	City of RAMSEY	STANDARD DETAILS: SILT FENCE
		CITY PLATE No. ERO–1



CULVERT PIPE DITCH CHECK

NTS EC350



SILT FENCE INLET PROTECTION

NTS EC220

PRELIMINARY NOT FOR CONSTRUCTION

ISG

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 3-1 SWPPP NOTES AND DETAILS
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

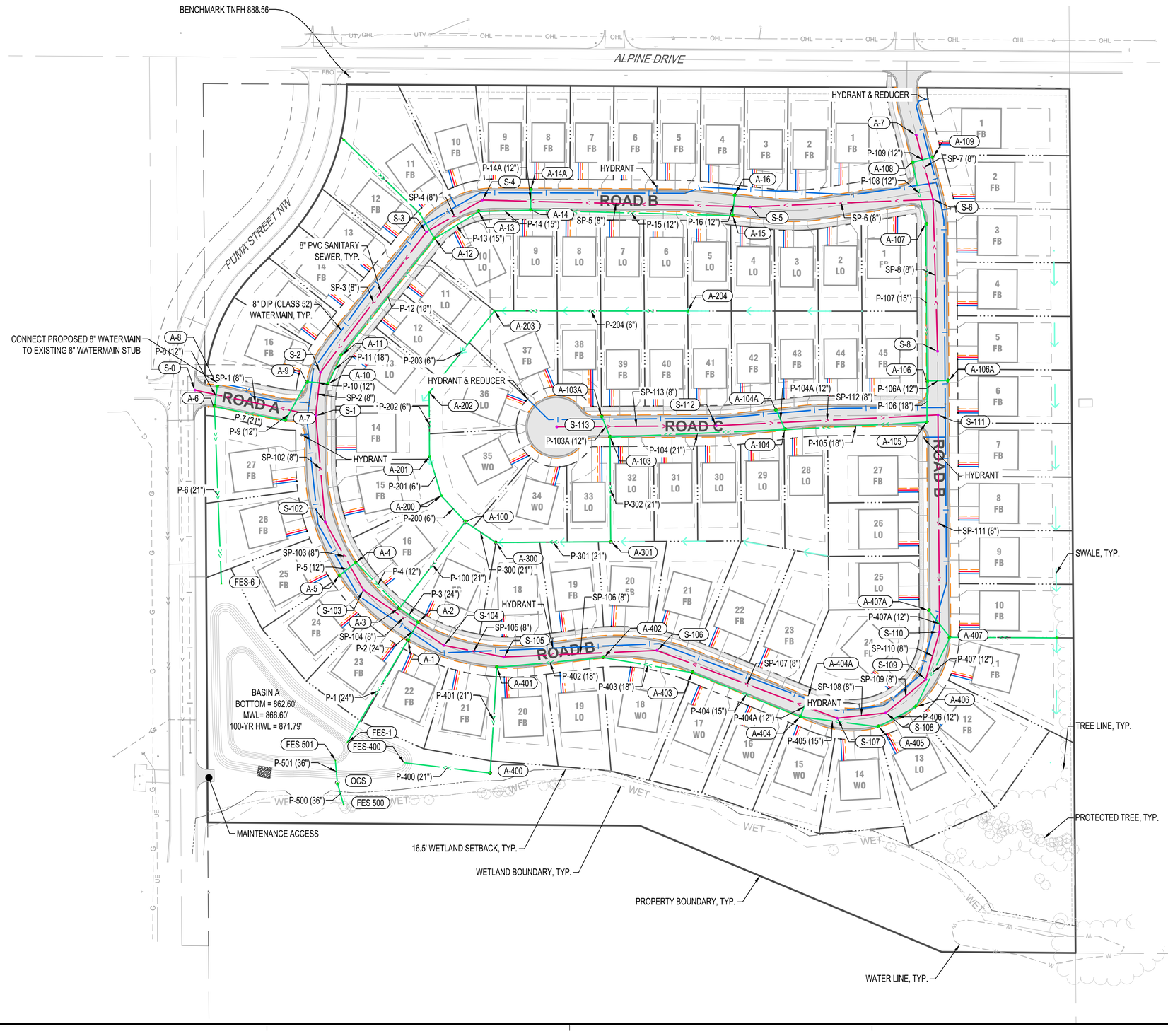
TITLE

SWPPP DETAILS

SHEET

8

OF 32



UTILITY LEGEND

EXISTING		PROPOSED
— — — >> — — —	STORM DRAIN	>>
— — — > — — —	SANITARY SEWER	>
— — — II> — — —	SANITARY SEWER FORCEMAIN	<II
— — — I — — —	WATERMAIN	I
— — — G — — —	GAS	G
— — — OE — — —	OVERHEAD ELECTRIC	OE
— — — UE — — —	UNDERGROUND ELECTRIC	UE
— — — UT — — —	UNDERGROUND TELEPHONE	UT
— — — UTV — — —	UNDERGROUND TV	
— — — OHL — — —	OVERHEAD UTILITY	
— — — UTL — — —	UNDERGROUND UTILITY	
— — — FBO — — —	FIBER OPTIC	

NOTE:

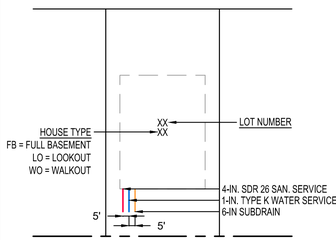
ALL SANITARY SEWER 0-13 FT IN BURY DEPTH SHALL BE PVC CLASS SDR 35. ALL SANITARY SEWER 13-25 FT IN BURY DEPTH SHALL BE SDR 26.

ALL WATERMAIN SHALL BE PLACED AT A MINIMUM BURY DEPTH OF 7.5 FT FROM PROPOSED GROUND ELEVATION TO TOP OF PIPE. WATERMAIN SHALL MAINTAIN A MINIMUM 10 FT HORIZONTAL SEPARATION AND 18 IN VERTICAL SEPARATION FROM ALL SEWER PIPE.

CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

LOT INFORMATION

(NOT TO SCALE)



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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 5 UTILITY
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

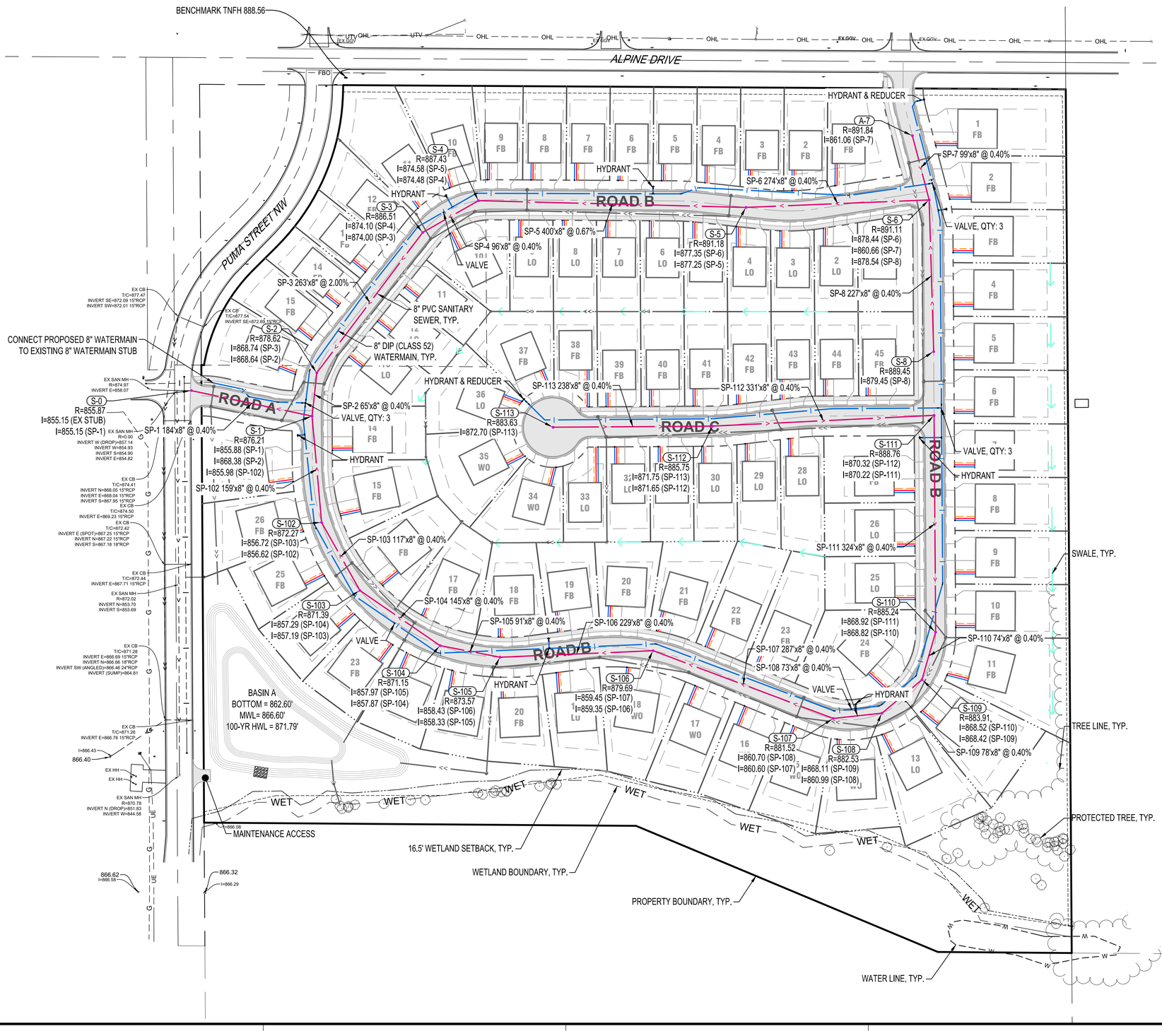
OVERALL UTILITY PLAN

SHEET

9

OF 32

PRELIMINARY NOT FOR CONSTRUCTION


BENCHMARK TNFH 888.56
ALPINE DRIVE
PUMA STREET NW
ROAD A
ROAD B
ROAD C
ROAD B
ROAD B
CONNECT PROPOSED 8" WATERMAIN TO EXISTING 8" WATERMAIN STUB
8" PVC SANITARY SEWER, TYP.
8" DIP (CLASS 52) WATERMAIN, TYP.
HYDRANT & REDUCER
HYDRANT
VALVE
VALVE, QTY: 3
SP-1 184'x8" @ 0.40%
SP-2 65'x8" @ 0.40%
SP-3 263'x8" @ 2.00%
SP-4 96'x8" @ 0.40%
SP-5 400'x8" @ 0.67%
SP-6 274'x8" @ 0.40%
SP-7 99'x8" @ 0.40%
SP-8 227'x8" @ 0.40%
SP-102 159'x8" @ 0.40%
SP-103 117'x8" @ 0.40%
SP-104 145'x8" @ 0.40%
SP-105 91'x8" @ 0.40%
SP-106 229'x8" @ 0.40%
SP-107 287'x8" @ 0.40%
SP-108 73'x8" @ 0.40%
SP-109 78'x8" @ 0.40%
SP-110 74'x8" @ 0.40%
SP-111 324'x8" @ 0.40%
SP-112 331'x8" @ 0.40%
SP-113 238'x8" @ 0.40%
S-0 R=855.87 I=855.15 (EX STUB) I=855.15 (SP-1)
S-1 R=876.21 I=855.88 (SP-1) I=868.38 (SP-2) I=855.98 (SP-102)
S-2 R=878.62 I=868.74 (SP-3) I=868.64 (SP-2)
S-3 R=886.51 I=874.10 (SP-4) I=874.00 (SP-3)
S-4 R=887.43 I=874.58 (SP-5) I=874.48 (SP-4)
S-5 R=891.18 I=877.35 (SP-6) I=877.25 (SP-5)
S-6 R=891.11 I=878.44 (SP-6) I=860.66 (SP-7) I=878.54 (SP-8)
A-7 R=891.84 I=861.06 (SP-7)
S-8 R=889.45 I=879.45 (SP-8)
S-102 R=872.27 I=856.72 (SP-103) I=856.62 (SP-102)
S-103 R=871.39 I=857.29 (SP-104) I=857.19 (SP-103)
S-104 R=871.15 I=857.97 (SP-105) I=857.87 (SP-104)
S-105 R=873.57 I=858.43 (SP-106) I=858.33 (SP-105)
S-106 R=879.69 I=859.45 (SP-107) I=859.35 (SP-106)
S-107 R=881.52 I=860.70 (SP-108) I=860.60 (SP-107)
S-108 R=882.53 I=868.11 (SP-109) I=860.99 (SP-108)
S-109 R=883.91 I=868.52 (SP-110) I=868.42 (SP-109)
S-110 R=885.24 I=868.92 (SP-111) I=868.82 (SP-110)
S-111 R=888.76 I=870.32 (SP-112) I=870.22 (SP-111)
S-112 R=885.75 I=871.75 (SP-113) I=871.65 (SP-112)
S-113 R=883.63 I=872.70 (SP-113)
EX CB T/C=877.47 INVERT SE=872.09 15"RCP INVERT SW=872.01 15"RCP
EX CB T/C=877.54 INVERT SE=872.65 15"RCP
EX SAN MH R=874.97 INVERT E=858.07
EX SAN MH R=0.00 INVERT W (DROP)=857.14 INVERT W=854.93 INVERT S=854.90 INVERT E=854.82
EX CB T/C=874.41 INVERT N=868.05 15"RCP INVERT E=868.04 15"RCP INVERT S=867.95 15"RCP
EX CB T/C=874.50 INVERT E=869.23 15"RCP
EX CB T/C=872.42 INVERT E (SPOT)=867.25 15"RCP INVERT N=867.22 15"RCP INVERT S=867.18 18"RCP
EX CB T/C=872.44 INVERT E=867.71 15"RCP
EX SAN MH R=872.02 INVERT N=853.70 INVERT S=853.69
EX CB T/C=871.28 INVERT E=866.69 15"RCP INVERT N=866.66 18"RCP INVERT SW (ANGLED)=866.46 24"RCP INVERT (SUMP)=864.81
EX CB T/C=871.26 INVERT E=866.76 15"RCP
I=866.43
866.40
EX HH
EX HH
EX SAN MH R=870.78 INVERT N (DROP)=851.83 INVERT W=844.58
I=866.08
MAINTENANCE ACCESS
866.62 I=866.58
866.32 I=866.29
BASIN A BOTTOM = 862.60' MWL= 866.60' 100-YR HWL = 871.79'
WET
16.5' WETLAND SETBACK, TYP.
WETLAND BOUNDARY, TYP.
PROPERTY BOUNDARY, TYP.
WATER LINE, TYP.
SWALE, TYP.
TREE LINE, TYP.
PROTECTED TREE, TYP.
UTV OHL EX.GGV FBO
1 FB
2 FB
3 FB
4 FB
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6 FB
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13 LO
14 FB
15 FB
16 LO
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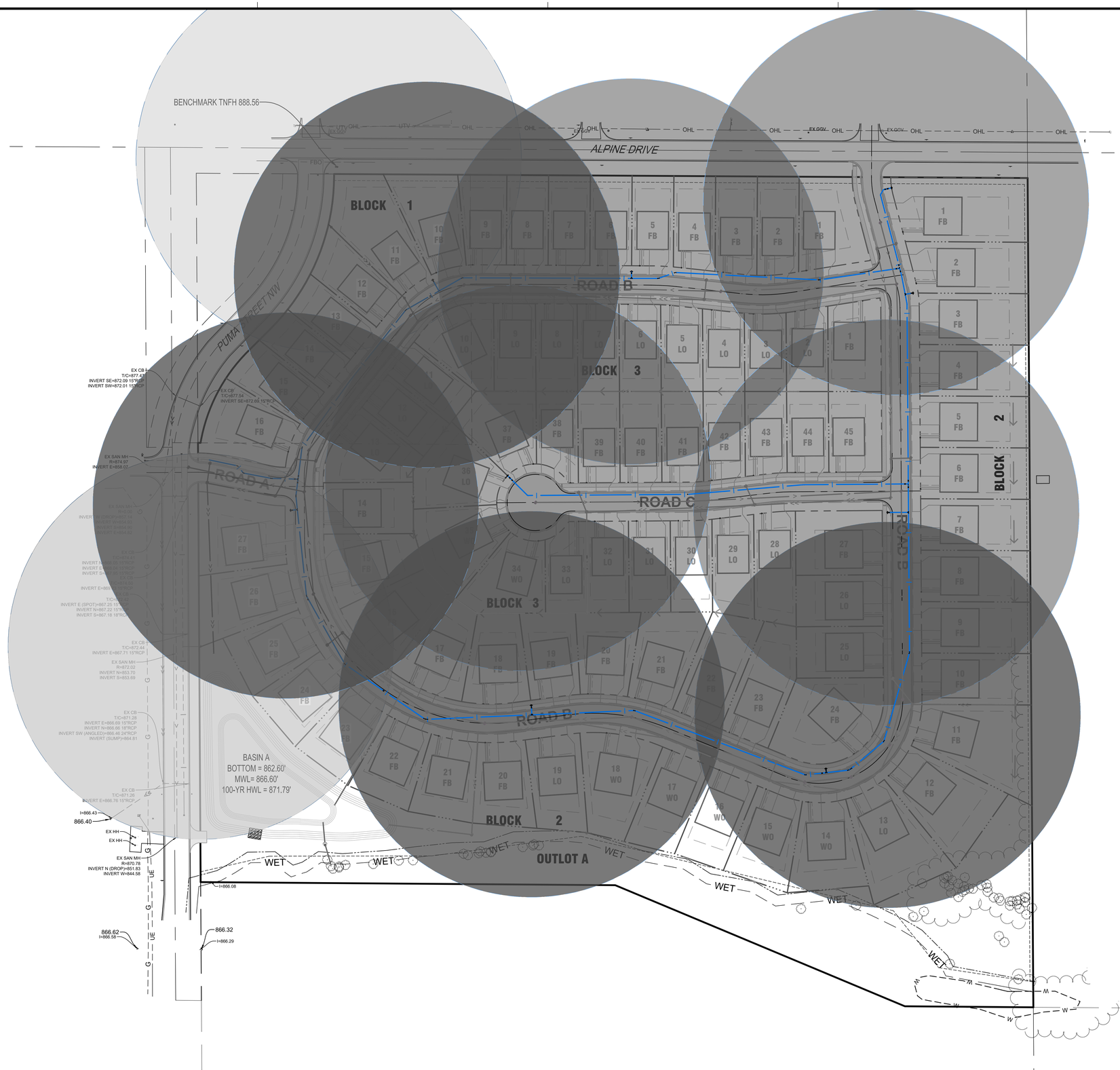

HYDRANT COVERAGE LEGEND

R300'

EXISTING HYDRANT

R300'

PROPOSED HYDRANT

ISG

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 5 UTILITY
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

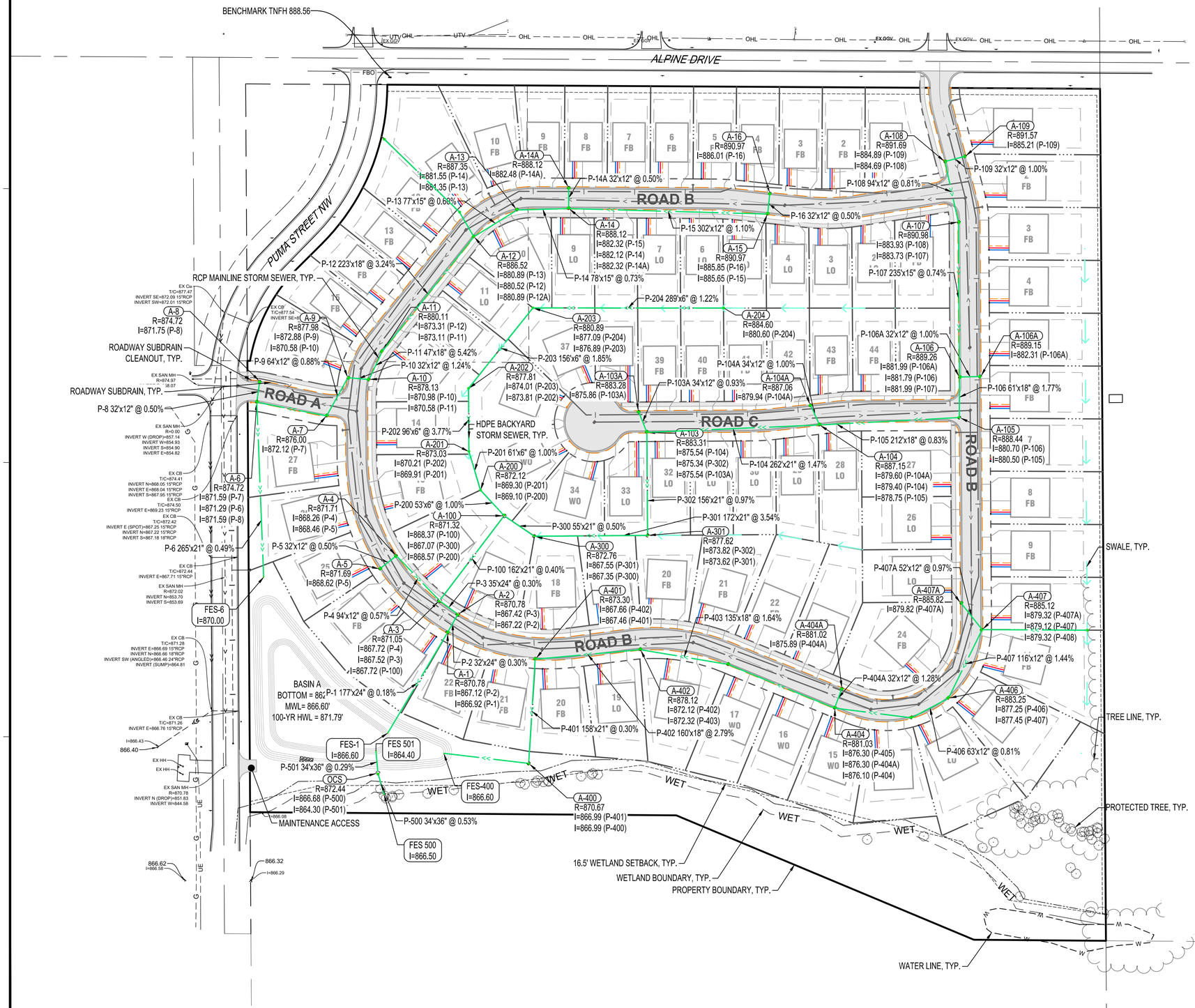
HYDRANT COVERAGE PLAN

SHEET

11

OF 32

PRELIMINARY NOT FOR CONSTRUCTION



UTILITY LEGEND

EXISTING		PROPOSED
— — — >> — — —	STORM DRAIN	——— >> ———
— — — > — — —	SANITARY SEWER	——— > ———
— — — II> — — —	SANITARY SEWER FORCEMAIN	——— <II ———
— — — I — — —	WATERMAIN	——— I ———
— — — G — — —	GAS	——— G ———
— — — OE — — —	OVERHEAD ELECTRIC	——— OE ———
— — — UE — — —	UNDERGROUND ELECTRIC	——— UE ———
— — — UT — — —	UNDERGROUND TELEPHONE	——— UT ———
— — — UTV — — —	UNDERGROUND TV	
— — — OHL — — —	OVERHEAD UTILITY	
— — — UTL — — —	UNDERGROUND UTILITY	
— — — FBO — — —	FIBER OPTIC	

NOTE:

ALL SANITARY SEWER 0-13 FT IN BURY DEPTH SHALL BE PVC CLASS SDR 35. ALL SANITARY SEWER 13-25 FT IN BURY DEPTH SHALL BE SDR 26.

ALL WATERMAIN SHALL BE PLACED AT A MINIMUM BURY DEPTH OF 7.5 FT FROM PROPOSED GROUND ELEVATION TO TOP OF PIPE. WATERMAIN SHALL MAINTAIN A MINIMUM 10 FT HORIZONTAL SEPARATION AND 18 IN VERTICAL SEPARATION FROM ALL SEWER PIPE.

CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

LOT INFORMATION

(NOT TO SCALE)

HOUSE TYPE
FB = FULL BASEMENT
LO = LOOKOUT
WO = WALKOUT

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NATHAN HERMER

DATE XX/XX/XXXX LIC. NO. XXXXX

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 5 UTILITY
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

OVERALL STORM SEWER PLAN

SHEET

12

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

PLANT SCHEDULE		
TURF RESTORATION	QTY	COMMON / BOTANICAL NAME
	702,396 sf	MNDOT Seed Mix 25-131 Low Maintenance Turf
	12,730 sf	MNDOT Seed Mix 33-261 Stormwater South and West
	3,490 sf	MNDOT Seed Mix 34-181 Emergent Wetland
	28,927 sf	MNDOT Seed Mix 35-521 Dry Prairie Southwest

N

0 80 160

SCALE IN FEET

ISG

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DANYELLE PIERQUET

DATE XXXX/XX/XX LIC. NO. 49121

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 8 LAND
DRAWN BY	EH
DESIGNED BY	ART,WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE RESTORATION PLAN

SHEET

30

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

PLANT SCHEDULE

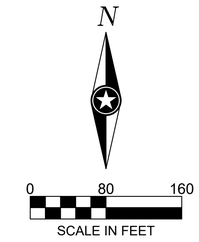
DECIDUOUS TREE	QTY	COMMON / BOTANICAL NAME	SIZE	ROOT
	14	New Harmony Elm Ulmus americana `New Harmony`	2.5" CAL	B & B
	64	Ohio Buckeye Aesculus glabra	2.5" CAL	B & B
	48	Maidenhair Tree Ginkgo biloba `Autumn Gold`	2.5" CAL	B & B
	23	Adams Crabapple Malus x `Adams`	1.5" CAL	B & B
	20	Swamp White Oak Quercus bicolor	2.5" CAL	B & B
	21	Japanese Tree Lilac Syringa reticulata	2.5" Cal.	B & B
EVERGREEN TREE	**QTY**	**COMMON / BOTANICAL NAME**	**SIZE**	**ROOT**
	80	Balsam Fir Abies balsamea	6` HT MIN	B & B
	42	Black Hills Spruce Picea glauca `Densata`	6` HT MIN	B & B
	19	White Spruce Picea glauca	6` HT MIN	B & B
	4	Techny Arborvitae Thuja occidentalis `Techny`	6` HT MIN	B & B
SHRUBS	**QTY**	**COMMON / BOTANICAL NAME**	**SIZE**	**ROOT**
⊙	18	Gro-Low Fragrant Sumac Rhus aromatica `Gro-Low`	5 GAL	CONT

TREE PLANTING REQUIREMENTS

TREES PER DWELLING UNIT
- MINIMUM 2 OVERSTORY DECIDUOUS/CONIFEROUS TREES PER DWELLING UNIT
- TOTAL DWELLING UNITS = 88
- MINIMUM REQUIRED TREES = 176
- PROVIDED DWELLING UNIT AND SUPPLEMENTAL SCREENING TREES = 209

BUFFER TREES
- BUFFER B ALONG EAST PROPERTY LINE, 1,289 LINEAR FEET (LF)
- 4 OVERSTORY, 4 ORNAMENTAL, 4 EVERGREEN TREES REQUIRED PER 100 LF
- 1,289 / 100 = 12.89, 13x4 = 52 OVERSTORY, ORNAMENTAL, AND EVERGREEN TREES REQUIRED
- PROVIDED 47 TREES TO SUPPLEMENT EXISTING TREE BUFFER, PRIORITY TO FILL GAPS IN EXISTING BUFFER.

- BUFFER C ALONG NORTH PROPERTY LINE, 1,018 LINEAR FEET (LF)
- 8 OVERSTORY, 8 ORNAMENTAL, 8 EVERGREEN TREES REQUIRED PER 100 LF
- 1,018 / 100 = 10.18, 10x8 = 80 OVERSTORY, ORNAMENTAL, AND EVERGREEN TREES REQUIRED
- PROVIDED 80 TREES



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DANYELLE PIERQUET

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 8 LAND
DRAWN BY	EH
DESIGNED BY	ART/WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

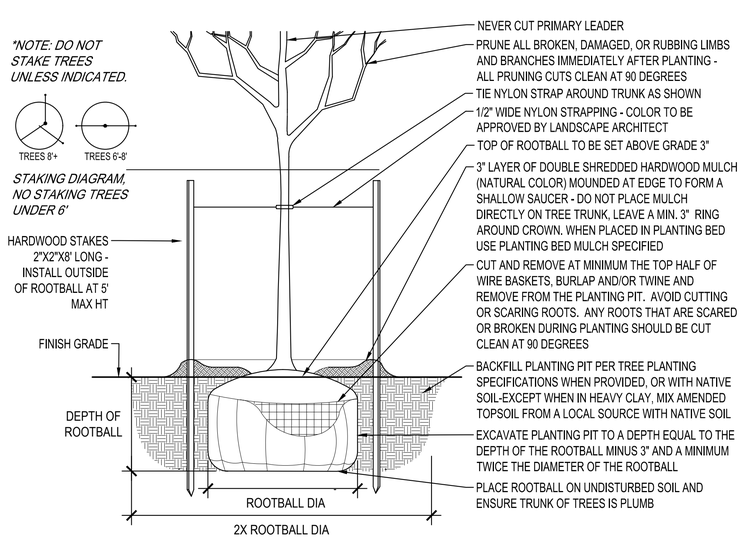
OVERALL LANDSCAPING PLAN

SHEET

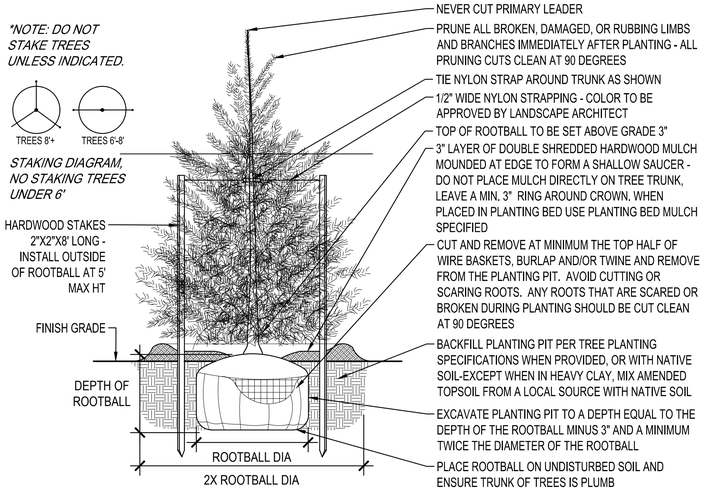
31

OF 32

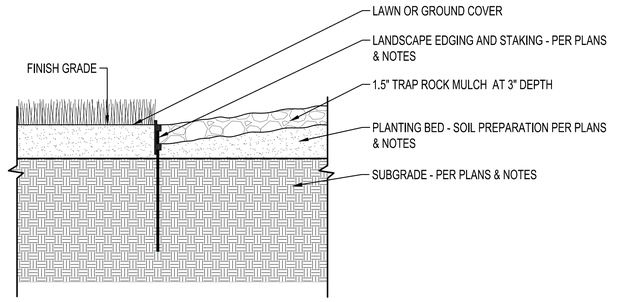
PRELIMINARY NOT FOR CONSTRUCTION



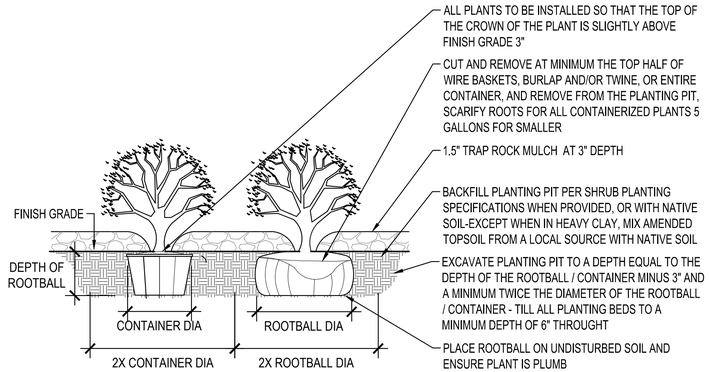
1 DECIDUOUS TREE PLANTING DETAIL
SCALE: 1" = 1'-0"



2 CONIFER / EVERGREEN TREE PLANTING DETAIL
SCALE: 1" = 1'-0"



3 LANDSCAPE EDGING DETAIL
SCALE: 1" = 1'-0"



4 SHRUB PLANTING DETAIL
SCALE: 1" = 1'-0"

GENERAL PLANTING NOTES

1. COORDINATE LOCATION OF ALL UTILITIES (LINES, DUCTS, CONDUITS, SLEEVES, FOOTINGS, ETC.) WITH LOCATIONS OF PROPOSED LANDSCAPE ELEMENTS . CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO OWNER'S REPRESENTATIVE PRIOR TO WORK.
2. SAVE AND PROTECT ALL EXISTING TREES NOT NOTED TO BE REMOVED.
3. REMOVE ALL CONSTRUCTION DEBRIS AND MATERIALS INJURIOUS TO PLANT GROWTH FROM PLANTING PITS AND BEDS PRIOR TO BACKFILLING WITH PLANTING MIX.
4. ANY AREAS OUTSIDE THE LIMIT OF WORK THAT ARE DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO OWNER.
5. REFER TO PLANTING DETAILS PLAN FOR AMENDED SOIL DEPTH IN PLANTING BEDS AND SURROUNDING TREES. REFER TO SPECIFICATIONS FOR MIX TYPE.
6. FIELD STAKE PLANTINGS ACCORDING TO PLAN. OWNER'S REPRESENTATIVE SHALL APPROVE ALL PLANT LOCATIONS PRIOR TO INSTALLATION. OWNER RESERVES THE RIGHT TO REVISE PLANTING LAYOUT AT TIME OF INSTALLATION.
7. ALL PLANT MATERIALS SHALL BE TRUE TO THEIR SCIENTIFIC NAME AND SIZE AS INDICATED IN THE PLANT SCHEDULE.
8. IF DISCREPANCIES EXIST BETWEEN THE NUMBER OF PLANTS DRAWN ON THE PLANTING PLAN AND THE NUMBER OF PLANTS IN THE SCHEDULE, THE PLANTING PLAN SHALL GOVERN.
9. OWNER RESERVES THE RIGHT TO REVISE QUANTITIES TO SUIT BUDGET LIMITATIONS. CONTRACTOR'S UNIT BID PRICES SHALL PREVAIL FOR ANY CHANGES IN QUANTITIES.
10. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE, AND ONLY AFTER WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE AND OWNER.
11. ALL PLANT MATERIALS MUST CONFORM TO AMERICAN STANDARDS FOR NURSERY STOCK (A.N.S.I.), LATEST EDITION PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, WASHINGTON D.C. LARGER SIZED PLANT MATERIALS OF THE SPECIES LISTED MAY BE USED IF THE STOCK CONFORMS TO A.N.S.I.
12. ALL PLANT MATERIAL SHALL BE GUARANTEED TO BE IN A LIVE AND HEALTHY GROWING CONDITION FOR ONE FULL GROWING SEASON (ONE YEAR) AFTER FINAL PROJECT ACCEPTANCE OR SHALL BE REPLACED FREE OF CHARGE WITH THE SAME GRADE AND SPECIES. ALL TREES SHALL HAVE A STRONG CENTRAL LEADER.

ISG

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DANYELLE PIERQUET

DATE XXXX/XX/XX LIC. NO. 49121

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PROJECT

LENNAR HOMES

NORTH FORK MEADOWS DEVELOPMENT

RAMSEY MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	20-24580
FILE NAME	24580 8 LAND
DRAWN BY	EH
DESIGNED BY	ART,WMSB
REVIEWED BY	NH
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

LANDSCAPING DETAILS & SEEDING NOTES

SHEET

32

OF 32

PRELIMINARY NOT FOR CONSTRUCTION

LENNAR®

13 YEARS TWIN CITIES #1 HOMEBUILDER†

The Lewis EI • 3-Car

EVERYTHING'S INCLUDED®

16305 36th Ave. N. Suite 600, Plymouth, MN 55446

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The Lewis EI • 3-Car

2,692 Sq. Ft.

- 2 Stories
- 4 Bedrooms
- 3 Bathrooms
- 3 Car Garage

Main Level

Upper Level

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LENNAR®

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The Clearwater EI

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1,920 Sq. Ft.

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- 3 Bedrooms
- 2 Bathrooms
- 3 Car Garage

Main Level

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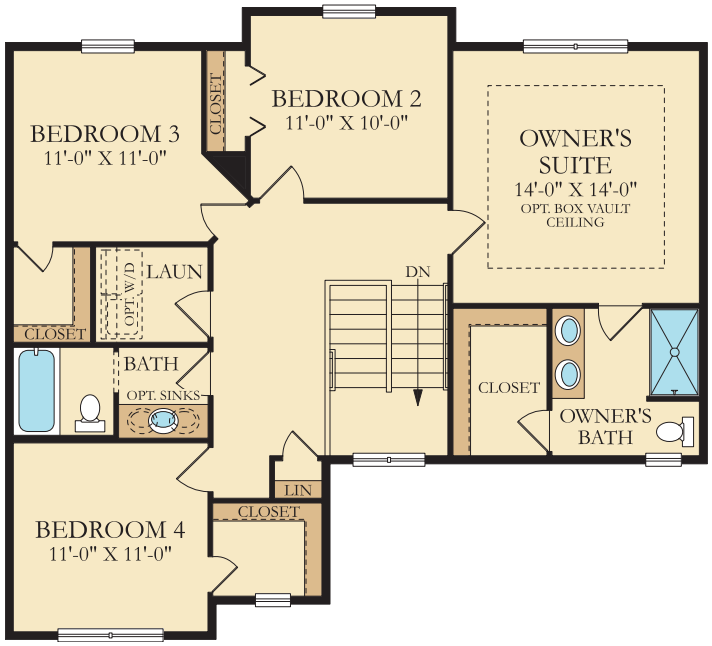
The Vanderbilt EI • 3-Car

2,271 Sq. Ft.

- 2 Stories
- 4 Bedrooms
- 3 Bathrooms
- 3 Car Garage

Main Level



Upper Level

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The Alexander EI • 3-Car

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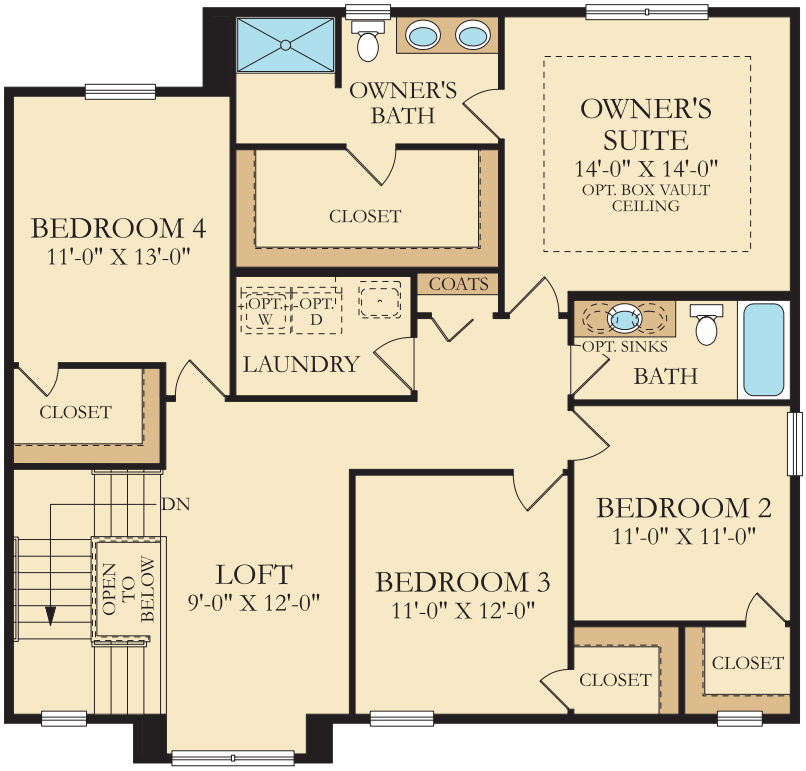
The Alexander EI • 3-Car

2,443 Sq. Ft.

- 2 Stories
- 4 Bedrooms
- 3 Bathrooms
- 3 Car Garage

Main Level



Upper Level

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16305 36th Ave. N. Suite 600, Plymouth, MN 55446

The Columbus EI • 3-Car

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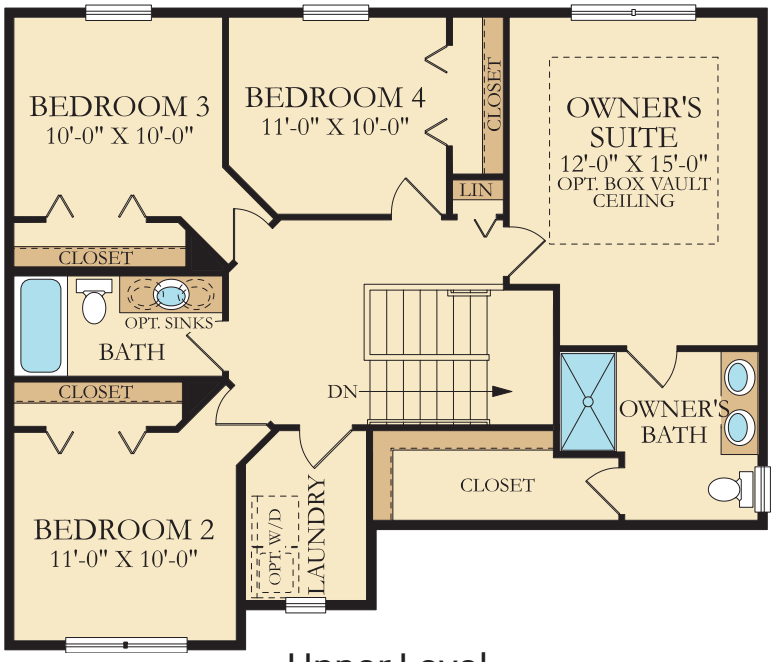
The Columbus EI • 3-Car

2,148 Sq. Ft.

- 2 Stories
- 4 Bedrooms
- 3 Bathrooms
- 3 Car Garage

Main Level



Upper Level

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LENNAR®

13 YEARS TWIN CITIES #1 HOMEBUILDER†

The Bristol EI

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EQUAL HOUSING OPPORTUNITY

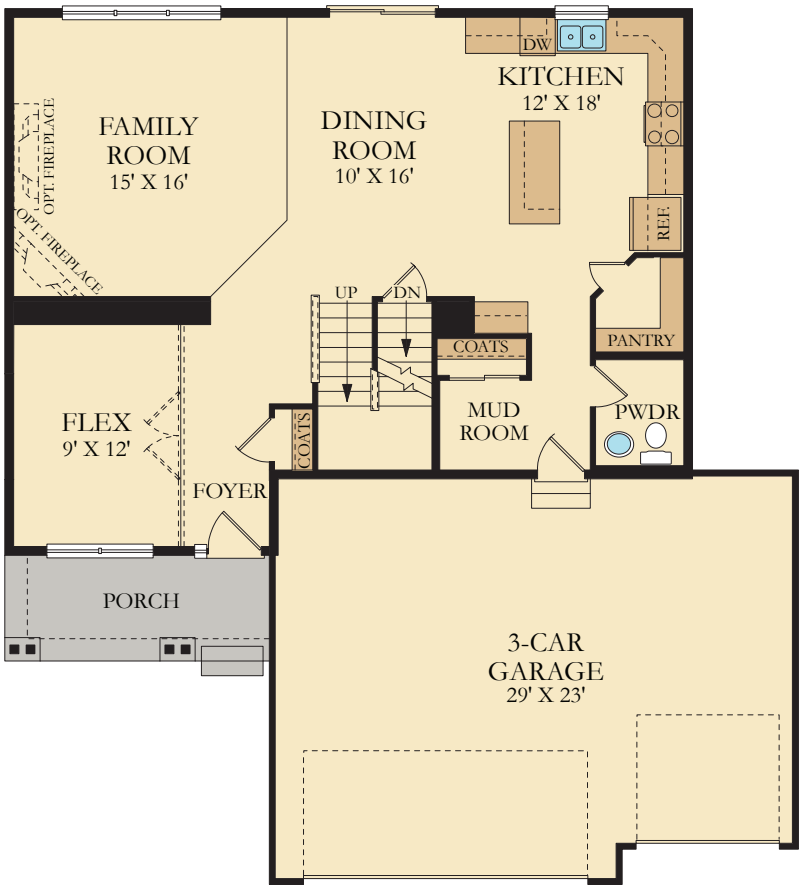
LENNAR®

13 YEARS TWIN CITIES #1 HOMEBUILDER

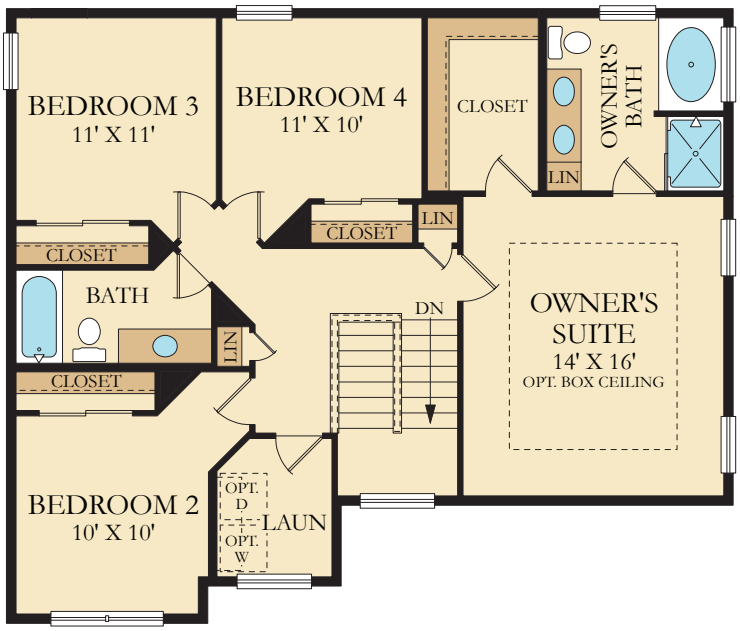
The Bristol EI

2,185 Sq. Ft.

- 2 Stories
- 4 Bedrooms
- 3 Bathrooms
- 3 Car Garage



Main Level



Upper Level

EVERYTHING'S INCLUDED®

16305 36th Ave. N. Suite 600, Plymouth, MN 55446

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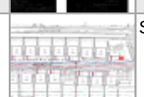
Changemarks Report

Project Name: Project 20-135 Northfork Meadows Subdivision, Lennar

Workflow Started: 12/03/2020 1:23 PM

Report Generated: 12/29/2020 09:16 AM

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	69	False	Unresolved	Civil Engineer II		Sheet 29.pdf	JF	Ped Ramp Details	Individual site specific pedestrian ramp details are required for all proposed pedestrian ramps. Details must follow MnDOT Standard Plan requirements.	12/28/2020 11:42 AM	Joe Feriancek	
		68	False	Unresolved	Civil Engineer II		Sheet 27.pdf	JF	Subsurface Edge Drain Behind Curb	City does not typically use drain tile behind the curb. Site soils are generally drainable, remove drain tile from the plans.	12/28/2020 11:40 AM	Joe Feriancek	
		67	False	Unresolved	Civil Engineer II		Sheet 26.pdf	JF	Concrete Pavement	Where is concrete pavement proposed?	12/28/2020 11:39 AM	Joe Feriancek	
		66	False	Unresolved	Civil Engineer II		Sheet 23.pdf	JF	Typical	Site specific typical is required.	12/28/2020 11:37 AM	Joe Feriancek	
		63	False	Unresolved	Civil Engineer II		Sheet 10.pdf	JF	Watmermain alignment	Watermain along Road B (north) must be adjusted to get it out of boulevard area.	12/28/2020 11:34 AM	Joe Feriancek	
		64	False	Unresolved	Civil Engineer II		Sheet 10.pdf	JF	services	Services must be shown from the main lines to the right of way. Need to call out stationing of wyes, and give invert information. Need to call out size, type, length, slope of service lines.	12/28/2020 11:34 AM	Joe Feriancek	

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Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	65	False	Unresolved	Civil Engineer II		Sheet 10.pdf	JF	utility profiles	All utilities must be shown in profile view.	12/28/2020 11:34 AM	Joe Feriancek	
		70	False	Unresolved	Civil Engineer II		Sheet 12.pdf	JF	Backyard Storm Sewer	6" Pipe is below minimum acceptable pipe size. Minimum storm pipe size is 12". Plastic pipe in green space is acceptable, last run of pipe going to street must be concrete. If plastice storm pipe is used, manholes must have a boot, this will need to be added as a note and to the detail.	12/28/2020 11:44 AM	Joe Feriancek	
		62	False	Unresolved	Civil Engineer II		Sheet 11.pdf	JF	Coverage Plan	Good information to know, This sheet is not required to be included in the construction plan set.	12/28/2020 10:22 AM	Joe Feriancek	
		57	False	Unresolved	Civil Engineer II		Sheet 8.pdf	JF	Silt Fence Inlet Protection	This Detail only be acceptable for green space inlets.	12/28/2020 10:04 AM	Joe Feriancek	
		58	False	Unresolved	Civil Engineer II		Sheet 7.pdf	JF	Construction Exit - Alpine Drive	If Alpine Drive is going to be used during construction, this needs to have a construction exit.	12/28/2020 10:07 AM	Joe Feriancek	
		59	False	Unresolved	Civil Engineer II		Sheet 7.pdf	JF	Drainage Arrows	Do not see the drainage arrows in the plan, please update.	12/28/2020 10:07 AM	Joe Feriancek	
		60	False	Unresolved	Civil Engineer II		Sheet 7.pdf	JF	Plan Readability	Plans are difficult to read, erosion control measures need to be highlighted.	12/28/2020 10:07 AM	Joe Feriancek	

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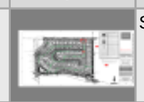
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	61	False	Unresolved	Civil Engineer II		Sheet 7.pdf	JF	SWPPP Narrative	A Narrative is required, please call out where it can be found.	12/28/2020 10:07 AM	Joe Feriancek	
		55	False	Unresolved	Civil Engineer II		Sheet 6.pdf	JF	Max Allowable Slope	finish grading max allowable slope is 3:1.	12/28/2020 9:48 AM	Joe Feriancek	
		56	False	Unresolved	Civil Engineer II		Sheet 6.pdf	JF	topsoil requirements	See city detail ERO-6 Topsoil Requirements, city requires 4" topsoil, no more than 35% sand content.	12/28/2020 9:48 AM	Joe Feriancek	
		52	False	Unresolved	Civil Engineer II		Sheet 5.pdf	JF	Contours	Add existing and proposed contour labels. All lot corners must have spot elevations High points and low points must be called out.	12/28/2020 9:45 AM	Joe Feriancek	
		53	False	Unresolved	Civil Engineer II		Sheet 5.pdf	JF	Proposed Grading Level of Detail	As shown the grading plan does not use the shared lot line to create a swale to prevent lot runoff from draining across adjacent lots outside of easements. Please confirm if shared lot swales are intended.	12/28/2020 9:45 AM	Joe Feriancek	
		54	False	Unresolved	Civil Engineer II		Sheet 5.pdf	JF	Additional Detail Needed	Need to add high point and low point spot elevations, and additional contour labels. Not enough information given to clearly see how grading works.	12/28/2020 9:45 AM	Joe Feriancek	
		51	False	Unresolved	Civil Engineer II		Sheet 4.pdf	JF	Street Names	Have final street names been decided? 3 Road B streets, makes the plans confusing.	12/28/2020 9:18 AM	Joe Feriancek	

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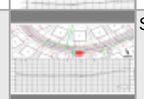
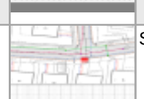
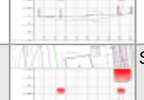
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	50	False	Unresolved	Civil Engineer II		Sheet 3.pdf	JF	Street Names	Add Street Names to Plat.	12/28/2020 9:17 AM	Joe Feriancek	
		1	False	Unresolved	Environmental Review		Title Sheet.pdf	CA	Missing Plan Sheets	A Tree Inventory and Preservation Plan and a Landscape Plan are both rqeuired submittals. Please have these plans prepared and submitted for review.	12/23/2020 1:15 PM	Chris Anderson	
		49	False	Unresolved	Civil Engineer IV		Sheet 22.pdf	LL	Snow Storage	Is there room for snow storage in this CDS?	12/16/2020 12:54 PM	Len Linton	
		48	False	Unresolved	Civil Engineer IV		Sheet 17.pdf	LL	Catch basin capacity	Verify gutter spread and catch basin capacity at this location. It is at the low point of a long slope from both directions.	12/16/2020 12:47 PM	Len Linton	
		43	False	Unresolved	Civil Engineer IV		Sheet 14.pdf	LL	Watermain Labels	All watermain fittings must be labeled on the final plat.	12/16/2020 12:37 PM	Len Linton	
		44	False	Unresolved	Civil Engineer IV		Sheet 14.pdf	LL	Profile revision	A high point is required at the right-of-way line to keep Alpine Drive runoff from enteriing project.	12/16/2020 12:37 PM	Len Linton	
		45	False	Unresolved	Civil Engineer IV		Sheet 13.pdf	LL	Vertical Curves	Vertical curves are required at all grade changes. See City Standards.	12/16/2020 12:45 PM	Len Linton	
		46	False	Unresolved	Civil Engineer IV		Sheet 13.pdf	LL	Tangent Labels	All tangents must be labeled.	12/16/2020 12:45 PM	Len Linton	

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Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	47	False	Unresolved	Civil Engineer IV		Sheet 13.pdf	LL	Continuation Note - ALL PAGES	Add Page number for next page where street does not end on sheet.	12/16/2020 12:45 PM	Len Linton	
		41	False	Unresolved	Civil Engineer IV		Sheet 12.pdf	LL	Readbility	There is an overall lack of readability of this plan sheet and the plan set in general. The storm sewer lines must be the most prominent feature in this sheet. The sewer and water must be in a lighter shade of grey on this sheet. The storm sewer msut be in a lighter shade of grey on the Water and Sewer Plan. See note on Title page about City standards.	12/16/2020 12:19 PM	Len Linton	
		42	False	Unresolved	Civil Engineer IV		Sheet 12.pdf	LL	Street level utility plans	Street level utility plans shall be at a maximum scale of 1" = 100', with 1" = 50' preferred. This applies to all utility sheets.	12/16/2020 12:19 PM	Len Linton	
		40	False	Unresolved	Civil Engineer IV		Sheet 11.pdf	LL	Readbility	This plan is not useable. There is too much conflict where the circles overlap. Turn off the shading in the circles and make the outlines of the circles bolder.	12/16/2020 12:08 PM	Len Linton	
		33	False	Unresolved	Civil Engineer IV		Sheet 9.pdf	LL	Legend	Label type i.e. A-109, SP-7 (8"), P-109 (12") must be identified in the legend.	12/16/2020 11:59 AM	Len Linton	

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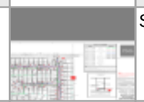
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	34	False	Unresolved	Civil Engineer IV		Sheet 9.pdf	LL	Connection type	Connection type must be specified on the plans. Sleeves are not an approved connection method for watermain. The trench must be wide enough to allow deflection of the pipe to make the connection.	12/16/2020 11:59 AM	Len Linton	
		35	False	Unresolved	Civil Engineer IV		Sheet 9.pdf	LL	Swale Line type	Swale line type must be added to the legend on all sheets where it is used.	12/16/2020 11:59 AM	Len Linton	
		36	False	Unresolved	Civil Engineer IV		Sheet 9.pdf	LL	Hydrant Connection	Waterline shall be stubbed to Alpine Drive with a Valve and blow off line to surface. Hydrant connection shall be a standard Tee installation. The City plans to extend watermain down Alpine Drive in the future and this will aid with the future connection.	12/16/2020 11:59 AM	Len Linton	
		37	False	Unresolved	Civil Engineer IV		Sheet 9.pdf	LL	Subdrain	Subdrains are not required in Ramsey. Remove from plans.	12/16/2020 11:59 AM	Len Linton	

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Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	8	False	Unresolved	Civil Engineer IV		Stormwater Management Memo.pdf	LL	Revise table	See comments on HydroCAD drainage map. Drainage areas 3 and 4 cannot physically drain to Basin A. The runoff from these two areas is not attenuated by a pond. The system must be revised to retain more flow in Basin A to compensate for the uncaptured flows. The site does not meet the infiltration (volume control) requirements for the LRRWMO. Infiltration must be provided on the site. The site as designed does not meet all of the LRRWMO and City requirements	12/16/2020 11:02 AM	Len Linton	
		9	False	Unresolved	Civil Engineer IV		Stormwater Management Memo.pdf	LL	Comments on Routing Diagram	DA-3 and DA-4 cannot physically drain to Basin A. The link from DA-3 and DA-4 cannot be directed to Basin A. This runoff must be tabulated separately. DA-1 must drain through DA-2. The pipes through DA-2 must be sized to accomodate the 100 year flows from DA-1 and DA-2.	12/16/2020 11:02 AM	Len Linton	

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Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	10	False	Unresolved	Civil Engineer IV		Stormwater Management Memo.pdf	LL	Outlet Configuration	1. Device #1 must be submerged type inlet to provide skimming of floatables. 2. Device #2 provide detail of wiers and orifices to provide rate control for all storms as outlined on at the start of this report. 3. Device #4 should have slope between inlet and outlet. The total length seems rather short for carrying the flow away from the edge of the pond and protecting against upstream erosion around the FES.	12/16/2020 11:02 AM	Len Linton	
		11	False	Unresolved	Civil Engineer IV		Stormwater Management Memo.pdf	LL	Volume Removal	Volume removal goal not met. Site must infiltrate first 1" from all impervious surfaces. This is 42,500 cubic feet. Revise plan to achieve this goal.	12/16/2020 11:02 AM	Len Linton	
		12	False	Unresolved	Civil Engineer IV		Stormwater Management Memo.pdf	LL	MiDS Calculator	Include screen shot of infiltration basin parameters page showing inputs for infiltration basin - surface area, base of basin area, depth, infiltration rate and drawdown time - 48 hours for Ramsey.	12/16/2020 11:02 AM	Len Linton	
		30	False	Unresolved	Civil Engineer IV		Sheet 7.pdf	LL	Legend	All linetypes used on sheet must be listed in legend.	12/16/2020 11:22 AM	Len Linton	

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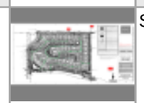
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	31	False	Unresolved	Civil Engineer IV		Sheet 7.pdf	LL	Line Contrast	This is the SWPP Plan. The erosion control measures must be the most prominent lines. The proposed contours must be draiwn with a lighter pen so that the erosion control stands out.	12/16/2020 11:22 AM	Len Linton	
		32	False	Unresolved	Civil Engineer IV		Sheet 7.pdf	LL	SWPPP	This sheet and sheet 8 combined do not meet the requirements of the SWPPP as defined in the Construction Stormwater Permit. A separate sheet with notes or a bound volume must be added to the plan set which contains all of the required notes.	12/16/2020 11:22 AM	Len Linton	
		7	False	Unresolved	Civil Engineer IV		Sheet 6.pdf	LL	Lowest Floor	The lowest floor must be listed for all structures, not just walkout style houses. See LRRWMO discussion on grading sheet.	12/15/2020 4:04 PM	Len Linton	
		16	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Legend Entry	All lines and symbols used on a sheet must be listed in the legend on that sheet.	12/16/2020 11:18 AM	Len Linton	
		17	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Minimum Grade	Minimum grade across lots and along lot lines is 2.0%. Grading revisions are required.	12/16/2020 11:18 AM	Len Linton	

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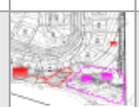
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	18	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Grading Transitions	Grading transitions must be smoother. Minimum grade is 2.0% across lots. Maximum slope is 4:1 (H:V)	12/16/2020 11:18 AM	Len Linton	
		19	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Drainage and Utility Easement on lot 11	Drainage and utility easment must be wider. The City requires that runoff from multiple lots must be contained in drainage and utiity easement. The toe of the swale on this lot appears to be outside of the easement.	12/16/2020 11:18 AM	Len Linton	
		20	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Preserve Trees	See note on Existing and removals plan. The tree save limits must be shown on the grading plans.	12/16/2020 11:18 AM	Len Linton	
		21	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Grading transition to existing	Grading transitions must respect trees to be protected. The proposed contours do not match existing contours in this area.	12/16/2020 11:18 AM	Len Linton	
		22	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	EOF	This elevation does not make sense.	12/16/2020 11:18 AM	Len Linton	
		23	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Lot corner spot elevations	Spot elevations are required at all lot corners.	12/16/2020 11:18 AM	Len Linton	

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Changemarks Report

Main Workflow	1	24	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Stormwater Regulations	This project will require a permit from the Lower Rum River Watershed Management Organization (LRRWMO). The permit application materils are available on their website lrrwmo.org. The permit cannot be suibmitted until the project has recieved Preliminary Plat approval from the City. The permit application with supporting reports and calculations and fees must be submitted to the City by the 2nd Thursday of the month for City review. The City will review the materials and if acceptable will forward to the LRRWMO by the 3rd Thursday of the month. The permit will be reviewed at the next months board meeting. The LRRWMO requires rate control and volume control (infiltration). Infiltration basins must conform to the details found in the Minnesota Stormwater Manual. Please work with Engineering to ensure the stormwater treatment system will meet the City and LRRWMO requirements before submittal of the permit application.	12/16/2020 11:18 AM	Len Linton	

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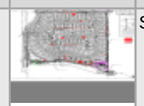
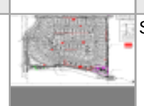
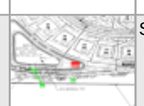
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	25	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Lowest Floor Elevations	Lowest floor and lowest opening elevations are governed by the LRRWMO rules. The LRRWMO rules do have a procedure for documenting complinance with these requirements for lots tributary to backyard ponding and emergency overflows.	12/16/2020 11:18 AM	Len Linton	
		26	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Infiltration	This site does not appear to meet the infiltration requirements for the CIty or LRRWMO. This was confirmed by reviewing the stormwater report.	12/16/2020 11:18 AM	Len Linton	
		27	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Outlet from Basin A	The plan does not clearly demonstrate positive drainage away from Basin A. See the note on the Existing Conditions plan. Existing contour labels must be added along the southern boundary.	12/16/2020 11:18 AM	Len Linton	
		28	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Duplicate Labels	These appear to be duplicate conflicting labels.	12/16/2020 11:18 AM	Len Linton	
		29	False	Unresolved	Civil Engineer IV		Sheet 5.pdf	LL	Plan Readability	Consider thining labels at this scale, the plan has an overall crowded apparance. The street stationing confilcts with street names and curb lines.	12/16/2020 11:18 AM	Len Linton	

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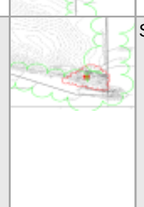
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	4	False	Unresolved	Civil Engineer IV		Sheet 4.pdf	LL	Legend	Legend must reflect all symbols on the sheet. The colored dots must be identified in the legend.	12/15/2020 3:16 PM	Len Linton	
		5	False	Unresolved	Civil Engineer IV		Sheet 4.pdf	LL	Symbols	The symbol for Bituminous Pavement is the same as Concrete Pavement. One symbol must be changed.	12/15/2020 3:16 PM	Len Linton	
		6	False	Unresolved	Civil Engineer IV		Sheet 4.pdf	LL	Site Summary Table	This table must be updated to reflect the actual unit counts for each lot width. The lot widths do not match the preliminary plat widths.	12/15/2020 3:16 PM	Len Linton	
		3	False	Unresolved	Civil Engineer IV		Sheet 3.pdf	LL	Lot Width	Roof overhangs cannot encroach into the drainage and utility easements between lots. Housing product sizes must be adjusted to fit between the side drainage and utility easements.	12/15/2020 3:08 PM	Len Linton	
		13	False	Unresolved	Civil Engineer IV		Sheet 2.pdf	LL	Details referenced on plan	Details must list page number and number on detail sheet.	12/16/2020 11:07 AM	Len Linton	
		14	False	Unresolved	Civil Engineer IV		Sheet 2.pdf	LL	Tree protection	Tree protection fence must be shown on the plan delineating areas where trees are to be protected. Tree protection fence must be installed in the field at the same time silt fence is installed to delineate trees to remain.	12/16/2020 11:07 AM	Len Linton	

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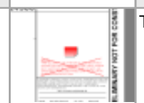
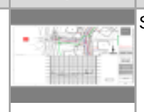
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	15	False	Unresolved	Civil Engineer IV		Sheet 2.pdf	LL	City Platting Requirements	City platting requirements state topographic data must be shown to 100 feet beyond the property line. This data must be added to the next submittal.	12/16/2020 11:07 AM	Len Linton	
		38	False	Unresolved	Civil Engineer IV		Title Sheet.pdf	LL	Legends	Each sheet must have an custom legend showing only the lines and symbols used on that sheet. An omnibus legend on the first sheet does not satify this requirement.	12/16/2020 12:04 PM	Len Linton	
		39	False	Unresolved	Civil Engineer IV		Title Sheet.pdf	LL	Ramsey Standards	if you have not done so, download the Ramsey Standards and Details from the Engineering page of cityoframsey.com. The City does not depend on color for plan preparation. Future submittals must be in black or grey scale with line type and width used to differentate different features. The pavement shading must be removed on all future submittals.	12/16/2020 12:04 PM	Len Linton	
		2	False	Unresolved	Civil Engineer IV		Sheet 10.pdf	LL	Watermain Materials	8" watermain shall be DIP, Class 52 6" and smaller watermain shall be DIP, Class 53	12/15/2020 2:09 PM	Len Linton	

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	76	False	Unresolved	Engineering Tech		Sheet 13.pdf	Logan Czech	Profile views	Profile views will be required that show sanitary sewer, water main and storm sewer in detail.	12/09/2020 10:48 AM	Logan Czech	
		75	False	Unresolved	Engineering Tech		Sheet 23.pdf	Logan Czech	Bituminous type	Wear course and Base course specs have changed and should be SPWEA340C and SPNWB330C, respectively.	12/09/2020 10:20 AM	Logan Czech	
		71	False	Unresolved	Engineering Tech		Sheet 12.pdf	Logan Czech	Storm Sewer Pages	Outline sections of storm sewer and call out which page each section is covered in detail.	12/09/2020 10:04 AM	Logan Czech	
		72	False	Unresolved	Engineering Tech		Sheet 10.pdf	Logan Czech	Service locations	Water services should always be upstream of sanitary service.	12/09/2020 10:12 AM	Logan Czech	
		73	False	Unresolved	Engineering Tech		Sheet 10.pdf	Logan Czech	Road B	Final street names for Road B will have to be different for N/S and E/W runs.	12/09/2020 10:12 AM	Logan Czech	
		74	False	Unresolved	Engineering Tech		Sheet 10.pdf	Logan Czech	Sewer and Water Pages	Outline different sections of sewer and water and reference which pages each section is covered in detail.	12/09/2020 10:12 AM	Logan Czech	

CITY OF RAMSEY LAND USE APPLICATION

TECHNICAL REVIEW FILE

Date	12/29/2020	**Project Site**	PID: 20-32-25-31-0002 Sec.22/Township32N/Range 25W
Project Title	20-135 Northfork Meadows Subdivision		
Escrow #			
Department	Community Development: Planning Division		
Technical Reviewer	Name: Kristin Moen Phone: 612-322-2121 Email: KMoen@wsbeng.com		

Preliminary Plat Plan Review

We offer the following comments regarding the Preliminary Plat submittal for Northfork Meadows Subdivision as it relates to the City's Zoning Code.

Notes:

- Please see ProjectDox (electronic plan review) comments from Staff.
- Seems to generally meet R-1 Residential (MUSA – Detached Single Family Homes) and R-1 Residential (MUSA - Detached Villas) requirements.

Summary of revisions needed on Preliminary Plat:

1. Ensure for cul-de-sac width meets City requirements for urban street section
2. Modifications to lot sizes for Block 2, Lots 21 – 25 (slightly undersized)

The project requires the following:

1. Preliminary Plat Approval
2. Final Plat Approval

Revisions/Comments Per Sheet:

Sheet 3 (Preliminary Plat)

1. Provide separate exhibit showing different zoning districts
    a. Detached Villa: Lots 1 – 16, Block 1; Lots 1 – 13, Block 3; Lots 26 – 45, Block 3
    b. Detached Single Family Homes: Lots 1 – 27, Block 2, and Lots 25 – 14, Block 3
2. Several of the lot sizes are incorrectly labeled.
3. Update building setbacks along Development Boundary to reflect 25-foot requirement.

Sheet 4 (Overall PUD Master Site Plan)

1. Rename this sheet to exclude “PUD” in title.

Planning Staff provides the following comments for general review of applications:

General: The property is currently unplatted and unaddressed. The site is approximately 33.41 acres and is located south of Alpine Drive and east of Puma Street and Riverstone. The PIDs is 20-32-25-31-0002 and 20-32-25-31-0004.

Zoning: The northwest portion of the site is zoned R-1 Residential – MUSA Detached Villa and the Southern and Eastern boundaries are zoned R-1 Residential – Detached Single Family Homes.

Number of Lots: The Applicant has proposed 88 total residential lots, 47 ‘Detached Villa’ lots (R-1 zoning, 65-foot-wide), and 41 ‘Single-Family Detached lots (R-1 MUSA zoning, 80 foot wide).

NORTHWEST PORTION REVIEW – R-1 RESIDENTIAL – MUSA, DETACHED VILLAS

LOW DENSITY RESIDENTIAL

Intent: The intent of the R-1 Residential District is to accommodate single-family dwelling units on suitable land in the 2040 Metropolitan Urban Service Area (MUSA) and rural developing areas of the city. All newly created lots, except the remnant of a lot of record not less than five acres in size and located within the 2040 MUSA, shall be serviced by sanitary sewer and municipal water.

R-1 Residential (MUSA) Detached Villa Standards Lots 1 – 16, Block 1 Lots 1 – 13, Block 3 Lots 26 – 45, Block 3		
Standard	*Required*	*Proposed*
Minimum Lot Size	.15 acres	>.15 acres
Density Range	< 4 units per acre	~2.3 units per acre across site 35 lots on 15 acres
Minimum Lot Width	65 feet	>65 feet
Building Setbacks		
Front, Side Corner	25 feet	Meets requirement.
Rear	20 feet	Meets requirement.
Side	5 feet	Meets requirement.
Density Transitioning	Required when abutting less dense developments	N/A
Maximum Lot Coverage (All Buildings, Excludes Paving)	35%	N/A. Appears it will meet requirement.
Minimum Building Size for Townhouse with Garage	1 Bedroom: 700 sq. ft. 2 Bedroom: 800 sq. ft. 3 Bedroom: 960 sq. ft. Each additional bedroom: 125 sq. ft.	Not noted but should meet requirement.
Required Parking Stalls	2 enclosed (townhome)	Not noted but should meet requirement.

Maximum Driveway Width at Street	20 feet	Not noted but should meet requirement.
Driveway Surface	Bituminous or Concrete	Bituminous or Concrete
Minimum Driveway Length	25 feet	Not noted but should meet requirement.
Wetland Setback	16.5 feet	N/A
Minimum Private Street Width (With No Parking)	24 feet	Not noted but should meet requirement.

REMNANT AREA REVIEW – R-1 RESIDENTIAL (MUSA)

LOW DENSITY RESIDENTIAL

Intent: The intent of the R-1 Residential District is to accommodate single-family dwelling units on suitable land in the 2040 Metropolitan Urban Service Area (MUSA) and rural developing areas of the city. All newly created lots, except the remnant of a lot of record not less than five acres in size and located within the 2040 MUSA, shall be serviced by sanitary sewer and municipal water.

R-1 Residential (MUSA) Single Family Detached Standards Lots 1 – 27, Block 2 Lots 25 – 14, Block 3		
Standard	*Required*	*Proposed*
Minimum Lot Size	.25 acres (10,890 sq. ft.)	>.25 acres Lots 21-25: 10, 856 sq. ft.
Density Range	2.5 units per acre – 3 units per acre	~2.7 units/acre 34 lots on 12.5 acres
Minimum Lot Width	80 feet 90 feet – corner lot	80 feet Corner lots: 90 feet
Building Setbacks		
Front, Side Corner	30 Feet	Meets requirement.
Rear	30 Feet	Meets requirement.
Side	6 Feet	Meets requirement.
Density Transitioning	Required when abutting less dense developments.	Appears to meet requirement. See landscape review in ProjectDox.
Maximum Lot Coverage (All Buildings, Excludes Paving)	35%	N/A. Appears it will meet requirement.
Minimum Building Size	Two Story with Garage – 720 square feet	Not noted but should meet requirement.
Maximum Driveway Width at Street	30 feet 24 on cul-de-sac	Not noted but should meet requirement.
Driveway Surface	Bituminous or Concrete	Bituminous or Concrete
Minimum Driveway Length	25 feet	Not noted but should meet requirement.
Wetland Setback	16.5 feet	Meets requirement.

Maximum Height	35 Feet	Not noted but should meet requirement.

Required Changes: As proposed, the preliminary plat requires the following changes:

1. Cul-de-sac length.
2. Cul-de-sac width.
3. Ensure Block 2, Lots 21 – 25 are greater than .25 acres (measuring slightly under)

Floodplains: The property is not within the Ramsey Floodplain.

Landscaping: *See landscape and environmental resources for specific comments about landscaping and tree removal.*

Density Transitioning: As proposed, the development is subject to the density transitioning standards based on the zoning of the adjacent properties (R-1 Rural Developing) to the east. The R-1 area satisfies this requirement.

Streets and Access: The preliminary plat includes 3 streets (Street A, B, and C). Street C is proposed to cul-de-sac. The cul-de-sac appears does not appear to meet the minimum size requirements; the width of the Street C is approximately 29 feet wide where the requirement is 32 feet wide for the entire length. Additionally, the total cul-de-sac length is longer than what is allowed by code.

The Applicant has proposed a 29-foot-wide street running through the site. The roads appear to have the required 60 feet of right-of-way. Ramsey Public Works and Public Safety generally prefer 32-foot-wide streets. However, 29-foot-wide streets with restricted parking on one side of the street is acceptable to Ramsey City Code and was allowed in the Riverstone Neighborhood. Staff has directed the Developer that given the number of lots, these shall be public streets.

Sidewalks: The Applicant has proposed a sidewalk on one side of the street throughout that appears to meet the 6-foot-wide minimum.

Utilities and Municipal Services: All new lots will be serviced with municipal utilities.

Grading and Drainage Plans: See ProjectDox comments from Engineering Staff.

Parks and Trails: The Applicant has not proposed any parks or trails.

Development Fees: Development Fees will be due with the Plat including, but not limited to, Park Dedication, Trail Development, Storm Water Management, Trunk Water and Trunk Sanitary Sewer, and Lateral Benefit Charges for Sewer and Water. These fees are collected at the time the Final Plat is recorded and at the rate in effect when the final plat is recorded.

Development Agreement: An executed Development Agreement will be required prior to releasing the plat for recording.

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

RESOLUTION #21-007

RESOLUTION APPROVING PRELIMINARY PLAT OF NORTHFORK MEADOWS

WHEREAS, US Home Corporation dba Lennar, hereafter referred to as "Developer," properly applied for a revision to their Preliminary Plat approval of the following described property located in the City of Ramsey generally described as Northfork Meadows and legally described as:

Outlot A and Outlot C, Alpha Development, Anoka County, Minnesota

(the 'Subject Property');

WHEREAS, the Subject Property is zoned R-1 Residential (MUSA - Detached Single Family Homes) and R-1 Residential (MUSA - Detached Villa); and

WHEREAS, the Applicant has proposed 41 lots at 80 foot wide and 47 lots at 65 feet wide, for a total of 88 lots; and

WHEREAS, the proposal aligns with the City's Comprehensive Plan; and

WHEREAS, the Planning Commission reviewed the preliminary plat plan on January 7, 2021; and

WHEREAS, the City Council reviewed the preliminary plat on January 26, 2021.

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 grants preliminary plat approval of Northfork Meadows accordance with relevant City Codes, subject to the following conditions:
    a. Compliance with City Staff Review Letter and ProjectDox comments, including Final Approval by City Engineer.
    b. The Developer entering into a Development Agreement with the City.
    c. Review and Approval of Final Legal Form by City Attorney.

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 _____ day of _____, 2021.

_____
Mayor

ATTEST:

_____
City Clerk

Regular Planning Commission **6. 2.**

Meeting Date: 01/07/2021

By: Tim Gladhill, Community Development

Information

Title:

PUBLIC HEARING: Consider Ordinance #20-01 Amending City Code Sections 117-111 (R-1 Residential District) and 117-112 (R-2 Residential District) Clarifying Subdistricts based on Lot Size

Purpose/Background:

The purpose of this case is administrative/housekeeping in nature. Based on recent applications of the newly created subdistricts allowing 65 foot wide lots and 50 foot wide lots 'by right', Staff is proposing a restructuring of City Code as it pertains to detached single-family lots.

- Standards for 80 foot wide lot and 65 foot wide lots remain unchanged
- Moves 50 foot wide lots from R-2 Residential District to R-1 Residential District
    - Consistent with actual net density
    - Standards remain unchanged
    - Clarifies that accessory structures are allowed
- Moves 40 foot wide lots from R-3 Residential District to R-2 Residential District
    - Consistent with actual net density
    - Standards remain unchanged
    - Clarifies that R-3 Residential District is reserved for higher-density developments

Notification:

The Public Hearing Notice was properly advertised in the Anoka County UnionHerald, the City's Official Newsletter.

Observations/Alternatives:

As noted above, there are no policy implications in this ordinance. This is a housekeeping amendment to establish a more logical structure and naming scheme for detached single-family districts. These recommended amendments are based on actual experience applying recent code changes.

Funding Source:

This case is being handled as part of normal Staff duties.

Recommendation:

Staff recommends that the City Council adopt Ordinance #20-01.

Action:

Motion to recommend that the City Council adopt Ordinance #20-01.

Attachments

Ordinance #20-01

Form Review

Inbox	Reviewed By	Date
Tim Gladhill (Originator)	Tim Gladhill	12/30/2020 11:45 AM

Form Started By: Tim Gladhill Started On: 12/29/2020 01:49 PM
Final Approval Date: 12/30/2020

ORDINANCE #21-01

CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

AN AMENDMENT TO CHAPTER 117 OF THE CITY CODE, WHICH CHAPTER IS KNOWN AS ZONING AND SUBDIVISIONS OF THE CITY CODE OF RAMSEY, MINNESOTA

AN ORDINANCE AMENDING ARTICLE II DIVISION 4 SECTION 117-89 (DISTRICTS), 117-111 (R-1 RESIDENTIAL DISTRICT), AND 117-112 (R-2 RESIDENTIAL DISTRICT)

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 117-89. – Districts is amended to read as follows:

Sec. 117-89. - Districts.

For the purpose of this chapter, the city is divided in the following zoning districts:

(1) R-1 Residential (MUSA – 50). The intent of this district is to accommodate 50 foot wide detached single-family dwellings on suitable land within the Metropolitan Urban Service Area at a maximum net density of four units per acre.

~~(1)~~ (2) R-1 Residential (MUSA – 65). The intent of this district is to accommodate 65 foot wide detached single-family dwelling units on suitable land within the Metropolitan Urban Service Area at a maximum net density of four units per acre.

~~(2)~~ (3) R-1 Residential (MUSA – 50). The intent of this district is to accommodate 50 foot wide single-family dwelling units on suitable land within the Metropolitan Urban Service Area at a maximum net density of three units per acre or four units per acre through the use of a Planned Unit Development (PUD).

~~(3)~~ (4) R-1 Residential (Rural Developing). The intent of this district is to accommodate single-family dwelling units outside of the Metropolitan Urban Service Area at a maximum gross density of one unit per 2.5 acres.

~~(4)~~ (5) R-2 Residential (Detached Townhome). The intent of this district is to accommodate detached townhomes on lots a minimum of 40 feet wide at a density of four to seven units per acre.

~~(5)~~ (6) R-2 Residential (Multifamily or Attached Townhome). The intent of this district is to accommodate multifamily units, duplexes, twinhomes, and attached townhomes at a density of four to seven units per acre.

And all existing numbers (5) through (17) renumbered accordingly.

Sec. 117-111. - R-1 Residential District shall be amended to read as follows:

Sections (a) through (c) unchanged.

(d) R-1 bulk standards.

	MUSA			Rural Developing (Large Single Family Lots)
	50	65	80	
Minimum lot size	.15 acres	.15 acres	.25 acres	2.5 acres
Minimum density	2.5 units per acre	2.5 units per acre	2.5 units per acre	1 unit per 2.5 acres (gross) (minimum)
Maximum density	4 units per acre (maximum)	4 units per acre (maximum)	3 units per acre/4 units per acre with PUD (net) (maximum)	N/A
Minimum lot width	50 feet	65 feet	80 feet/ 90 feet - corner lot	200 feet/100 feet on cul-de-sac
Front yard setback	25 feet	25 feet	30 feet	40 feet
Side yard setback	5 feet	5 feet	5 feet	10 feet
Side yard setback for corner lots	25 feet	25 feet	30 feet	40 feet
Rear yard setback	20 feet	20 feet	30 feet	40 feet
Rear yard setback when adjoining a parcel zoned Park [3]	20 feet	20 feet		N/A
Major/minor arterial setback measured from the centerline of the road right-of-way	60 feet from right-of-way centerline plus the local applicable setback			
Service road setback	35 feet			

Maximum building height (measured from lowest adjacent grade to average height between eaves and highest ridge)	35 feet		
	Minimum floor areas: (main floor)		
Rambler with garage	912 square feet		
Split level or two story with garage	720 square feet (total of main living areas)		
Townhouse with garage		PUD Required	N/A
	1 bedroom—700 square feet	1 bedroom—700 square feet	
	2 bedrooms—800 square feet	2 bedrooms—800 square feet	
	3 bedrooms—960 square feet	3 bedrooms—960 square feet	
	Each additional bedroom 125 square feet	Each additional bedroom 125 square feet	
Maximum lot coverage for all principal and accessory buildings (excludes impervious or prepared surface)	50%	35%	
Maximum driveway width at street [2]	30 feet; 24 feet on culs-de sac		
Maximum number of driveways [2]	1 per street frontage		2
Side yard setback for driveways [2]	5 feet		
Required driveway surface [2]	Bituminous or Concrete		Bituminous, Concrete, or Class V
	Accessory structure setbacks:		

Front [1]	25 feet or same as principal structure, whichever is greater	30 feet or same as principal structure, whichever is greater	40 feet or same as principal structure, whichever is greater
Rear	5 feet		
Side	5 feet	6 feet	10 feet
Side Corner	25 feet	30 feet	40 feet

Sec. 117-112. - R-2 Residential District intent, permitted uses, and bulk standards shall be amended to read as follows:

(a) Intent. The intent of the R-2 Residential District is to accommodate ~~multiple~~ dwellings at a density of four to seven dwelling units per acre and multiple-dwelling complexes within the 2040 MUSA. All lots created by subdivision located within the 2040 MUSA shall be serviced by sanitary sewer and municipal water.

(d) R-2 bulk standards.

	Detached ~~Villa~~Townhome	Multifamily or Attached Townhome ~~(Attached)~~
Minimum Lot Size	~~.15~~ .10 Acres	None
Minimum density (net)	4.0	
Maximum density (net)	7.0	
Lot width	40 ~~50~~ feet	N/A
Building setback from private street measured from back of curb or public street right of way	25 feet	
Building setback from exterior development boundary line	25 feet	30 feet
Front yard setback	25 feet	30 feet
Side yard setback	5 feet	30 feet
Side yard setback corner lot	25 feet	30 feet
Rear yard setback	20 feet	30 feet
Maximum lot coverage for all principal and accessory buildings (excludes	50%	35%

impervious or prepared surface)		
Maximum building height (measured from lowest adjacent grade to average height between eaves and highest ridge)	35 feet	
Open space required	N/A	40% general open space 10% of which must be identifiable community space
Minimum separation between multifamily buildings, appurtenances thereto (i.e., patios, decks)	N/A	20 feet
Parking node setback from exterior development boundary line	30 feet	30 feet
Parking node setback from structure	15 feet	15 feet
Accessory Structures	Not Allowed	Not Allowed
~~Accessory structure setbacks:~~		
~~- Front~~	~~30 feet or same as principal structure, whichever is greater~~	~~N/A~~
~~- Rear~~	~~5 feet~~	~~N/A~~
~~- Side~~	~~6 feet~~	~~N/A~~
~~- Side corner~~	~~30 feet~~	~~N/A~~

The Detached Villa column in City Code Section 117-113 (R-3 Residential) is confirmed to be deleted from that section and added to City Code Section 117-112 (R-2 Residential).

SECTION 3. SUMMARY

The following official summary of Ordinance #21-01 has been approved by the City Council of the City of Ramsey as clearly informing the public of the intent and effect of the Ordinance.

Ordinance #21-01 amends Section 117-111 of the City Code to move 50-foot wide lots to the R-1 District from the R-2 District, renamed as R-1 (MUSA – Detached Townhome). It amends Section 117-112 to rename the district Detached Villa to Detached Townhome and lower the minimum lot width from 50 feet to 40 feet. Ordinance 20-01 also updates Section 117-89 to update definitions.

SECTION 4. EFFECTIVE DATE

This ordinance becomes effective 30 days after its passage and publication, subject to City Charter Section 5.04.

PASSED by the City Council of the City of Ramsey, Minnesota the _____ day of _____, 2021.

_____

Mayor

ATTEST:

_____

City Clerk

Introduction date:

Posting dates:

Adoption date:

Publication date:

Effective date:

Regular Planning Commission **6. 3.**

Meeting Date: 01/07/2021

By: Tim Gladhill, Community Development

Information

Title:

PUBLIC HEARING: Consider Ordinance #21-02 Amending City Code Section 117-148 Entitled Mississippi River Corridor Critical Area

Purpose/Background:

The purpose of this case is to consider amending the City's regulations within the Mississippi River Corridor Critical Area (MRCCA) Overlay District.

This overlay district is required by the State of Minnesota and establishes minimum land use standards within the District. The Overlay District was originally created in the late 1970s and recently updated in 2017. The District requires a general land use plan be included in the City's Comprehensive Plan, which is now complete and in effect. The next step is to amend our official controls (Zoning Code).

Staff is advancing the amendment now ahead of the anticipated schedule due to the proposed Riverstone South proposal. The updated rules are more reflective of the proposed Riverstone South subdivision.

While the Planning Commission was very active during the State of Minnesota Rulemaking Process and subsequent update to the City's Comprehensive Plan, including this area, this is the first read of the actual official controls/zoning code update. The Planning Commission should feel comfortable tabling action if additional time and information is necessary. However, it should be noted that a delay in this ordinance update will delay the Riverstone South proposed subdivision.

Alternatives

1. Adopt the Ordinance as presented (meets minimum requirements)
2. Adopt the Ordinance as modified
3. Postpone action to further refine draft ordinance
4. Do not adopt the ordinance (would not be in compliance with State Statute/Minnesota Rules)

Notification:

The Public Hearing Notice was advertised in the Anoka County UnionHerald, the City Official Newsletter. Since the district/impacted area is more than 40 acres in size, direct mailings are not required.

During the State of Minnesota Rulemaking process (2015-2017) significant public outreach and notification was provided.

Observations/Alternatives:

The updated plans and rules represent a significant benefit to the City of Ramsey. Under the previous plan, a majority of the district was in a rural open space designation, significantly restricting future development potential and conflicted with the City's Comprehensive Plan. The updated rules better reflect the City's vision for future land use. The most relevant example is the current Riverstone South proposal. Under the previous plan, this current proposal would have needed to be processed as a Planned Unit Development with significantly more open space protection (50% of the site).

Additionally, the updated rules remove a number of lawful, non-conforming uses for neighborhoods that were

created prior to establishment of the Overlay District by the State of Minnesota. The Bowers Drive neighborhood is an example of the updated districts better reflecting actual built-environment, thereby removing non-conformities.

Many of the rules that were recently added already existed in Ramsey's ordinance. The updated rules have minimal impact to Ramsey, where other communities were more significantly impacted. There are some updated vegetation management requirements and permitting requirements, but nothing significantly different than Ramsey's existing ordinance.

Attached to this case is a copy of the proposed ordinance following Ramsey City Code outline and structure. The DNR has provided a model ordinance with additional commentary to help explain requirements. To help bridge the gap between the two documents with a different numbering sequence, Staff has created a 'crosswalk' to help cross-reference the two document to better access the commentary from the DNR.

Funding Source:

This case is being handled as part of normal Staff duties.

Recommendation:

Staff recommends that the City Council adopt the ordinance.

Action:

Motion to recommend that the City Council adopt Ordinance #21-02 amending City Code Section 117-148 (Mississippi River Corridor Critical Area).

Attachments

Overview
MRCCA District Map
Ordinance #21-02
Ordinance #21-02 Cover
Crosswalk Comparison to DNR Model Ordinance
DNR Model Ordinance with Commentary
PREVIOIUSLY APPROVED: MRCCA Plan
Comparison to Existing Ramsey Ordinance

Form Review

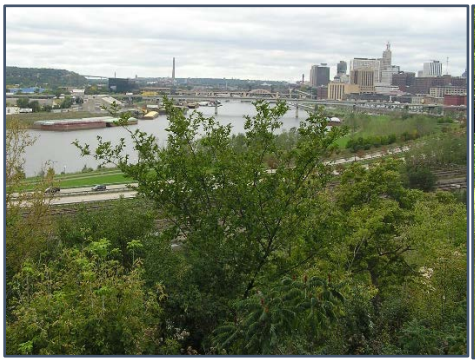
Inbox	Reviewed By	Date
Chris Anderson	Chris Anderson	12/30/2020 09:04 AM
Tim Gladhill (Originator)	Tim Gladhill	12/31/2020 09:09 AM
Form Started By: Tim Gladhill		Started On: 12/29/2020 01:47 PM
Final Approval Date: 12/31/2020		

DEPARTMENT OF NATURAL RESOURCES

Guide to City and Township MRCCA Zoning Updates

What is the Mississippi River Corridor Critical Area MRCCA?

The Mississippi River Corridor Critical Area (MRCCA) is a corridor of land along each side the Mississippi River in the Twin Cities Metropolitan Area with coordinated state, regional and local land use planning and zoning. It includes 54,000 acres in 30 local governments along a 72-mile stretch of the river. Land development in the MRCCA has been regulated by city and township-adopted MRCCA plans and zoning regulations since 1976 in compliance with state provisions. These local zoning standards have regulated structure height and setbacks from the river and bluffs as well as vegetation management and removal, land alteration, and subdivision of land to preserve the corridor's unique natural, recreational, and cultural features.



The MRCCA was designated a critical area in 1976 by Executive Order following passage of the Minnesota Critical Areas Act of 1973. The Executive Order was the governing regulation until it was superseded by MRCCA rules in 2017 (Minnesota Rules Chapter 6106). The rules more consistently protect habitat, scenic views and water quality, and allow redevelopment to address contemporary needs such as higher density and mixed uses. In 1988, the National Park Service designated the Mississippi National River & Recreation Area (MNRRA), which shares the same border as the MRCCA. There are no federal land planning or zoning regulations associated with the MNRRA.

Why is the MRCCA important?

The Mississippi River is one of the most famous rivers in the world. It is the defining feature for the many communities along its banks. Through the Twin Cities metro area, the MRCCA supports a diverse mix of residential, commercial, industrial and recreational uses, as well as river-related industry and transportation. Though the river corridor has been extensively developed, many intact and remnant cultural, natural and scenic areas remain, including bluffs, islands, floodplains, wetlands, historic resources, and native plants and animals. The state rules and local MRCCA plans and zoning regulations are designed to protect these resources while accommodating continued growth and redevelopment.

Why is my community updating its MRCCA zoning regulations?

Starting in January 2020 and going through approximately December 2022, all communities in the MRCCA will be adopting new MRCCA zoning standards consistent with 2017 MRCCA rules and local MRCCA plans that were recently updated as part of the comprehensive plan 10-year updates. **Until a community adopts the new standards, its existing MRCCA zoning standards apply.**

Contact your local city or township zoning staff with questions about relevant standards and permit requirements that apply to your property. The DNR's role is to ensure that local government MRCCA zoning regulations comply with the state rules and to provide technical assistance and oversight to local zoning staff.

Overview of New Local Government MRCCA Zoning Regulations

Local MRCCA zoning regulations are administered as an overlay district. Within this overlay district, MRCCA zoning regulations guide building and construction, vegetation management and removal, and land alteration. These regulations also affect local decisions on variances and conditional use permits. Following is an explanation of how the new zoning regulations in the 2017 MRCCA rules will affect some of the most common development activities.

New Terms

Familiarity with the following terms are helpful for understanding MRCCA zoning regulations. These terms are described and mapped in city and township MRCCA plans (a chapter of the comprehensive plan) and summarized below:

Bluff. A natural feature with an average slope exceeding 18%.

Bluff impact zone. The bluff and land within 20 feet of the bluff.

Native plant communities. Plant communities of five acres or greater that meet the quality criteria established by the Minnesota Biological Survey to qualify as a native plant community - identified in local government MRCCA plans.

Natural drainage way. Rivers and streams and any other drainage ways identified by local governments.

Shore impact zone. 50% of the required structure setback from the river.

Significant existing vegetation stands. Largely intact and connected plant communities that contain a sufficient representation of the original native plant community - identified in local government MRCCA plans.

Wetland. Transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface or land covered by shallow water.

Building and Construction

Structure height and structure setbacks from the river and top of bluffs (the top of an 18% slope) vary for each of the six MRCCA districts (See Table 1). These provisions protect scenic views and keep buildings and other development activity away from sensitive shorelines and slopes that provide habitat and are prone to soil erosion and slope failure. Structure height and setback standards will not change for most property owners. See the MRCCA Boundary and Districts web page to find the district in which your parcel is located.

Table 1. Building and constructions standards for each of the six MRCCA districts.

Build & Construction Standards	Rural Open Space (CA-ROS)	River Neighborhood (CA-RN)	River Towns and Crossings (CA-RTC)	Separated from River (CA-SR)	Urban Mixed (CA-UM)	Urban Core (CA-UM)
Maximum Structure Height	35’	35’	48’*	Underlying Zoning	65’*	Underlying Zoning
Mississippi River Structure Setback	200’	100’	75’	n/a	50’	Underlying Zoning
Bluff Structure Setback	100’	40’	40’	40’	40’	40’

*Greater height may be allowed with a Conditional Use Permit.

Expansion of Nonconforming Structures

Legal nonconforming structures were lawfully permitted when they were built. However, when zoning standards change and these structures no longer conform to the new standards, they become legally nonconforming or “grandfathered.” Nonconforming structures are common in the MRCCA. Minnesota Statute (MS §462.357, Subd. 1e) protects the rights of

the owners of nonconforming structures, and allows for their continued use, including repair, replacement, restoration, maintenance, or improvement. Under the MRCCA rules, local governments may allow the lateral expansion of legally nonconforming principal structures such as homes, as long as they do not expand further into required setbacks from the river and bluff.

Land Alteration Standards (Grading & Filling)

Land alteration in areas near water and on steep slopes increases the risk of soil erosion and the movement of sediment into water. A new local government permit is required for the following land alteration activities:

- Any activity that disturbs more than 10 cubic yards or 1,000 square feet of soil within the shore impact zone or within 50 feet of a public water, wetland, or natural drainage way, whichever is greater.
- Erosion control projects and repair & maintenance of existing structures in the bluff impact zone. All other activities are prohibited in the bluff impact zone.
- Riprap, retaining walls or other erosion control structures to correct an established erosion problem as determined by the local government. There are specific design standards and conditions for constructing these structures. The construction of structures below the ordinary high water level would continue to require a DNR permit or approval.

Vegetation Removal & Management Standards

Retaining vegetation along the river and on slopes is important to stabilize soil and to slow, absorb, and filter stormwater before it runs into the river. Vegetation is also important for retaining the scenic qualities of the river. Local MRCCA regulations include a new vegetation permit and standards for protecting and managing vegetation.

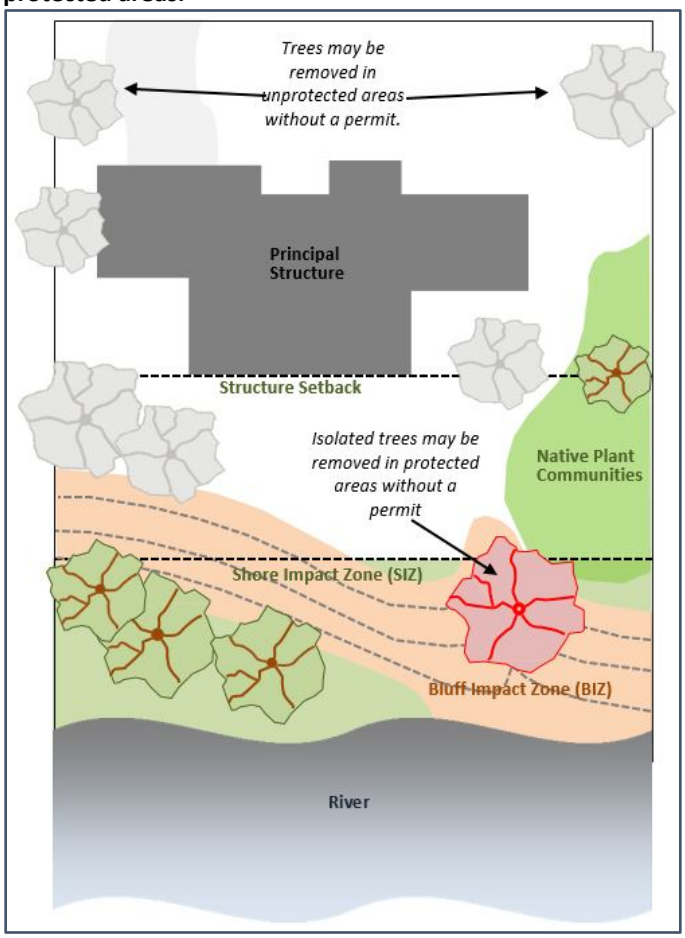
Landscaping & Maintenance Activities that DO NOT Require a Permit:

- Maintenance of existing lawns, landscaping and gardens;
- Removal of vegetation in emergency situations as determined by the local government;
- The removal of isolated individual trees or shrubs that are not in a contiguous patch, strip, row, or block and that does not substantially reduce the tree canopy or understory cover.

Prohibited Vegetation Removal Activities

The intensive removal of all or a majority of the trees or shrubs in a contiguous patch, strip, row, or block in protected areas - the shore impact zone, bluff impact zone, within 50 feet of a wetland or natural drainage way or of native plant communities and significant existing vegetative stands - is prohibited. Figure 1 shows some of these protected areas – protected areas are shown in color. Note that isolated trees and shrubs may be removed in protected areas without a permit.

Figure 1. Intensive removal of vegetation in prohibited in protected areas.



Allowed Vegetation Removal Activities with a Permit:

Some vegetation removal activities in protected areas are allowed with a **vegetation permit**, including removal:

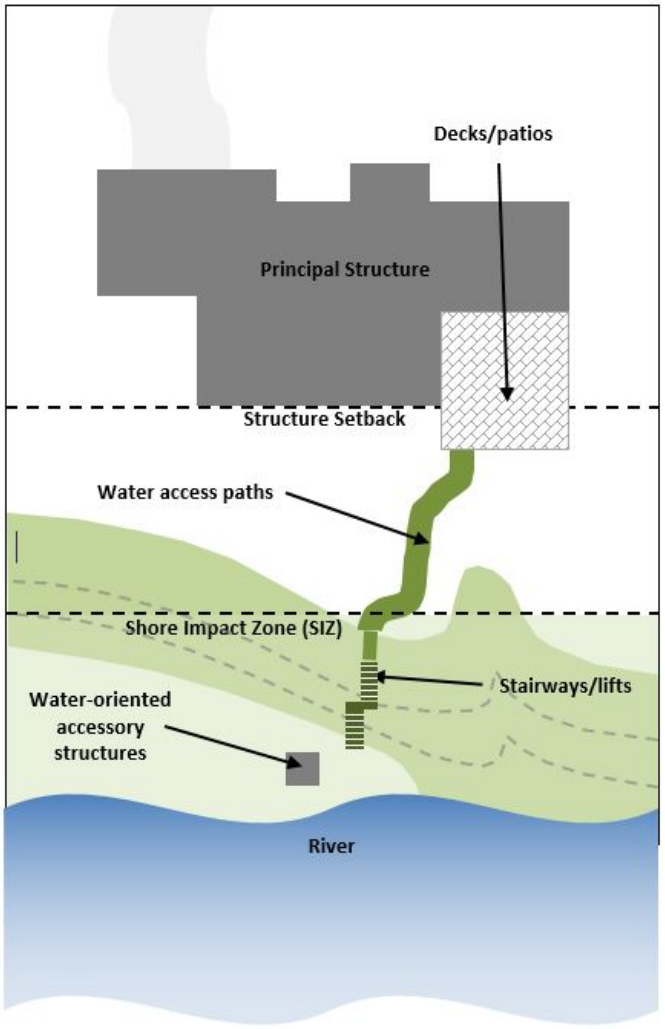
- of vegetation that is dead, diseased, dying, or hazardous;
- to prevent the spread of diseases or insect pests;
- of invasive non-native species;
- to prepare for restoration and erosion control management activities consistent with a plan approved by the local government;
- of the minimum necessary for construction allowed with a building permit.

River Access on Riparian Lots

Local MRCCA regulations include new design standards for river access including access paths and stairways, water-oriented structures and patios and decks (see Figure 2):

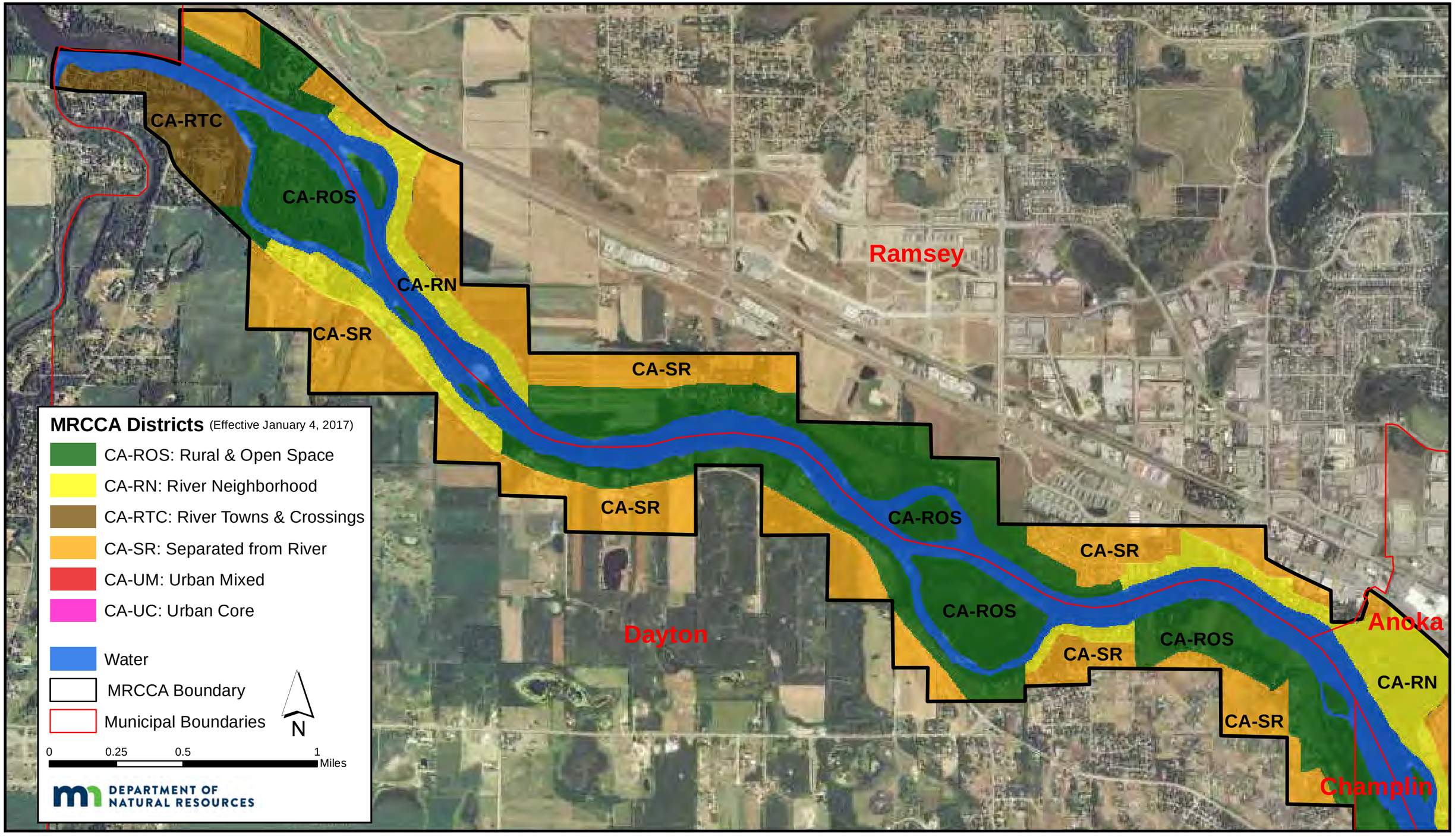
- Private driveways, parking areas and other impervious surfaces must not be placed in the shore impact zone or the bluff impact zone, except for:
    - **Access Paths:** Access paths can be no wider than 8 feet wide in the shore impact zone or 4 feet wide in a bluff impact zone.
    - **Stairways, lifts, and landings:** Stairways, lifts, and landings are allowed in the shore impact zone and the bluff impact zone as long as stairways and lifts are no wider than 4 feet and landings no more than 32 square feet.
- Decks and patios may encroach into bluff and river setbacks up to 15% of the required structure setback, provided they don't extend into the bluff impact zone.
- One water-oriented accessory structure is allowed for every 300 feet of river frontage. Lots less than 300 feet may have one structure. The water-oriented accessory structure is limited to a 12-foot height, 120 square foot area, and must be at least 10 feet from the water's edge. These structures are not allowed in the bluff impact zone.
- Temporary storage of docks, boats, and other equipment during the winter months are prohibited in the bluff impact zone but allowed in the shore impact zone.

Figure 2. River Access Design Standards.



MRCCA web address: https://www.dnr.state.mn.us/waters/watermgmt_section/critical_area/index.html

Mississippi River Corridor Critical Area (MRCCA) District Map - Dayton to Anoka
Minnesota Rules, part 6106.0100



117-148 – Mississippi River Corridor Critical Area Overlay District development standards

(a) AUTHORITY, INTENT AND PURPOSE

(1) **Statutory Authorization.** This Mississippi River Corridor Critical Area (MRCCA) Section is adopted pursuant to the authorization and policies contained in Minnesota Statutes, Chapter 116G, Minnesota Rules, Parts 6106.0010 - 6106.0180, and the planning and zoning enabling legislation in Minnesota Statutes, Chapter 462 and 473.

(2) **Policy**. The Legislature of Minnesota has delegated responsibility to local governments of the state to regulate the subdivision, use and development of designated critical areas and thus preserve and enhance the quality of important historic, cultural, aesthetic values, and natural systems and provide for the wise use of these areas.

(b) GENERAL PROVISIONS AND DEFINITIONS

(1) **Jurisdiction.** The provisions of this Section apply to land within the river corridor boundary as described in the State Register, volume 43, pages 508 to 519 and shown on the zoning map.

(2) **Enforcement.** The City of Ramsey is responsible for the administration and enforcement of this Section. Any violation of its provisions or failure to comply with any of its requirements including violations of conditions and safeguards established in connection with grants of variances or conditional uses constitutes a misdemeanor and is punishable as defined by law. Violations of this Section can occur regardless of whether or not a permit is required for a regulated activity listed in Section 117-148(c)2 (Permits).

(3) **Severability.** If any section, clause, provision, or portion of this Section is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this Section shall not be affected thereby.

(4) **Abrogation and Greater Restrictions.** It is not intended by this Section to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Section imposes greater restrictions, the provisions of this Section shall prevail. All other Sections inconsistent with this Section are hereby repealed to the extent of the inconsistency only.

(5) **Underlying Zoning.** Uses and standards of underlying zoning districts apply except where standards of this overlay district are more restrictive.

(6) **Definitions.** Unless specifically defined below, words or phrases used in this Section shall be interpreted to give them the same meaning they have in common usage and to give this Section its most reasonable application. For the purpose of this Section, the words “must” and “shall” are mandatory and not permissive. All distances, unless otherwise specified, are measured horizontally.

a. **Access path**. An area designated to provide ingress and egress to public waters.

b. **Adjacent.** Having a boundary that physically touches or adjoins.

c. **Agricultural use.** A use having the meaning given under Minnesota Statutes, section 40A.02.

d. **Alternative design.** Subdivision design methods such as conservation design, transfer of development density, or similar zoning and site design techniques that protect open space and natural areas.

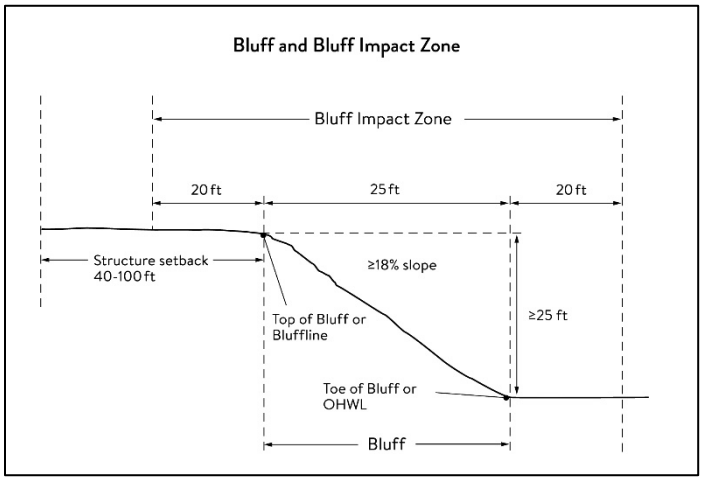
e. **Barge fleeting.** Temporarily parking and securing barges on the river, on or off channel, while tows are assembled or broken up.

f. **Biological and ecological functions.** The functions of vegetation in stabilizing soils and slopes, retaining and filtering runoff, providing habitat, and recharging groundwater.

g. **Bluff**. A natural topographic feature having:

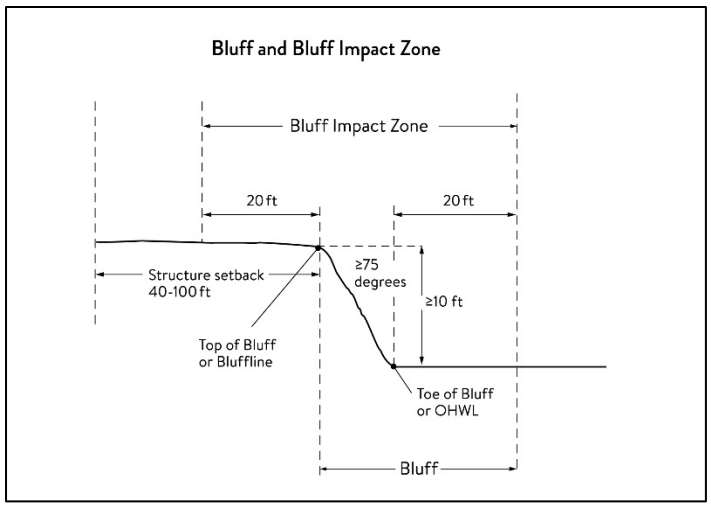
(1) A slope that rises at least 25 feet and the grade of the slope averages 18 percent or greater, measured over a horizontal distance of 25 feet, from the toe of the slope to the top of the slope. Where the slope begins below the ordinary high water level, the ordinary high water level is the toe of the slope. See Figure 1; or

Figure 1. Bluff and Bluff Impact Zone



(2) A natural escarpment or cliff with a slope that rises at least ten feet above the ordinary high water level or toe of the slope, whichever is applicable, to the top of the slope, with a slope of 75 degrees or greater. See Figure 2.

Figure 2. Natural Escarpment Bluff and Bluff Impact Zone



h. **Bluff impact zone.** A bluff and land located within 20 feet of the bluff. See Figures 1 and 2.

i. **Bluffline.** A line delineating the top of the bluff. More than one bluffline may be encountered proceeding landward from the river. See Figures 1 and 2.

j. **Bluff, Toe of.** A line along the bottom of a bluff, requiring field verification, such that the slope above the line exceeds 18 percent and the slope below the line is 18 percent or less, measured over a horizontal distance of 25 feet. See Figures 1 and 2.

k. **Bluff, Top of.** A line along the top of a bluff, requiring field verification, such that the slope below the line exceeds 18 percent and the slope above the line is 18 percent or less, measured over a horizontal distance of 25 feet. See Figures 1 and 2.

l. **Buildable area.** The area upon which structures may be placed on a lot or parcel of land and excludes areas needed to meet requirements for setback, rights-of-way, bluff impact zones, historic properties, wetlands, designated floodways, land below the ordinary high water level of public waters, and other unbuildable areas.

m. **Building.** A structure with two or more outside rigid walls and a fully secured roof and affixed to a permanent site.

n. **Certificate of compliance.** A document written after a compliance inspection, certifying that the development is in compliance with applicable requirements at the time of the inspection.

o. **Commissioner.** The commissioner of the Minnesota Department of Natural Resources.

p. **Conditional use.** A use having the meaning given under Minnesota Statutes, chapters 394 and 462.

q. **Conservation design.** A pattern of subdivision that is characterized by grouping lots within a portion of a parcel, where the remaining portion of the parcel is permanently protected as open space.

r. **Conventional subdivision.** A pattern of subdivision that is characterized by lots that are spread regularly throughout a parcel in a lot and block design.

s. **Deck.** A horizontal, unenclosed, aboveground level structure open to the sky, with or without attached railings, seats, trellises, or other features, attached or functionally related to a principal use or site.

t. **Developer.** Having the meaning given under Minnesota Statutes, section 116G.03.

u. **Development.** Having the meaning given under Minnesota Statutes, section 116G.03.

v. **Discretionary action.** An action under this chapter related to land use that requires a public hearing by local ordinance or statute, such as preliminary plats, final subdivision plats, planned unit developments, conditional use permits, interim use permits, variances, appeals, and rezonings.

w. **Dock.** Having the meaning given under Minnesota Rules, chapter 6115.

x. **Electric power facilities.** Equipment and associated facilities for generating electric power or devices for converting wind energy to electrical energy as identified and defined under Minnesota Statutes, section 216E.

y. **Essential services.** Underground or overhead gas, electrical, communications, steam, or water distribution, collection, supply, or disposal systems, including storm water. Essential services include poles, wires, mains, drains, pipes, conduits, cables, fire alarm boxes, traffic signals, hydrants, navigational structures, aviation safety facilities or other similar equipment and accessories in conjunction with the systems. Essential services does not include buildings, treatment works as defined in Minnesota Statutes, chapter 115.01, electric power facilities or transmission services.

z. **Feedlot.** Having the meaning given for animal feedlots under Minnesota Rules chapter 7020.

aa. **Floodplain.** Having the meaning given the meaning given under Minnesota Rules chapter 6120.

ab. **Fully reconstructs.** The reconstruction of an existing impervious surface that involves site grading and subsurface excavation so that soil is exposed. Mill and overlay and other resurfacing activities are not considered fully reconstructed.

ac. **Hard-surface trail.** A trail surfaced in asphalt, crushed aggregate, or other hard surface, for multi-purpose use, as determined by local, regional, or state agency plans.

ad. **Historic property.** An archaeological site, standing structure, site, district, or other property that is:

1. Listed in the National Register of Historic Places or the State Register of Historic Places or locally designated as a historic site under Minnesota Statutes, section 471;
2. determined to meet the criteria for eligibility to the National Register of Historic Places or the State Register of Historic Places as determined by the director of the Minnesota Historical Society; or
3. An unplatted cemetery that falls under the provisions of Minnesota Statutes, section 307, in consultation with the Office of the State Archaeologist.

ae. **Impervious surface.** A constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include rooftops, decks, sidewalks, patios, parking lots, storage areas, and driveways, including those with concrete, asphalt, or gravel surfaces.

af. **Intensive vegetation clearing.** The removal of all or a majority of the trees or shrubs in a contiguous patch, strip, row, or block.

ag. **Interim use.** A use having the meaning given under Minnesota Statutes, section 394 and 462.

ah. **Land alteration.** An activity that exposes the soil or changes the topography, drainage, or cross section of the land, excluding gardening or similar minor soil disturbances.

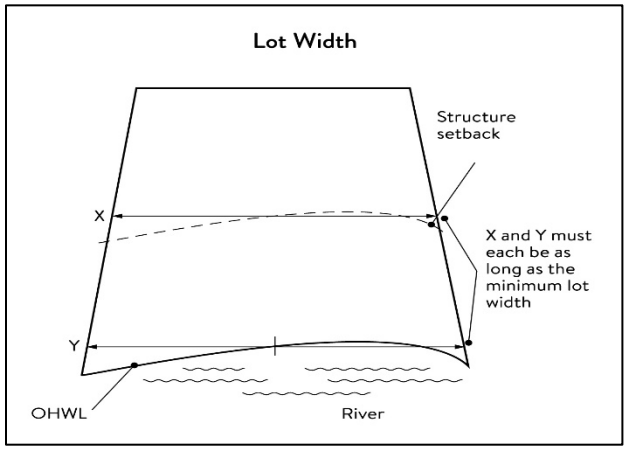
ai. **Local government.** Counties, cities, and townships.

aj. **Local park agencies.** The Minneapolis Park and Recreation Board and the Three Rivers Park District.

ak. **Lot.** Having the meaning given under Minnesota Rules chapter 6120.

al. **Lot width.** The shortest distance between lot lines measured at both the ordinary high water level and at the required structure setback from the ordinary high water level. See Figure 3.

Figure 3. Lot Width



am. **Marina.** Having the meaning given under Minnesota Rules chapter 6115.

an. **Mississippi River Corridor Critical Area (MRCCA).** The area within the River Corridor Boundary (See Section 117-148(b)6bs) (*Definitions* - River Corridor Boundary).

ao. **Mississippi River Corridor Critical Area (MRCCA) Plan.** A chapter or other element in the City of Ramsey comprehensive plan.

ap. **Mooring facility.** Having the meaning given under Minnesota Rules chapter 6115.0170.

aq. **Native plant community.** A plant community that has been identified as part of the Minnesota Biological Survey or biological survey issued or adopted by a local, state, or federal agency.

ar. **Natural-surface trail.** A trail composed of native soil and rock or compacted granular stone, primarily intended for hiking, equestrian, or mountain bike use, as determined by local, regional, or state agency plans.

as. **Natural vegetation.** Any combination of ground cover, understory, and tree canopy that, while it may have been altered by human activity, continues to stabilize soils, retain and filter runoff, provide habitat, and recharge groundwater.

at. **Nonconformity.** Having the meaning given under Minnesota Statutes, section 394.22.

au. **Nonmetallic mining.** Construction, reconstruction, repair, relocation, expansion, or removal of any facility for the extraction, stockpiling, storage, disposal, or reclamation of nonmetallic minerals such a stone, sand, and gravel. Nonmetallic mining does not include ancillary facilities such as access roads, bridges, culverts, and water level control structures. For purposes of this subpart, "facility" includes all mine pits, quarries, stockpiles, basins, processing structures and equipment, and any structures that drain or divert public waters to allow mining.

av. **Off-premise advertising signs.** Those signs that direct attention to a product, service, business, or entertainment venue that is not exclusively related to the premises where the sign is located.

aw. **Ordinary high water level (OHWL).** Having the meaning given under Minnesota Statutes, section 103G.005.

ax. **Overlay district.** A zoning district that is applied over one or more previously established zoning districts, establishing additional or stricter standards and criteria for covered properties in addition to those of the underlying zoning district. Overlay districts are often used to protect historic features and natural resources such as shoreland or floodplain.

ay. **Parcel.** Having the meaning given under Minnesota Statutes, section 116G.03.

az. **Patio.** A constructed hard surface located at ground level with no railings and open to the sky.

ba. **Picnic shelter.** A roofed structure open on all sides, accessory to a recreational use.

bb. **Planned unit development.** A method of land development that merges zoning and subdivision controls, allowing developers to plan and develop a large area as a single entity, characterized by a unified site design, a mix of structure types and land uses, and phasing of development over a number of years. Planned unit development includes any conversion of existing structures and land uses that utilize this method of development.

bc. **Plat.** Having the meaning given under Minnesota Statutes, sections 505 and 515B.

bd. **Port.** A water transportation complex established and operated under the jurisdiction of a port authority according to Minnesota Statutes, section 458.

be. **Primary conservation areas.** Key resources and features, including shore impact zones, bluff impact zones, floodplains, wetlands, gorges, areas of confluence with tributaries, natural drainage routes, unstable soils and bedrock, native plant communities, cultural and historic properties,

and significant existing vegetative stands, tree canopies, and other resources identified in local government plans.

bf. **Private facilities.** Private roads, driveways, and parking areas, private water access and viewing facilities, decks and patios in setback areas, and private signs.

bg. **Professional engineer.** An engineer licensed to practice in Minnesota.

bh. **Public facilities.** Public utilities, public transportation facilities, and public recreational facilities.

bi. **Public recreation facilities.** Recreational facilities provided by the state or a local government and dedicated to public use, including parks, scenic overlooks, observation platforms, trails, docks, fishing piers, picnic shelters, water access ramps, and other similar water-oriented public facilities used for recreation.

bj. **Public river corridor views.** Views toward the river from public parkland, historic properties, and public overlooks, as well as views toward bluffs from the ordinary high water level of the opposite shore, as seen during the summer months and documented in the MRCCA plan/chapter of the comprehensive plan.

bk. **Public transportation facilities.** All transportation facilities provided by federal, state, or local government and dedicated to public use, such as roadways, transit facilities, railroads, and bikeways.

bl. **Public utilities.** Electric power facilities, essential services, and transmission services.

bm. **Public waters.** Having the meaning given under Minnesota Statutes, section 103G.005.

bn. **Readily visible.** Land and development that are easily seen from the ordinary high water level of the opposite shore during summer months.

bo. **Resource agency.** A federal, state, regional, or local agency that engages in environmental, natural, or cultural resource protection or restoration activities, including planning, implementation, and monitoring.

bp. **Retaining wall.** A vertical or nearly vertical structures constructed of mortar and rubble masonry, rock, or stone regardless of size, vertical timber pilings, horizontal timber planks with piling supports, sheet pilings, poured concrete, concrete blocks, or other durable materials.

bq. **Rock Riprap.** Natural coarse rock placed or constructed to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, or water or ice erosion.

br. **River corridor boundary.** The boundary approved and adopted by the Metropolitan Council under Minnesota Statutes, section 116G.06, as approved and adopted by the legislature in Minnesota Statutes, section 116G.15, and as legally described in the Sate Register, volume 43, pages 508 to 518.

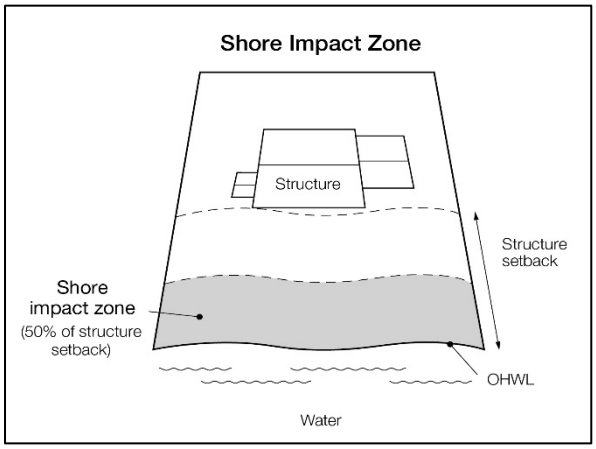
bs. **River-dependent use.** The use of land for commercial, industrial, or utility purposes, where access to and use of a public water feature is an integral part of the normal conduct of business and where the use is dependent on shoreline facilities.

bt. **Selective vegetation removal.** The removal of isolated individual trees or shrubs that are not in a contiguous patch, strip, row, or block and that does not substantially reduce the tree canopy or understory cover.

bu. **Setback.** A separation distance measured horizontally.

bv. **Shore impact zone.** Land located between the ordinary high water level of public waters and a line parallel to it at a setback of 50 percent of the required structure setback or, for agricultural use, 50 feet landward of the ordinary high water level. See Figure 4.

Figure 4. Shore Impact Zone



bw. **Shoreline facilities.** Facilities that require a location adjoining public waters for ingress and egress, loading and unloading, and public water intake and outflow, such as barge facilities, port facilities, commodity loading and unloading equipment, watercraft lifts, marinas, short-term watercraft mooring facilities for patrons, and water access ramps. Structures that would be enhanced by a shoreline location, but do not require a location adjoining public waters as part of their function, are not shoreline facilities, such as restaurants, bait shops, and boat dealerships.

bx. **Special purpose units of government.** The University of Minnesota, the St. Paul Port Authority, watershed management organizations established under Minnesota Statutes, chapter 103B, watershed districts established under Minnesota Statutes, chapter 103D, and any other unit of government other than local government or a state or regional agency.

by. **State or regional agency.** The Metropolitan Airports Commission, Minnesota Historical Society, University of Minnesota, Department of Natural Resources, Department of Transportation, Metropolitan Council and other state agencies.

bz. **Steep slope.** A natural topographic feature with an average slope of 12 to 18 percent, measured over a horizontal distance equal to or greater than 50 feet, and any slopes greater than 18 percent that are not bluffs.

ca. **Storm water management facilities.** Facilities for the collection, conveyance, treatment, or disposal of storm water.

cb. **Structure.** A building, sign, or appurtenance thereto, except for aerial or underground utility lines, such as sewer, electric, telephone, or gas lines, and utility line towers, poles, and other supporting appurtenances.

cc. **Subdivision**. Having the meaning given under Minnesota Statutes, section 462.352.

cd. **Subsurface sewage treatment system**. Having the meaning given under Minnesota Rules, part 7080.1100.

ce. **Transmission services.**

1. Electric power lines, cables, pipelines, or conduits that are:

(i) used to transport power between two points, as identified and defined under Minnesota Statutes, section 216E.01, subdivision 4; or

(ii) For mains or pipelines for gas, liquids, or solids in suspension, used to transport gas, liquids, or solids in suspension between two points; and

2. Telecommunication lines, cables, pipelines, or conduits.

cf. **Treeline.** The more or less continuous line formed by the tops of trees in a wooded area when viewed from a particular point. The treeline is determined during all seasons as if under full foliage.

cg. **Twin Cities Metropolitan area.** The area over which the Metropolitan Council has jurisdiction according to Minnesota Statutes, section 473.121 subdivision 2.

ch. **Variance.** Having the meaning given under Minnesota Statutes, section 394.22.

ci. **Water access ramp.** A boat ramp, carry-down site, boarding dock, and approach road, or other access that allows launching and removal of a boat, canoe, or other watercraft with or without a vehicle and trailer.

cj. **Water-oriented accessory structure.** A small building or other improvement, except stairways, fences, docks, and retaining walls, that, because of the relationship of its use to public waters, needs to be located closer to public waters than the normal structure setback. Examples include gazebos, screen houses, fish houses, pump houses, and detached decks and patios.

ck. **Water quality impact zone.** Land within the shore impact zone or within 50 feet of the boundary of a public water, wetland, or natural drainage way, whichever is greater.

cl. **Wetland.** Having the meaning given under Minnesota Statutes, section 103G.005.

cm. **Wharf.** Having the meaning given under Minnesota Rules, part 6115.0170.

(c) ADMINISTRATION

1. **Purpose.** The purpose of this Section is to identify administrative provisions to ensure this Section is administered consistent with its purpose.

2. **Permits.** A permit is required for the construction of buildings or building additions (including construction of decks and signs), the installation and/or alteration of sewage treatment systems, vegetation removal consistent with Section 117-148(i) (Vegetation Management) and land alterations consistent with Section 117-148(j) (Land alteration standards and stormwater management).

3. **Variances.** Variances to the requirements under this Section may only be granted in accordance with Minnesota Statutes, Section 462.357 and must consider the potential impacts of variances on primary conservation areas, public river corridor views, and other resources identified in the MRCCA plan. In reviewing the variance application, the City of Ramsey shall:

a. Evaluate the impacts to these resources. and if negative impacts are found, require conditions to mitigate the impacts that are related to and proportional to the impacts, consistent with Section 117-148(c)5 (Conditions of Approval) and

b. Make written findings that the variance is consistent with the purpose of this Section, as follows.

(1) The extent, location and intensity of the variance will be in substantial compliance with the MRCCA Plan;

(2) The variance is consistent with the character and management purpose of the MRCCA district in which it is located;

(3) The variance will not be detrimental to PCAs and PRCVs nor will it contribute to negative incremental impacts to PCAs and PRCVs when considered in the context of past, present and reasonable future actions; and

(4) The variance will not negatively impact (other MRCCA plan-identified resources).

4. **Conditional and interim use permits.** All conditional and interim uses, required under this Section, must comply with Minnesota Statutes, section 462.3595 and must consider the potential impacts on primary conservation areas, public river corridor views, and other resources identified in the MRCCA plan. In reviewing the application, the City of Ramsey shall:

a. Evaluate the impacts to these resources and if negative impacts are found, require conditions to mitigate the impacts that are related to and proportional to the impacts, consistent with Section 117-148(c)5 (Conditions of approval); and

b. Make written findings that the conditional use is consistent with the purpose of this Section, as follows.

(1) The extent, location and intensity of the conditional use will be in substantial compliance with the MRCCA Plan;

(2) The conditional use is consistent with the character and management purpose of the MRCCA district in which it is located;

(3) The conditional use will not be detrimental to PCAs and PRCVs nor will it contribute to negative incremental impacts to PCAs and PRCVs when considered in the context of past, present and reasonable future actions; and

(4) The conditional use will not negatively impact (other MRCCA plan-identified resources).

5. Conditions of Approval. The City of Ramsey shall evaluate the impacts to PCAs, PRCVs, and other resources identified in the MRCCA Plan, and if negative impacts are found, require conditions to mitigate the impacts that are related to and proportional to the impacts. Mitigation may include:

(1) Restoration of vegetation identified as “vegetation restoration priorities” identified in the MRCCA plan.

(2) Preservation of existing vegetation;

(3) Stormwater runoff management;

(4) Reducing impervious surface;

(5) Increasing structure setbacks;

(6) Wetland and drainageway restoration and/or preservation; and

(7) And other conservation measures.

6. **Application materials.** Applications for permits and discretionary actions required under this Section must submit the following information unless the Zoning Administrator determines that the information is not needed.

a. A detailed project description; and

b. Scaled maps and plans, dimensional renderings, maintenance agreements, and other materials that identify and describe:

(1) Primary conservation areas;

(2) Public river corridor views;

(3) Buildable area;

(4) Existing and proposed topography and drainage patterns;

(5) Proposed storm water and erosion and sediment control practices;

(6) Existing and proposed vegetation to be removed and established;

(7) Ordinary high water level, blufflines, and all required setbacks;

(8) Existing and proposed structures;

(9) Existing and proposed impervious surfaces; and

(10) Existing and proposed subsurface sewage treatment systems.

7. **Nonconformities**.

a. All legally established nonconformities as of the date of this ordinance may continue consistent with 462.357 Subd. 1e .

b. New structures erected in conformance with the setback averaging provisions of Section 117-148(f)3d (Structure and impervious surface placement) are conforming structures.

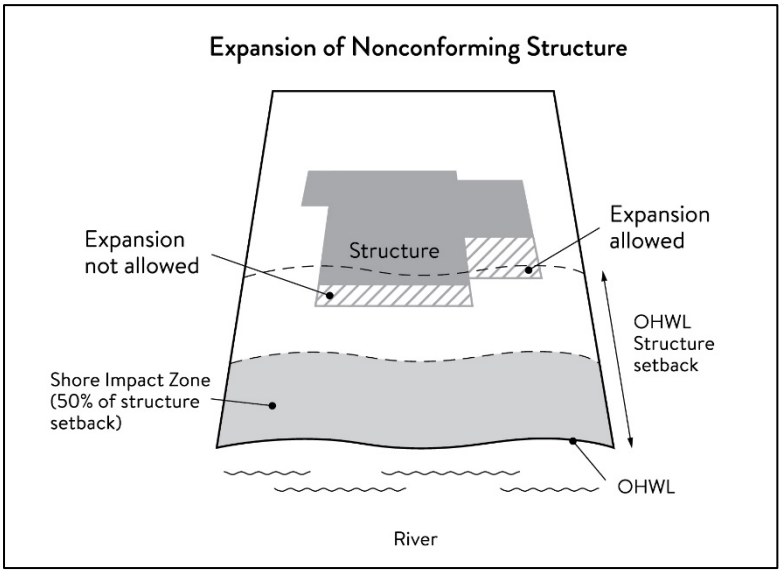
c. Site alterations and expansion of site alterations that were legally made prior to the effective date of this ordinance are conforming. Site alterations include vegetation, erosion control, storm water control measures, and other nonstructural site improvements.

d. Legally nonconforming principal structures that do not meet the setback requirements of Section 117-148(f)3 (Structure and impervious surface placement) may be expanded laterally provided that:

(1) The expansion does not extend into the shore or bluff impact zone or further into the required setback than the building line of the existing principal structure (See Figure 5); and

(2) The expanded structure's scale and bulk is consistent with that of the original structure and existing surrounding development.

Figure 5. Expansion of Nonconforming Structure



8. **Notifications.**

a. Amendments to this Section and to the MRCCA plan must be submitted to the Commissioner as provided in Minnesota Rules, part 6106.0070, Subp. 3, Items B – I.

b. Notice of public hearings for discretionary actions, including conditional and interim use permits, variances, appeals, rezonings, preliminary plats, final subdivision plats, master plans, and PUDs, must be sent to the following entities at least thirty (30) days prior to the hearing:

(1) The Commissioner in a format prescribed by the DNR;

(2) National Park Service; and

(3) where building heights exceed the height limits specified in Section 117-148(f)2 (Structure height) as part of the conditional use or variance process, adjoining local governments within the MRCCA, including those with overlapping jurisdiction and those across the river.

c. Notice of final decisions for actions in Section 117-148(c)7 (Nonconformities), including findings of fact, must be sent to the Commissioner, the National Park Service, and adjoining local governments within the MRCCA within ten (10) days of the final decision.

d. Requests to amend district boundaries must follow the provisions in Minnesota Rules, part 6106.0100, Subp. 9, Item C.

e. The DNR will be notified at time of application submittal of master plans, PUDs, preliminary, and final plats

9. **Accommodating disabilities.** Reasonable accommodations for ramps or other facilities to provide persons with disabilities access to the persons' property, as required by the federal Americans with Disabilities Act and the federal Fair Housing Act and as provided by Minnesota Rules, chapter 1341, must:

a. Comply with Sections 117-148(f) to (l); or

b. If Sections 117-148(f) to (l) cannot be complied with, ramps or other facilities are allowed with an administrative permit provided:

(1) The permit terminates on either a specific date or upon occurrence of a particular event related to the person requiring accommodation; and

(2) Upon expiration of the permit, the ramp or other facilities must be removed.

(d) MRCCA DISTRICTS

1. **Purpose**. The purpose of this Section is to establish districts under which building height and structure placement are regulated to protect and enhance the Mississippi River's resources and features consistent with the natural and built character of each district.

2. **District description and management purpose**. The MRCCA within the City of Ramsey is divided into the following MRCCA Districts:

a. Rural and Open Space (ROS).

(1) Description. The ROS District is characterized by rural and low-density development patterns and land uses, and includes land that is riparian or visible from the river, as well as large, undeveloped tracts of high ecological and scenic value, floodplain, and undeveloped islands. Many primary conservation areas exist in the district.

(2) Management purpose. The ROS District must be managed to sustain and restore the rural and natural character of the corridor and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas.

b. River Neighborhood (RN).

(1) Description. The RN District is characterized by primarily residential neighborhoods that are riparian or readily visible from the river or that abut riparian parkland. The district includes parks and open space, limited commercial development, marinas, and related land uses.

(2) Management purpose. The RN District must be managed to maintain the character of the river corridor within the context of existing residential and related neighborhood development, and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas. Minimizing erosion and the flow of untreated storm water into the river and enhancing habitat and shoreline vegetation are priorities in the district.

~~c. River Towns and Crossings (RTC).~~

~~(1) Description. The RTC District is characterized by historic downtown areas and limited nodes of intense development at specific river crossings, as well as institutional campuses that predate designation of the MRCCA, and that include taller buildings.~~

~~(2) Management purpose. The RTC district must be managed in a manner that allows continued growth and redevelopment in historic downtowns and more intensive redevelopment in limited areas at river crossings to accommodate compact walkable development patterns and connections to the river. Minimizing erosion and the flow of untreated storm water into the river, providing public access to and public views of the river, and restoring natural vegetation in riparian areas and tree canopy are priorities in the district.~~

d. Separated from River (SR).

(1) Description. The SR District is characterized by its physical and visual distance from the Mississippi River. The district includes land separated from the river by distance, topography, development, or a transportation corridor. The land in this district is not readily visible from the Mississippi River.

(2) Management purpose. The SR district provides flexibility in managing development without negatively affecting the key resources and features of the river corridor. Minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the Mississippi River are priorities in the district. The RTC district must be managed in a manner that allows continued growth and redevelopment in historic downtowns and more intensive redevelopment in limited areas at river crossings to accommodate compact walkable development patterns and connections to the river. Minimizing erosion and the flow of untreated storm water into the river, providing public access to and public views of the river, and restoring natural vegetation in riparian areas and tree canopy are priorities in the district.

~~e. Urban Mixed (UM).~~

~~(1) Description. The UM District includes large areas of highly urbanized mixed use that are a part of the urban fabric of the river corridor, including institutional, commercial, industrial, and residential areas and parks and open space.~~

~~(2) Management purpose. The UM District must be managed in a manner that allows for future growth and potential transition of intensely developed areas that does not negatively affect public river corridor views and that protects bluffs and floodplains. Restoring and enhancing bluff and shoreline habitat, minimizing erosion and flow of untreated storm water into the river, and providing public access to and public views of the river are priorities in the district.~~

~~f. Urban Core (UC).~~

~~(1) Description. The UC District includes downtown.~~

~~(2) Management purpose. The UC District must be managed with the greatest flexibility to protect commercial, industrial, and other high-intensity urban uses, while minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the river. Providing public access to and public views of the river are priorities in the district.~~

3. **MRCCA district map**. The locations and boundaries of the MRCCA districts established by this Section are shown on MRCCA Overlay District map which is incorporated herein by reference. The district boundary lines are intended to follow the center lines of rivers and streams, highways, streets, lot lines, and municipal boundaries, unless a boundary line is otherwise indicated on the map. Where district boundaries cross unsubdivided property, the district boundary line is determined by use of dimensions or the scale appearing on the map.

(e) SPECIAL LAND USE PROVISIONS

1. **Purpose.** To identify development standards and considerations for land uses that have potential to negatively impact primary conservation areas and public river corridor views.

2. **Underlying zoning.** Uses within the MRCCA are generally determined by underlying zoning, with additional provisions for the following land uses:

   a. **Agricultural use.** Perennial ground cover is required within 50 feet of the ordinary high water level and within the bluff impact zone.

   b. **Feedlots.** New animal feedlots and manure storage areas are prohibited. Existing animal feedlots and manure storage areas must conform with Minnesota Rules, chapter 7020.

c. **Forestry.** Tree harvesting and biomass harvesting within woodlands, and associated reforestation, must be consistent with recommended practices in Conserving Wooded Areas in Developing Communities: Best Management Practices in Minnesota.

d. **Nonmetallic mining.** Nonmetallic mining requires a conditional use permit or interim use permit issued by the local government, subject to the following:

(1) New nonmetallic mining is prohibited within the shore impact zone and bluff impact zone and within the required structure setback from the bluffline and OHWL;

(2) Processing machinery must be located consistent with setback standards for structures as provided in Section 117-148(f)3 (Structure and impervious surface placement);

(3) Only one barge loading area, which must be limited to the minimum size practicable, is permitted for each mining operation;

(4) New and, where practicable, existing nonmetallic mining operations must not be readily visible and must be screened by establishing and maintaining natural vegetation. The unscreened boundaries of nonmetallic mining areas are limited to only the barge loading area;

(5) A site management plan must be developed by the operator and approved by the local government before new nonmetallic mining commences. Operations must be consistent with the site plan throughout the duration of operations at the site. The site management plan must:

(i) Describe how the site will be developed over time with an emphasis on minimizing environmental risk to public waters;

(6) Explain where staged reclamation may occur at certain points during the life of the site;

(7) Address dust, noise, storm water management, possible pollutant discharges, days and hours of operation, and duration of operations; and

(8) Describe any anticipated vegetation and topographic alterations outside the pit, and reclamation plans consistent with the stated end use for the land; and;

(9) Existing and new nonmetallic mining operations must submit land reclamation plans to the local government compatible with the purposes of this ordinance.

f. **River-dependent uses.** River-dependent uses must comply with the following design standards:

(1) Structures and parking areas, except shoreline facilities and private roads and conveyances serving river-dependent uses as provided in Section 117-148(l) (Exemptions), must meet the dimensional and performance standards in this Section must be designed so that they are not readily visible, and must be screened by establishing and maintaining natural vegetation;

(2) Shoreline facilities must comply with Minnesota Rules, chapter 6115 and must:

(i) be designed in a compact fashion so as to minimize the shoreline area affected; and

(ii) minimize the surface area of land occupied in relation to the number of watercraft or barges to be served; and

(3) Dredging and placement of dredged material are subject to existing federal and state permit requirements and agreements.

g. **Wireless communication towers.** Wireless communication towers require a conditional or interim use permit and are subject to the following design standards:

(1) The applicant must demonstrate that functional coverage cannot be provided through co-location, a tower at a lower height, or a tower at a location outside of the MRCCA;

(2) The tower must not be located in a bluff or shore impact zone; and

(3) Placement of the tower must minimize impacts on public river corridor views.

(4) Comply with the general design standards in Section 117-148(h)2 (General design standards).

(f) STRUCTURE HEIGHT AND PLACEMENT AND LOT SIZE

1. **Purpose.** To establish standards that protect primary conservation areas and public river corridor views from development impacts and ensure that new development is sited consistent with the purpose of the MRCCA.

2. **Structure height.** Structures and facilities must comply with the following standards unless identified as exempt in Section 117-148(l) (Exemptions).

a. Structures and facilities must comply with the following standards unless identified as exempt in Section 117-148(l) (Exemptions).

(1) ROS District: 35 feet.

(2) RN District: 35 feet.

~~(3) RTC District: 48 feet **(or lower)**, provided tiering of structures away from the Mississippi River and from blufflines is given priority, with lower structure heights closer to the river and blufflines, and that structure design and placement minimizes interference with public river corridor views. Structures over 48 feet **(or lower) and up to (fill in a max. height)** are allowed as a conditional use according to Section 6.23.~~

(4) SR District: Height is determined by underlying zoning, provided the allowed height is consistent with that of the mature treeline, where present, and existing surrounding development, as viewed from the OWHL of the opposite shore.

~~(5) UM District: 65 feet, provided tiering of structures away from the Mississippi River and from blufflines is given priority, with lower structure heights closer to the river and blufflines, and that structure design and placement minimize interference with public river corridor views. Structures over 65 feet **(or lower) and up to (fill in a max. height)** are allowed as a conditional use according to Section 6.23.~~

~~(6) UC District: Height is determined by underlying zoning, provided tiering of structures away from the Mississippi River and blufflines is given priority, with lower structure heights closer to the river and blufflines, and structure design and placement minimize interference with public river corridor views.~~

b. Height is measured on the side of the structure facing the Mississippi River.

c. In addition to the conditional use permit requirements of Section 117-148(c)4, (Conditional and interim use permits) criteria for considering whether to grant a conditional use permit for structures exceeding the height limits must include:

(1) Assessment of the visual impact of the proposed structure on public river corridor views, including views from other communities;

(2) Determination that the proposed structure meets the required bluff and OHWL setbacks;

(3) Identification and application of techniques to minimize the perceived bulk of the proposed structure, such as:

(i) Placing the long axis of the building perpendicular to the river;

(ii) Stepping back of portions of the facade;

(iii) Lowering the roof pitch or use of a flat roof;

(iv) Using building materials or mitigation techniques that will blend in with the natural surroundings such as green roofs, green walls, or other green and brown building materials;

(v) Narrowing the profile of upper floors of the building; or

(vi) Increasing the setbacks of the building from the Mississippi River or blufflines;

(vii) Identification of techniques for preservation of those view corridors identified in the MRCCA Plan; and

(viii) Opportunities for creation or enhancement of public river corridor views.

3. **Structure and impervious surface placement.**

a. Structures and impervious surface must not be placed in the shore or bluff impact zones unless identified as an exemption in Section 117-148(l) (Exemptions).

b. Structures and facilities must comply with the following OHWL setback provisions unless identified as exempt in Section 117-148(l) (Exemptions).

(1) ROS District: 200 feet from the Mississippi River and 150 feet from the Minnesota and Vermillion Rivers.

(2) RN District: 100 feet from the Mississippi River and 75 feet from the Rum and Vermillion Rivers.

~~(3) RTC District: 75 feet from the Mississippi, Crow, and Rum Rivers.~~

(4) SR District: 75 feet from the Vermillion River.

~~(5) UM District: 50 feet from the Mississippi River.~~

~~(6) UC District: Setbacks are determined by underlying zoning.~~

c. Structures and facilities must comply with the following bluffline setback provisions unless identified as exempt in Section 117-148(l) (Exemptions):

(1) ROS District: 100 feet.

(2) RN District: 40 feet.

~~(3) RTC District: 40 feet.~~

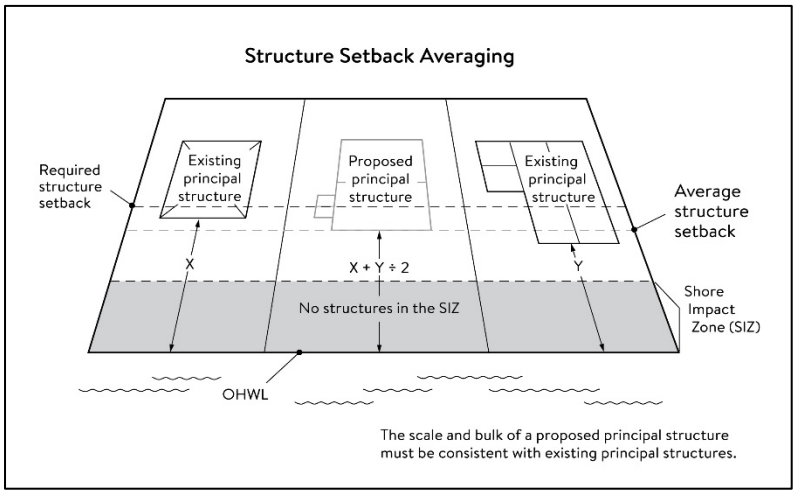
(4) SR District: 40 feet.

~~(5) UM District: 40 feet.~~

~~(6) UC District: 40 feet.~~

d. Where principal structures exist on the adjoining lots on both sides of a proposed building site, the minimum setback may be altered to conform to the average of the adjoining setbacks, provided that the new structure's scale and bulk riverward or bluffward of the setbacks required under Section 117-148(f)3 (Structure and impervious surface placement) consistent with adjoining development. See Figure 6.

Figure 6. Structure Setback Averaging



e. Subsurface sewage treatment systems, including the septic tank and absorption area, must be located at least 75 feet from the ordinary high water level of the Mississippi River and all other public waters.

4. **Lot size and buildable area.**

a. The width of lots abutting the Mississippi River in the ROS District must be at least 200 feet, unless alternative design methods are used that provide greater protection of the riparian area.

b. All new lots must have adequate buildable area to comply with the setback requirements of Section 117-148(f)3 (Structure and impervious surface placement) so as to not require variances to use the lots for their intended purpose.

g. PERFORMANCE STANDARDS FOR PRIVATE FACILITIES

1. **Purpose.** To establish design standards for private facilities that are consistent with best management practices and that minimize impacts to primary conservation areas, public river corridor views and other resources identified in the MRCCA plan.

2. **General design standards**. All private facilities must be developed in accordance with the vegetation management and land alteration requirements in Sections 117-148(i) (Vegetation management) and 117-148(j) (Land alteration standards and stormwater management).

3. **Private roads, driveways, and parking areas**. Except as provided in Section 117-148(l) (Exemptions), private roads, driveways and parking areas must:

a. Be designed to take advantage of natural vegetation and topography so that they are not readily visible;

b. Comply with structure setback requirements according to Section 117-148(f)3 (Structure and impervious surface placement); and

c. Not be placed within the bluff impact zone or shore impact zone, unless exempt under Section 117-148(l) (Exemptions) and designed consistent with Section 117-148(f)2 (General design standards).

4. **Private water access and viewing facilities**.

a. Private access paths must be no more than:

(1) Eight feet wide, if placed within the shore impact zone; and

(2) Four feet wide, if placed within the bluff impact zone.

c. Private water access ramps must:

(1) Comply with Minnesota Rules, chapters 6115.0210 and 6280.0250; and

(2) Be designed and constructed consistent with the applicable standards in Design Handbook for Recreational Boating and Fishing Facilities.

c. Design and construction of private stairways, lifts, and landings are subject to the following standards:

(1) Stairways and lifts must not exceed four feet in width on residential lots. Wider stairways may be used for commercial properties and residential facilities held in common, if approved by Conditional Use Permit;

(2) Landings for stairways and lifts on residential lots must not exceed 32 square feet in area. Landings larger than 32 square feet area allowed for commercial properties and residential facilities held in common, if approved by Conditional Use Permit*;*

(3) Canopies or roofs are prohibited on stairways, lifts, or landings;

(4) Stairways, lifts, and landings must be located in the least visible portion of the lot whenever practical; and

E. Ramps, lifts, mobility paths, or other facilities for persons with physical disabilities are allowed for achieving access to shore areas according to Section 7.43 A. – D, and as provided under Section 117-148(c)9 (Accommodating disabilities).

d. One water-oriented accessory structure is allowed for each riparian lot or parcel less than 300 feet in width at the ordinary high water level, with one additional water-oriented accessory structure allowed for each additional 300 feet of shoreline on the same lot or parcel. Water-oriented accessory structures are prohibited in the bluff impact zone and must:

(1) not exceed 12 feet in height;

(2) not exceed 120 square feet in area; and

(3) be placed a minimum of 10 feet from the ordinary high water level.

5. **Decks and patios in setback areas.** Decks and at-grade patios may encroach into the required setbacks from the ordinary high water level and blufflines without a variance, when consistent with Sections 117-

148(i) (Vegetation management) and 117-148(j) (Land alteration standards and stormwater management), provided that:

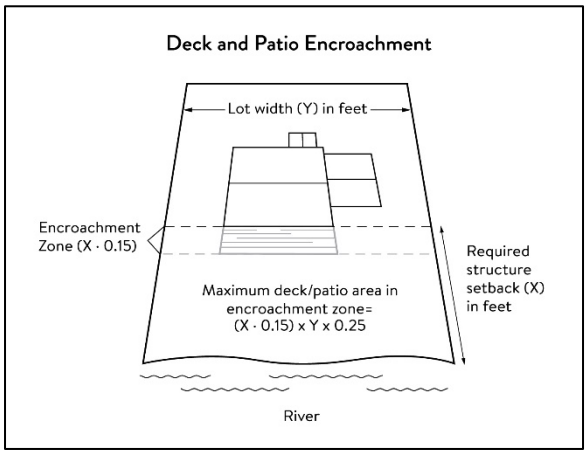
a. The encroachment of the deck or patio into the required setback area does not exceed 15 percent of the required structure setback;

b. the area of the deck or patio that extends into the required setback area occupies no more than 25 percent of the total area between the required setback and the 15 percent using the formula:

[required setback depth (feet) x 0.15 x lot width (feet) = maximum total area]

c. The deck or patio does not extend into the bluff impact zone. See Figure 7.

Figure 7. Deck and Patio Encroachment



6. **Off-premise and directional signs.**

a. Off-premise advertising signs must:

(1) Meet required structure placement and height standards in Section 117-148(f) (Structure height and placement and lot size).

(2) Not be readily visible

b. Directional signs for patrons arriving at a business by watercraft must comply with the following standards:

(1) They must be consistent with Minnesota Statutes, section 86B.115.

(2) Only convey the location and name of the establishment and the general types of goods and services available, if located in a shore impact zone.

(3) Be no greater than ten feet in height and 32 square feet in surface area; and

(4) If illuminated, the lighting must be shielded to prevent illumination out across the river or to the sky.

7. Fences. Fences between principal structures and the river are allowed provided that fences are:

a. Not higher than six feet.

b. Not located within 40 feet of slopes greater than 12%.

c. Not located in the regulatory floodplain.

(h) PERFORMANCE STANDARDS FOR PUBLIC FACILITIES

1. **Purpose.** To establish design standards for public facilities that are consistent with best management practices and that minimize impacts to primary conservation areas, public river corridor views and other resources identified in the MRCCA plan. Public facilities serve the public interest by providing public access to the Mississippi River corridor or require locations in or adjacent to the river corridor and therefore require some degree of flexibility.

2. **General design standards**. All public facilities must be designed and constructed to:

   a. Minimize visibility of the facility from the river to the extent consistent with the purpose of the facility;

   b. Comply with the structure placement and height standards in Section 117-148(f) (Structure height and placement and lot size), except as provided in Section 117-148(l) (Exemptions);

   c. Be consistent with the vegetation management standards in Section 117-148(i) (Vegetation Management) and the land alteration and storm water management standards in Section 117-148(j) (Land alteration standards and stormwater management), including use of practices identified in Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001, where applicable;

   d. Avoid primary conservation areas, unless no alternative exists. If no alternative exists, then disturbance to primary conservation areas must be avoided to the greatest extent practicable, and design and construction must minimize impacts; and

   e. Minimize disturbance of spawning and nesting times by scheduling construction at times when local fish and wildlife are not spawning or nesting.

3. **Right-of-way maintenance standards**. Right-of-way maintenance must comply with the following standards:

   a. Vegetation currently in a natural state must be maintained to the extent feasible;

   b. Where vegetation in a natural state has been removed, native plants must be planted and maintained on the right-of-way; and

   c. Chemical control of vegetation must be avoided when practicable, but when chemical control is necessary, chemicals used must be in accordance with the regulations and other requirements of all state and federal agencies with authority over the chemical's use.

4. **Crossings of public water or public land.** Crossings of public waters or land controlled by the commissioner are subject to approval by the commissioner according to Minnesota Statutes, sections 84.415 and 103G.245.

5. **Public utilities**. Public utilities must comply with the following standards:

   a. High-voltage transmission lines, wind energy conversion systems greater than five megawatts, and pipelines are regulated according to Minnesota Statutes, chapter 216E, 216F, and 216G respectively; and

   b. If overhead placement is necessary, utility facility crossings must minimize visibility of the facility from the river and follow other existing right of ways as much as practicable.

   c. The appearance of structures must be as compatible as practicable with the surrounding area in a natural state with regard to height and width, materials used, and color.

d. Wireless communication facilities, according to Section 117-148(e)2g (Wireless communication towers).

6. **Public transportation facilities**. Public transportation facilities shall comply with structure placement and height standards in Section 117-148(f) (Structure height and placement and lot size). Where such facilities intersect or about two or more MRCCA districts, the least restrictive standards apply. Public transportation facilities must be designed and constructed to give priority to:

   a. Providing scenic overlooks for motorists, bicyclists, and pedestrians;

   b. Providing safe pedestrian crossings and facilities along the river corridor;

   c. Providing access to the riverfront in public ownership; and

   d. Allowing for use of the land between the river and the transportation facility.

7. **Public recreational facilities**. Where such facilities intersect or abut two or more MRCCA districts, the least restrictive dimensional standards apply. Public transportation facilities must be designed and constructed to give priority to:

   a. Buildings and parking associated with pubic recreational facilities must comply with the structure placement and height standards in Section 117-148(f) (Structure height and placement and lot size), except as provided in Section 117-148(l) (Exemptions);

   b. Roads and driveways associated with public recreational facilities must not be placed in the bluff or shore impact zones unless no other placement alternative exists. If no alternative exists, then design and construction must minimize impacts to shoreline vegetation, erodible soils and slopes, and other sensitive resources.

   c. Trails, access paths, and viewing areas associated with public recreational facilities and providing access to or views of the Mississippi River are allowed within the bluff and shore impact zones if design, construction, and maintenance methods are consistent with the best management practice guidelines in Trail Planning, Design, and Development Guidelines.

      (1) Hard-surface trails are not allowed on the face of bluffs with a slope exceeding 30 percent. Natural surface trails are allowed, provided they do not exceed eight feet in width.

      (2) Trails, paths, and viewing areas must be designed and constructed to minimize:

         (i) Visibility from the river;

         (ii) Visual impacts on public river corridor views; and

         (iii) Disturbance to and fragmentation of primary conservation areas.

   d. Public water access facilities must comply with the following requirements:

      (1) Watercraft access ramps must comply with Minnesota Rules chapters 6115.0210 and 6280.0250; and

      (2) Facilities must be designed and constructed consistent with the standards in Design Handbook for Recreational Boating and Fishing Facilities.

   e. Public signs and kiosks for interpretive or directional purposes are allowed in the bluff or shore impact zones, provided they are placed and constructed to minimize disturbance to these areas and avoid visual impacts on public river corridor views.

   f. Public stairways, lifts, and landings must be designed as provided in Section 117-148(g)4c (Stairways, lifts and landings).

(i) VEGETATION MANAGEMENT

1. **Purpose.** To establish standards that sustain and enhance the biological and ecological functions of vegetation; preserve the natural character and topography of the MRCCA; and maintain stability of bluffs and steep slopes and ensure stability of other erosion-prone areas.

2. **Applicability.** This section applies to:

   a. Shore impact zones;

   b. Areas within 50 feet of a wetland or natural drainage way;

   c. Bluff impact zones;

   d. Areas of native plant communities; and

   e. Significant existing vegetative stands identified in the MRCCA plan.

3. **Activities allowed without a vegetation permit.**

   a. Maintenance of existing lawns, landscaping and gardens;

   b. Removal of vegetation in emergency situations as determined by the City of Ramsey*;*

   c. Right-of-way maintenance for public facilities meeting the standards Section 117-148(h)3 (Right of way maintenance standards);

   d. Agricultural and forestry activities meeting the standards of Sections 117-148(e)2 (Underlying zoning);

   e. Selective vegetation removal, provided that vegetative cover remains consistent with the management purpose of the MRCCA District, including:

      (1) Vegetation that is dead, diseased, dying, or hazardous;

      (2) To prevent the spread of diseases or insect pests;

      (3) Individual trees and shrubs; and

      (4) Removal of invasive non-native species.

4. **Activities allowed with a vegetation permit.**

   a. The following intensive vegetation clearing activities are allowed with a vegetation permit:

      (1) Clearing of vegetation that is dead, diseased, dying, or hazardous;

      (2) Clearing to prevent the spread of diseases or insect pests;

      (3) Clearing to remove invasive non-native species.

      (4) Clearing to prepare for restoration and erosion control management activities consistent with a plan approved by City of Ramsey.

      (5) The minimum necessary for development that is allowed with a building permit or as an exemption under Section 117-148(l) (Exemptions).

   b. Conditions of vegetation permit approval:

      (1) Development is sited to minimize removal of or disturbance to natural vegetation;

      (2) Soil, slope stability, and hydrologic conditions are suitable for the proposed work as determined by a professional engineer or City of Ramsey;

(3) Clearing is the minimum necessary and designed to blend with the natural terrain and minimize visual impacts to public river corridor views;

(4) Any native plant communities removed are replaced with vegetation that provides equivalent biological and ecological functions consistent with an approved vegetation restoration plan as provided in Section 117-148(i)6 (Vegetation restoration plan). If replaced, priorities for restoration are stabilization of erodible soils, restoration or enhancement of shoreline vegetation, and revegetation of bluffs or steep slopes visible from the river;

(5) All other vegetation removed is restored with natural vegetation to the greatest extent practicable consistent with an approved vegetation restoration plan as provided in Section 117-148(i)6 (Vegetation restoration plan). Priorities for replacement are the same as under Section 117-148(i)4 (Activities allowed with a vegetation permit);

(6) Any disturbance of highly erodible soils is replanted with deep-rooted vegetation with a high stem density;

(7) Vegetation removal activities are conducted so as to expose the smallest practical area of soil to erosion for the least possible time;

(8) Areas of vegetation restoration priorities identified in the MRCCA plan are restored, if applicable; and

(9) Any other condition determined necessary to achieve the purpose of this section.

5. **Prohibited activities.** All other intensive vegetation clearing is prohibited.

6. **Vegetation restoration plan.**

a. Development of a vegetation restoration plan and reestablishment of natural vegetation is required:

(1) As a condition of a vegetation permit issued under Section 117-148(i)4b (conditions of vegetation permit), items (4) and (5);

(2) Upon failure to comply with any provisions in this section; or

(3) As part of the planning process for subdivisions as provided in Section 117-148(k) (Subdivision and land development standards).

b. The vegetation restoration plan must satisfy the application submittal requirements in 117-148(c)6 (Application Materials), and:

(1) Include vegetation that provides suitable habitat and effective soil stability, runoff retention, and infiltration capability. Vegetation species, composition, density, and diversity must be guided by nearby patches of native plant communities and by Native Vegetation Establishment and Enhancement Guidelines;

(2) Be prepared by a qualified individual; and

(3) Include a maintenance plan that includes management provisions for controlling invasive species and replacement of plant loss for three years.

c. A certificate of compliance will be issued after the vegetation restoration plan requirements have been satisfied.

(j) LAND ALTERATION STANDARDS AND STORMWATER MANAGEMENT

1. **Purpose.** To establish standards that protect water quality from pollutant loadings of sediment, nutrients, bacteria, and other contaminants; and maintain stability of bluffs, shorelines, and other areas prone to erosion.

2. **Land alteration permit**.

   a. Within the bluff impact zone, land alteration is prohibited, except for the following which are allowed by permit.

      (1) Erosion control consistent with Section 117-148(j)6 (Conditions of land alteration permit approval);

      (2) The minimum necessary for development that is allowed as an exception under Section 117-148(l) (Exemptions); and

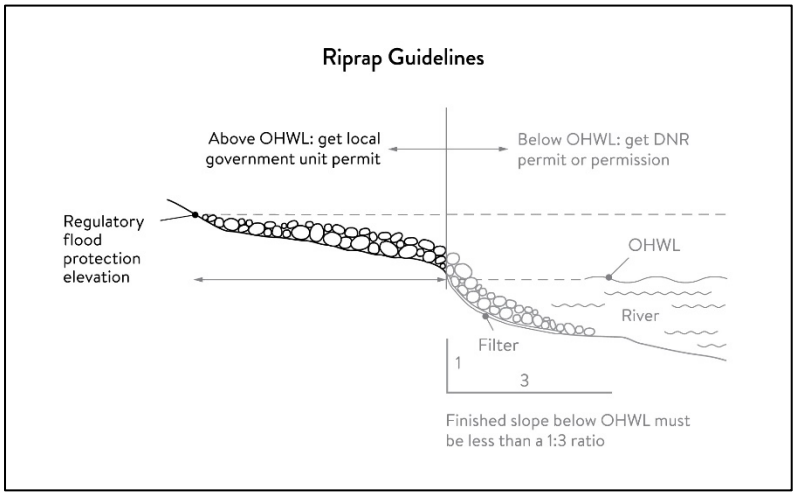
      (3) Repair and maintenance of existing buildings and facilities.

   b. Within the water quality impact zone, land alteration that involves more than ten cubic yards of material or affects an area greater than 1,000 square feet requires a permit.

3. **Rock riprap, retaining walls, and other erosion control structures**.

   a. Construction, repair, or replacement of rock riprap, retaining walls, and other erosion control structures located at or below the OHWL must comply with Minnesota Rules, chapters 6115.0215, subpart 4, item E, and 6115.0216, subpart 2. Work must not proceed until approved by the commissioner. See Figure 8.

Figure 8. Riprap Guidelines



   b. Construction or replacement of rock riprap, retaining walls, and other erosion control structures within the bluff impact zone and the water quality impact zone are allowed with a permit consistent with provisions of Section 117-148(j)6 (Conditions of land alteration permit approval) provided that:

      (1) If the project includes work at or below the OHWL, the commissioner has already approved or permitted the project.

      (2) The structures are used only to correct an established erosion problem as determined by the City of Ramsey.

(3) The size and extent of the structures are the minimum necessary to correct the erosion problem and are not larger than the following, unless a professional engineer determines that a larger structure is needed to correct the erosion problem:

(i) Retaining walls must not exceed five feet in height and must be placed a minimum horizontal distance of ten feet apart; and

(ii) Riprap must not exceed the height of the regulatory flood protection elevation.

c. Repair of existing rock riprap, retaining walls, and other erosion control structures above the OHWL does not require a permit provided it does not involve any land alteration under Section 117-148(j)2 (Land alteration permit).

4. **Stormwater management.**

a. In the bluff impact zone, storm water management facilities are prohibited~~,~~ except by permit if:

(1) There are no alternatives for storm water treatment outside the bluff impact zone on the subject site;

(2) The site generating runoff is designed so that the amount of runoff reaching the bluff impact zone is reduced to the greatest extent practicable;

(3) The construction and operation of the facility does not affect slope stability on the subject property or adjacent properties; and

(4) Mitigation based on the best available engineering and geological practices is required and applied to eliminate or minimize the risk of slope failure.

b. In the water quality impact zone, development that creates new impervious surface, as allowed by exemption in Section 117-148(l) (Exemptions), or fully reconstructs existing impervious surface of more than 10,000 square feet requires a storm water permit or approved storm water plan. Multipurpose trails and sidewalks are exempt if there is down gradient vegetation or a filter strip that is at least five feet wide.

c. In all other areas, storm water runoff must be directed away from the bluff impact zones or unstable areas.

5. **Development on steep slopes**. Construction of structures, impervious surfaces, land alteration, vegetation removal, or other construction activities are allowed on steep slopes if:

a. The development can be accomplished without increasing erosion or storm water runoff;

b. The soil types and geology are suitable for the proposed development; and

c. Vegetation is managed according to the requirements of Section 117-148(i) (Vegetation management).

6. **Conditions of land alteration permit approval.**

a. Temporary and permanent erosion and sediment control measures retain sediment onsite consistent with best management practices in the Minnesota Stormwater Manual;

b. Natural site topography, soil, and vegetation conditions are used to control runoff and reduce erosion and sedimentation;

c. Construction activity is phased when possible;

d. All erosion and sediment controls are installed before starting any land disturbance activity;

e. Erosion and sediment controls are maintained to ensure effective operation;

f. The proposed work is consistent with the vegetation standards in Section 117-148(i) (Vegetation Management); and

g. Best management practices for protecting and enhancing ecological and water resources identified in Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001.

7. **Compliance with other plans and programs.** All development must:

a. Be consistent with Minnesota Statutes, chapter 103B, and local water management plans completed under chapter 8410;

b. Meet or exceed the wetland protection standards under Minnesota Rules, chapter 8420; and

c. Meet or exceed the floodplain management standards under Minnesota Rules, chapter 6120. 5000 – 6120.6200

(k) SUBDIVISION AND LAND DEVELOPMENT STANDARDS

1. **Purpose.**

a. To protect and enhance the natural and scenic values of the MRCCA during development or redevelopment of the remaining large sites

b. To establish standards for protecting and restoring biological and ecological functions of primary conservation areas on large sites; and

c. To encourage restoration of natural vegetation during development or redevelopment of large sites where restoration opportunities have been identified in MRCCA Plans.

2. **Applicability.**

a. The design standards in this section apply to subdivisions, planned unit developments and master-planned development and redevelopment of land involving ten or more acres for contiguous parcels that abut the Mississippi River and 20 or more acres for all other parcels, including smaller individual sites within the following developments that are part of a common plan of development that may be constructed at different times:

(1) Subdivisions;

(2) Planned unit developments; and

(3) Master-planned development and redevelopment of land.

b. The following activities are exempt from the requirements of this section:

(1) Minor subdivisions consisting of three or fewer lots;

(2) Minor boundary line corrections;

(3) Resolutions of encroachments;

(4) Additions to existing lots of record;

(5) Placement of essential services; and

(6) Activities involving river-dependent commercial and industrial uses.

3. **Application materials.** Project information listed in Section 117-148(c)6 (Application Materials) must be submitted for all proposed developments.

4. **Design standards.**

a. Primary conservation areas, where they exist, must be set aside and designated as protected open space in quantities meeting the following as a percentage of total parcel area:

(1) CA-ROS District: 50%;

(2) CA-RN District: 20%;

~~(3) CA-RTC, CA-UM, and CA-UC Districts: 10%; and~~

(4) CA-SR District: 10% if the parcel includes native plant communities or provides feasible connections to a regional park or trail system, otherwise no requirement.

b. If the primary conservation areas exceed the amounts specified in Section 117-148(k)4a above, then protection of native plant communities and natural vegetation in riparian areas shall be prioritized.

c. If primary conservation areas exist but do not have natural vegetation (identified as restoration priorities in the MRCCA Plan), then a vegetation assessment must be completed to evaluate the unvegetated primary conservation areas and determine whether vegetation restoration is needed. If restoration is needed, vegetation must be restored according to Section 117-148(i)6b (under Vegetation restoration plan).

d. If primary conservation areas do not exist on the parcel and portions of the parcel have been identified in the MRCCA plan as a restoration area, vegetation must be restored in the identified areas according to Section 117-148(i)6b (under Vegetation restoration plan) and the area must be set aside and designated as protected open space.

e. Storm water treatment areas or other green infrastructure may be used to meet the protected open space requirements if the vegetation provides biological and ecological functions.

f. Land dedicated under (insert LGU ordinance citation) for public river access, parks, or other open space or public facilities may be counted toward the protected open space requirement.

g. Protected open space areas must connect open space, natural areas, and recreational areas, where present on adjacent parcels, as much as possible to form an interconnected network.

5. **Permanent protection of designated open space**.

a. Designated open space areas must be protected through one or more of the following methods:

(1) Public acquisition by a government entity for conservation purposes;

(2) A permanent conservation easement, as provided in Minnesota Statutes, chapter 84C;

(3) A deed restriction; and

(4) Other arrangements that achieve an equivalent degree of protection.

b. Permanent protection methods must ensure the long-term management of vegetation to meet its biological and ecological functions, prohibit structures, and prohibit land alteration, except as needed to provide public recreational facilities and access to the river.

(l) EXEMPTIONS

1. **Purpose.** To provide exemptions to structure placement, height and other standards for specific river or water access dependent facilities as provided in Minnesota Statutes 116G.15 Subd. 4.

2. **Applicability.**

a. Uses and activities not specifically exempted must comply with this Section. Uses and activities exempted under shore impact zone and bluff impact zone must comply with the vegetation management and land alteration standards in Sections 117-148(i) (Vegetation management) and 117-148(j) (Land alterations standards and stormwater management).

b. Uses and activities in Section 117-148(l)3 below are categorized as:

A. **Exempt – E.** This means that the use or activity is allowed;

B. **Exempt if no alternative - (E).** This means that the use or activity is allowed only if no alternatives exist; and

C. **Not exempt - N.** This means that a use or activity is not exempt and must meet the standards of this ordinance.

3. **Use and activity exemptions classification.**

a. General uses and activities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Industrial and utility structures requiring greater height for operational reasons (such as elevators, refineries and railroad signaling towers)	N	E	N	N	Structure design and placement must minimize interference with public river corridor views.
Barns, silos, and farm structures	N	E	N	N	
Bridges and bridge approach roadways	E	E	E	(E)	Section 117-148(h) (Performance standards for public facilities)
Wireless communication towers	E	E	N	N	Section 117-148(e)2f (River-dependent uses)
Chimneys, church spires, flag poles, public monuments, and mechanical stacks and equipment	N	E	N	N	
Historic properties and contributing properties in historic districts	E	E	E	E	Exemptions do not apply to additions or site alterations
~~Buildings and structures on the face of or abutting the bluff in the CA-UC district of St. Paul, between Chestnut Street and Highway 52.~~	~~E~~	~~n/a~~	~~n/a~~	~~E~~	~~Height in CA-UC district is governed by underlying zoning~~

b. Public utilities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Electrical power facilities	E	E	E	(E)	Section 117-148(h) (Performance standards for public facilities)
Essential services (other than storm water facilities)	E	E	E	(E)	Section 117-148(h) (Performance standards for public facilities)
Storm water facilities	E	N	E	(E)	Section 117-148(j) (Land alteration standards and stormwater management)
Wastewater treatment	E	N	E	N	Section 117-148(h) (Performance standards for public facilities)
Public transportation facilities	E	N	(E)	(E)	Section 117-148(h) (Performance standards for public facilities)

c. Public recreational facilities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Accessory structures, such as monuments, flagpoles, light standards, and similar park features	E	E	(E)	(E)	Section 117-148(h) (Performance standards for public facilities); within BIZ, only on slopes averaging less than 30%. Exemptions do not apply to principal structures.
Picnic shelters and other open-sided structures	E	N	(E)	N	Section 117-148(h) (Performance standards for public facilities)
Parking lots	(E)	N	(E)	(E)	Section 117-148(h) (Performance standards for public facilities); within BIZ, only within 20 feet of toe of bluff; not on face of bluff; and must not affect stability of bluff
Roads and driveways	(E)	N	(E)	(E)	Section 117-148(h) (Performance standards for public facilities)
Natural-surfaced trails, access paths, and viewing areas	E	N	E	E	Section 117-148(h) (Performance standards for public facilities)
Hard-surfaced trails and viewing platforms	E	N	E	(E)	Section 117-148(h) (Performance standards for public facilities); within BIZ, only on slopes averaging less than 30%
Water access ramps	E	N	E	(E)	Section 117-148(h) (Performance standards for public facilities)
Public signs and kiosks for interpretive or directional purposes	E	N	E	(E)	Section 117-148(h) (Performance standards for public facilities)

d. River-dependent uses.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Shoreline facilities	E	N[1]	E	(E)	Section 117-148(e)2f (River dependent uses). Exemptions do not apply to buildings, structures, and parking areas that are not part of a shoreline facility

[1] River-dependent commercial, industrial, and utility structures are exempt from height limits only if greater height is required for operational reasons.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Private roads and conveyance structures serving river-dependent uses	E	N[1]	E	(E)	Section 117-148(e)2f (River dependent uses)

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992 e. Private residential and commercial water access and use facilities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Private roads serving 3 or more lots	(E)	N	N	(E)	Section 117-148(g) (Performance standards for private facilities); in BIZ, only on slopes averaging less than 30%. Exemption does not apply to private roads serving fewer 3 lots or to private driveways and parking areas
Access paths	E	N	E	E	Section 117-148(g) (Performance standards for private facilities)
Water access ramps	E	N	E	N	Section 117-148(g) (Performance standards for private facilities)
Stairways, lifts, and landings	E	N	E	E	Section 117-148(g) (Performance standards for private facilities)
Water-oriented accessory structures	E	N	E	N	Section 117-148(g) (Performance standards for private facilities)
Patios and decks	E	N	N	N	Section 117-148(g)5 (Decks and patios in setback area)
Directional signs for watercraft (private)	E	N	E	N	Section 117-148(g)6 (Off premise and directional signage); exemption does not apply to off-premise advertising signs
Temporary storage of docks, boats, and other equipment during the winter months	E	N	E	N	
Erosion control structures, such as rock riprap and retaining walls	E	N	E	(E)	Sections 117-148(j)3 (Rock riprap, retaining walls, and other erosion control measures), 117-148(j)5 (Development on steep slopes) and 117-148(j)6 (Conditions of land alteration permit approval)
Flood control structures	E	N	E	(E)	Section 117-148(j) (Land alteration standards and stormwater management)

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ORDINANCE #21-02
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

AN ORDINANCE AMENDING CITY CODE SECTION 117-148 ENTITLED MISSISSIPPI RIVER CORRIDOR CRITICAL AREA.

The City of Ramsey ordains:

SECTION 1. AUTHORITY

This ordinance is adopted pursuant to and under the authority of the Charter of the City of Ramsey.

SECTION 2. PURPOSE

Per S701.10 (Fees) the purpose of this Ordinance is to establish the Permit Fees, service Charges, and Other Fees that will be collected by the City in year 2021. This is known as the Schedule of Rates, Fees and Charges.

SECTION 3. AMENDMENT TO CITY CODE SECTION 117-348

The current City Code Section 117-148 is repealed in its entirety and replaced with the attached text.

SECTION 4. EFFECTIVE DATE

This Ordinance becomes effective 30 days after its passage and publication, subject to City Charter Section 5.04.

SECTION 5. **SUMMARY**

The following is the official summary of Ordinance #21-02, as clearly informing the public of the intent and effect of the Ordinance.

Ordinance #21-02 updates the City's Mississippi River Corridor Critical Area (MRCCA) Overlay District to comply with minimum requirements established by the State of Minnesota. Critical Area Overlay Standards include, but are not limited lot size, building size, building height, vegetation management, bluff/slope protection, open space preservation and stormwater management.

PASSED by the City Council of the City of Ramsey, Minnesota the ____ day of _____, 2021.

_____
Mayor

ATTEST:

_____

City Clerk

Introduction date:
Posting dates:
Adoption date:
Publication date:
Effective date:

Mississippi River Corridor Critical Area (MRCCA) Overlay District Update

DNR Model Ordinance Comparison/Crosswalk to City of Ramsey Draft Ordinance

This ordinance comparison is provided to compare to the DNR Model Ordinance. This document will help in the DNR approval process as well as assist the City of Ramsey access the commentary provided on the DNR Model Ordinance.

Summary Level – Section Header Crosswalk

NOTE: Any time the City of Ramsey DRAFT Ordinance mentions 'This Section', it is referring to City Code Section 117-148 (being amended with this ordinance).

Section Header	DNR Model Ordinance	City of Ramsey Ordinance
Authority, Intent and Purpose	1.0	(a)
General Provisions and Definitions	2.0	(b)
Administration	3.0	(c)
MRCCA Districts	4.0	(d)
Special Land Use Provisions	5.0	(e)
Structure Height and Placement and Lot Size	6.0	(f)
Performance Standards for Private Facilities	7.0	(g)
Performance Standards for Public Facilities	8.0	(h)
Vegetation Management	9.0	(i)
Land Alteration Standards and Stormwater Management	10.0	(j)
Subdivision and Land Development Standards	11.0	(k)
Exemptions	12.0	(l)

Detailed Cross Reference Crosswalk

The model ordinance includes a number of specific cross references to internal sections of this section of City Code. This crosswalk does not include citations to outside sources such as State Statute and State Rules.

Line Number	Citation/Topic	DNR Model Ordinance Section	City of Ramsey Ordinance Section
18	Permits	3.2	117-148(c)2
132	River Corridor Boundary	2.680	117-148(b)6bs
272	Vegetation Management	9.0	117-148(i)
273	Land alteration standards and stormwater management	10.0	117-148(j)
279	Conditions of Approval	3.5	117-148(c)5
295	Conditions of Approval	3.5	117-148(c)5
337	Structure and impervious surface placement	6.34	117-148(f)3d
342	Structure and impervious surface placement	6.3	117-148(f)3
360	Structure height	6.2	117-148(f)2
363	Nonconformities	3.71	117-148(c)7
374	Broad reference		
375	Broad reference		
468	Structure and impervious surface placement	6.3	117-148(f)3
490	Exemptions	12.0	117-148(l)
505	General design standards	8.2	117-148(h)2
511	Exemptions	12.0	117-148(l)
513	Exemptions	12.0	117-148(l)
534	Conditional and interim use permits		117-148(c)4
555	Exemptions	12.0	117-148(l)
557	Exemptions	12.0	117-148(l)
567	Exemptions	12.0	117-148(l)
577	Structure and impervious surface placement	3.4	117-148(f)3

590	Structure and impervious surface placement	6.3 (6.32 & 6.33)	117-148(f)3
599	Vegetation management	9.0	117-148(i)
600	Land alteration standards and stormwater management	10.0	117-148(j)
601	Exemptions	12.0	117-148(l)
605	Structure and impervious surface placement	6.3	117-148(f)3
607	Exemptions	12.0	117-148(l)
608	General design standards	8.2	117-148(f)2
631	Accommodating disabilities	3.9	117-148(c)9
640	Vegetation management	9.0	117-148(i)
641	Land alteration standards and stormwater management	10.0	117-148(j)
654	Structure height and placement and lot size	6.0	117-148(f)
679	Structure height and placement and lot size	6.0	117-148(f)
680	Exemptions	12.0	117-148(l)
681	Vegetation management	9.0	117-148(i)
682	Land alteration standards and stormwater management	10.0	117-148(j)
710	Wireless communication towers	5.26	117-148(e)2g
713	Structure height and placement and lot size	6.0	117-148(f)
724	Structure height and placement and lot size	6.0	117-148(f)
725	Exemptions	12.0	117-148(l)
748	Stairways, lifts and landings	7.43	117-148(g)4c
763	Right of way maintenance standards	8.3	117-148(h)3
765	Underlying zoning	5.2 (5.21 & 5.23)	117-148(e)2

780	Exemptions	12.0	117-148(l)
790	Vegetation restoration plan	9.62	117-148(i)6
795	Vegetation restoration plan	9.62	117-148(i)6
796	Activities allowed with a vegetation permit	9.42.D	117-148(i)4
807	Conditions of vegetation permit	9.42	117-148(i)4b
810	Subdivision and land development standards	11.0	117-148(k)
831	Conditions of land alteration permit approval	10.6	117-148(j)6
833	Exemptions	12.0	117-148(l)
848	Conditions of land alteration permit approval	10.6	117-148(j)6
861	Land alteration permit	10.2	117-148(j)2
874	Exemptions	12.0	117-148(l)
884	Vegetation management	9.0	117-148(i)
894	Vegetation management	9.0	117-148(i)
928	Application Materials	3.6	117-148(c)6
938	Primary Conservation Areas	11.41	117-148(k)4a
944	Vegetation restoration plan	9.62	117-148(i)6b
948	Vegetation restoration plan	9.62	117-148(i)6b
971	Vegetation management	19.0	117-148(i)
973	Use and activity exemptions classification	12.3	117-148(l)3
980 (table)	Performance standards for public facilities	8.0	117-148(h)
980 (table)	River-dependent uses (referring to wireless communications towers)	5.26	117-148(e)2f
983 (table)	Performance standards for public facilities	8.0	117-148(h)

983 (table)	Land alteration standards and stormwater management	10.0	117-148(j)
985 (table)	Performance standards for public facilities	8.0	117-148(h)
990 (table)	River-dependent uses	5.25	117-148(e)2f
992 (table)	Performance standards for private facilities	7.0	117-148(g)
992 (table)	Off premise and directional signage	7.6	117-148(g)6
992 (table)	Rock riprap, retaining walls, and other erosion control measures	10.3	117-148(j)3
992 (table)	Development on steep slopes	10.5	117-148(j)5
992 (table)	Conditions of land alteration permit approval	10.6	117-148(j)6
992 (table)	Land alteration standards and stormwater management	10.0	117-148(j)

DEPARTMENT OF NATURAL RESOURCES

Mississippi River Corridor Critical Area (MRCCA) Model Ordinance

Introduction

This model is intended to help local governments develop a new MRCCA section, chapter or article within their zoning code. This model ordinance is consistent with Minnesota's MRCCA rules (6106.0010 – 6106.0180). In some areas, the ordinance provisions are different from rules to be consistent with state statutes and other agency rules. In these cases, the commentary explains why the changes have been made. In all other areas the standards in the model are consistent with the rules, although some sections - most notably the vegetation and subdivision sections - have been slightly restructured for ease of administration. The model also contains administrative language not in rule to help clarify and administer the provisions for local government zoning purposes.

The MRCCA provisions must be structured as an **overlay district.** If a conflict exists with underlying zoning, the provisions of the overlay district govern. Where specific numeric thresholds or standards are listed in this model, those numeric thresholds or standards must be included in the overlay district.

Blue bold text in the "Ordinance Language" column indicates **optional** language that provides clarity on topics not sufficiently addressed in rule, or is a suggested higher standard than the minimum in rule. This text is clearly identified as optional and explained in the "Commentary" column. Higher standards may be additions to or deletions from the rules.

This model is periodically updated to improve clarity based on feedback from local governments. Please check for the latest version on the DNR's MRCCA webpages.

Please contact your Area Hydrologist with any questions on this model ordinance.

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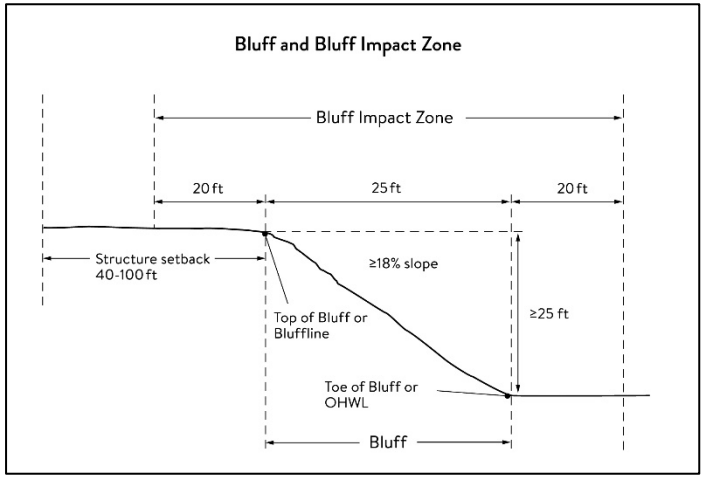
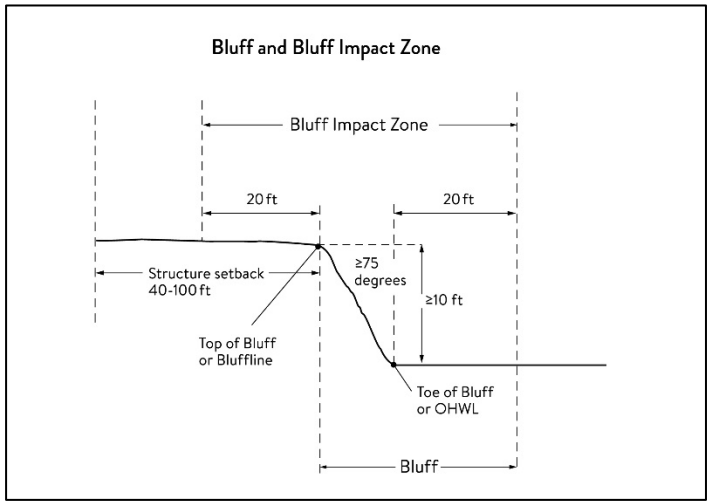
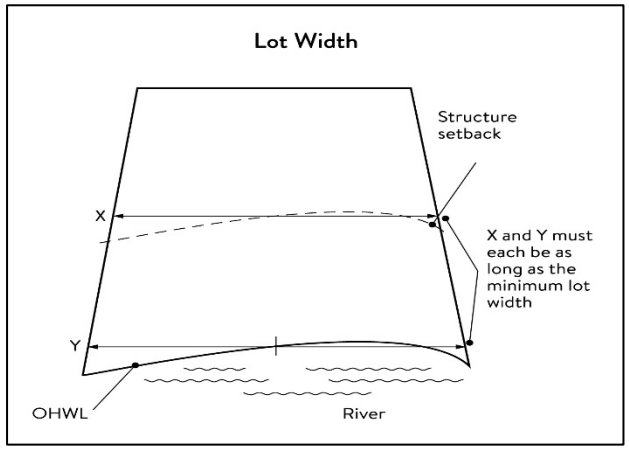
Ordinance Language	*Commentary*
1.0 AUTHORITY, INTENT AND PURPOSE	
1.1 **Statutory Authorization.** This Mississippi River Corridor Critical Area (MRCCA) *(section, chapter or article)* is adopted pursuant to the authorization and policies contained in Minnesota Statutes, Chapter 116G, Minnesota Rules, Parts 6106.0010 - 6106.0180, and the planning and zoning enabling legislation in Minnesota Statutes, Chapter 462 and 473.	*1.1. Ensures that LGU authority to administer and enforce the ordinance is connected to state regulatory policy.*
1.2 **Policy**. The Legislature of Minnesota has delegated responsibility to local governments of the state to regulate the subdivision, use and development of designated critical areas and thus preserve and enhance the quality of important historic, cultural, aesthetic values, and natural systems and provide for the wise use of these areas.	*1.2. Reinforces the responsibility of local governments to regulate the MRCCA in their jurisdiction.*
2.0 GENERAL PROVISIONS AND DEFINITIONS	
2.1 **Jurisdiction.** The provisions of this *(section, chapter or article)* apply to land within the river corridor boundary as described in the State Register, volume 43, pages 508 to 519 and shown on the zoning map *(insert reference citation)*.	
2.2 **Enforcement.** The (*insert name of local government or designated official*) is responsible for the administration and enforcement of this *(section, chapter or article)*. Any violation of its provisions or failure to comply with any of its requirements including violations of conditions and safeguards established in connection with grants of variances or conditional uses constitutes a misdemeanor and is punishable as defined by law. Violations of this *(section, chapter or article)* can occur regardless of whether or not a permit is required for a regulated activity listed in Section 3.2.	*2.2 – 2.4. If these provisions are already included in the zoning ordinance, they are not needed.*
2.3 **Severability.** If any section, clause, provision, or portion of this *(section, chapter or article)* is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this *(section, chapter or article)* shall not be affected thereby.	
2.4 **Abrogation and Greater Restrictions.** It is not intended by this *(section, chapter or article)* to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this *(section, chapter or article)* imposes greater restrictions, the provisions of this *(section, chapter or article)* shall prevail. All other *(sections, chapters or articles)* inconsistent with this *(section, chapter or article)* are hereby repealed to the extent of the inconsistency only.	
2.5 **Underlying Zoning.** Uses and standards of underlying zoning districts apply except where standards of this overlay district are more restrictive.	
2.6 **Definitions.** Unless specifically defined below, words or phrases used in this *(section, chapter or article)* shall be interpreted to give them the same meaning they have in common usage and to give this *(section, chapter or*	*2.6. These definitions are the minimum necessary for a compliant ordinance. Some definitions may not be*

Ordinance Language	*Commentary*
article) its most reasonable application. For the purpose of this *(section, chapter or article)*, the words "must" and "shall" are mandatory and not permissive. All distances, unless otherwise specified, are measured horizontally.	*needed if a given feature or land use is not present or not allowed in the community.*
2.611 **Access path**. An area designated to provide ingress and egress to public waters.	
2.612 **Adjacent.** Having a boundary that physically touches or adjoins.	
2.613 **Agricultural use.** A use having the meaning given under Minnesota Statutes, section 40A.02.	
2.614 **Alternative design.** Subdivision design methods such as conservation design, transfer of development density, or similar zoning and site design techniques that protect open space and natural areas.	
2.615 **Barge fleeting.** Temporarily parking and securing barges on the river, on or off channel, while tows are assembled or broken up.	
2.616 **Biological and ecological functions.** The functions of vegetation in stabilizing soils and slopes, retaining and filtering runoff, providing habitat, and recharging groundwater.	
2.617 **Bluff.** A natural topographic feature having: A. A slope that rises at least 25 feet and the grade of the slope averages 18 percent or greater, measured over a horizontal distance of 25 feet, as follows: a. Where the slope begins above the ordinary high water level, from the toe of the slope to the top of the slope; or b. Where the slope begins below the ordinary high water level, from the ordinary high water level to the top of the slope. See Figure 1; or B. A natural escarpment or cliff with a slope that rises at least ten feet above the ordinary high water level or toe of the slope, whichever is applicable, to the top of the slope, with a slope of 75 degrees or greater. See Figure 2.	*2.617. Bluffs are anywhere in the MRCCA, not just abutting the water. The DNR's bluff mapping tool, a GIS extension, is available for download from the Minnesota Geospatial Commons. This tool helps to identify bluffs for general mapping and planning purposes.*
OR	
2.617 Bluff. A natural topographic feature having: A. **A slope that rises at least 25 feet and the grade of the slope averages 18 percent or greater, measured over a horizontal distance of 25 feet, from the toe of the slope to the top of the slope. Where the slope begins below the ordinary high water level, the ordinary high water level is the toe of the slope. See Figure 1; or**	*2.617. Optional. This alternative "part A" bluff definition is more concise, direct and may be more clear than the definition as worded in rules. The alternative definition does not change the specification of what a bluff is, only how it is worded. The wording of "part B" is unchanged.*

Ordinance Language	*Commentary*
Figure 1. Bluff and Bluff Impact Zone  **B. A natural escarpment or cliff with a slope that rises at least ten feet above the ordinary high water level or toe of the slope, whichever is applicable, to the top of the slope, with a slope of 75 degrees or greater. See Figure 2.** Figure 2. Natural Escarpment Bluff and Bluff Impact Zone  	

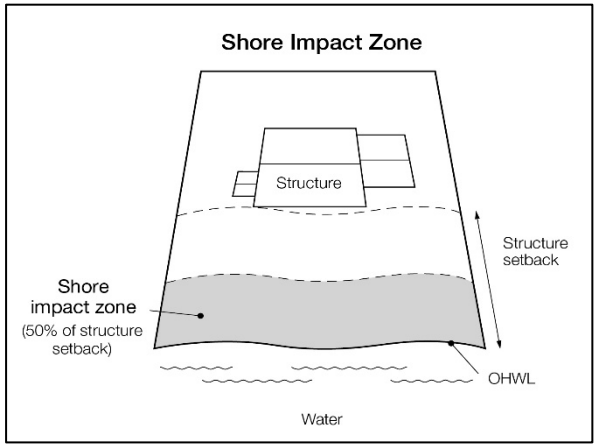
Ordinance Language	*Commentary*
2.618 **Bluff impact zone.** A bluff and land located within 20 feet of the bluff. See Figures 1 and 2. 2.619 **Bluffline.** A line delineating the top of the bluff. More than one bluffline may be encountered proceeding landward from the river. See Figures 1 and 2. 2.620 **Bluff, Toe of.** A line along the bottom of a bluff, requiring field verification, such that the slope above the line exceeds 18 percent and the slope below the line is 18 percent or less, measured over a horizontal distance of 25 feet. See Figures 1 and 2. 2.621 **Bluff, Top of.** A line along the top of a bluff, requiring field verification, such that the slope below the line exceeds 18 percent and the slope above the line is 18 percent or less, measured over a horizontal distance of 25 feet. See Figures 1 and 2. 2.622 **Buildable area.** The area upon which structures may be placed on a lot or parcel of land and excludes areas needed to meet requirements for setback, rights-of-way, bluff impact zones, historic properties, wetlands, designated floodways, land below the ordinary high water level of public waters, and other unbuildable areas. 2.623 **Building.** A structure with two or more outside rigid walls and a fully secured roof and affixed to a permanent site. 2.624 **Certificate of compliance.** A document written after a compliance inspection, certifying that the development is in compliance with applicable requirements at the time of the inspection. 2.625 **Commissioner.** The commissioner of the Minnesota Department of Natural Resources. 2.626 **Conditional use.** A use having the meaning given under Minnesota Statutes, chapters 394 and 462. 2.627 **Conservation design.** A pattern of subdivision that is characterized by grouping lots within a portion of a parcel, where the remaining portion of the parcel is permanently protected as open space. 2.628 **Conventional subdivision.** A pattern of subdivision that is characterized by lots that are spread regularly throughout a parcel in a lot and block design. 2.629 **Deck.** A horizontal, unenclosed, aboveground level structure open to the sky, with or without attached railings, seats, trellises, or other features, attached or functionally related to a principal use or site. 2.630 **Developer.** Having the meaning given under Minnesota Statutes, section 116G.03. 2.631 **Development.** Having the meaning given under Minnesota Statutes, section 116G.03. 2.632 **Discretionary action.** An action under this chapter related to land use that requires a public hearing by local ordinance or statute, such as preliminary plats, final subdivision plats, planned unit developments, conditional use permits, interim use permits, variances, appeals, and rezonings.	

Ordinance Language	*Commentary*
2.633 **Dock.** Having the meaning given under Minnesota Rules, chapter 6115. 2.634 **Electric power facilities.** Equipment and associated facilities for generating electric power or devices for converting wind energy to electrical energy as identified and defined under Minnesota Statutes, section 216E. 2.635 **Essential services.** Underground or overhead gas, electrical, communications, steam, or water distribution, collection, supply, or disposal systems, including storm water. Essential services include poles, wires, mains, drains, pipes, conduits, cables, fire alarm boxes, traffic signals, hydrants, navigational structures, aviation safety facilities or other similar equipment and accessories in conjunction with the systems. Essential services does not include buildings, treatment works as defined in Minnesota Statutes, chapter 115.01, electric power facilities or transmission services. 2.636 **Feedlot.** Having the meaning given for animal feedlots under Minnesota Rules chapter 7020. 2.637 **Floodplain.** Having the meaning given the meaning given under Minnesota Rules chapter 6120. 2.638 **Fully reconstructs.** The reconstruction of an existing impervious surface that involves site grading and subsurface excavation so that soil is exposed. Mill and overlay and other resurfacing activities are not considered fully reconstructed. 2.639 **Hard-surface trail.** A trail surfaced in asphalt, crushed aggregate, or other hard surface, for multi-purpose use, as determined by local, regional, or state agency plans. 2.640 **Historic property.** An archaeological site, standing structure, site, district, or other property that is: A. Listed in the National Register of Historic Places or the State Register of Historic Places or locally designated as a historic site under Minnesota Statutes, section 471; B. determined to meet the criteria for eligibility to the National Register of Historic Places or the State Register of Historic Places as determined by the director of the Minnesota Historical Society; or C. An unplatted cemetery that falls under the provisions of Minnesota Statutes, section 307, in consultation with the Office of the State Archaeologist. 2.641 **Impervious surface.** A constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include rooftops, decks, sidewalks, patios, parking lots, storage areas, and driveways, including those with concrete, asphalt, or gravel surfaces. 2.642 **Intensive vegetation clearing.** The removal of all or a majority of the trees or shrubs in a contiguous patch, strip, row, or block. 2.643 **Interim use.** A use having the meaning given under Minnesota Statutes, section 394 and 462.	

Ordinance Language	*Commentary*
2.644 **Land alteration.** An activity that exposes the soil or changes the topography, drainage, or cross section of the land, excluding gardening or similar minor soil disturbances. 2.645 **Local government.** Counties, cities, and townships. 2.646 **Local park agencies.** The Minneapolis Park and Recreation Board and the Three Rivers Park District. 2.647 **Lot.** Having the meaning given under Minnesota Rules chapter 6120. 2.648 **Lot width.** The shortest distance between lot lines measured at both the ordinary high water level and at the required structure setback from the ordinary high water level. See Figure 3. Figure 3. Lot Width  2.649 **Marina.** Having the meaning given under Minnesota Rules chapter 6115.	
2.650 **Mississippi River Corridor Critical Area (MRCCA).** The area within the River Corridor Boundary (See Section 2.680).	*2.650. Optional definition to clarify the "MRCCA" term used throughout document.*
2.651 **Mississippi River Corridor Critical Area (MRCCA) Plan.** A chapter or other element in the *(insert name of jurisdiction)* comprehensive plan.	*2.651. Optional definition to clarify the "MRCCA Plan" term used throughout document.*
2.652 **Mooring facility.** Having the meaning given under Minnesota Rules chapter 6115.0170. 2.653 **Native plant community.** A plant community that has been identified as part of the Minnesota Biological Survey or biological survey issued or adopted by a local, state, or federal agency.	

Ordinance Language	*Commentary*
2.654 **Natural-surface trail.** A trail composed of native soil and rock or compacted granular stone, primarily intended for hiking, equestrian, or mountain bike use, as determined by local, regional, or state agency plans. 2.655 **Natural vegetation.** Any combination of ground cover, understory, and tree canopy that, while it may have been altered by human activity, continues to stabilize soils, retain and filter runoff, provide habitat, and recharge groundwater. 2.656 **Nonconformity.** Having the meaning given under Minnesota Statutes, section 394.22. 2.657 **Nonmetallic mining.** Construction, reconstruction, repair, relocation, expansion, or removal of any facility for the extraction, stockpiling, storage, disposal, or reclamation of nonmetallic minerals such a stone, sand, and gravel. Nonmetallic mining does not include ancillary facilities such as access roads, bridges, culverts, and water level control structures. For purposes of this subpart, "facility" includes all mine pits, quarries, stockpiles, basins, processing structures and equipment, and any structures that drain or divert public waters to allow mining. 2.658 **Off-premise advertising signs.** Those signs that direct attention to a product, service, business, or entertainment venue that is not exclusively related to the premises where the sign is located. 2.659 **Ordinary high water level (OHWL).** Having the meaning given under Minnesota Statutes, section 103G.005. 2.660 **Overlay district.** A zoning district that is applied over one or more previously established zoning districts, establishing additional or stricter standards and criteria for covered properties in addition to those of the underlying zoning district. Overlay districts are often used to protect historic features and natural resources such as shoreland or floodplain. 2.661 **Parcel.** Having the meaning given under Minnesota Statutes, section 116G.03. 2.662 **Patio.** A constructed hard surface located at ground level with no railings and open to the sky. 2.663 **Picnic shelter.** A roofed structure open on all sides, accessory to a recreational use. 2.664 **Planned unit development.** A method of land development that merges zoning and subdivision controls, allowing developers to plan and develop a large area as a single entity, characterized by a unified site design, a mix of structure types and land uses, and phasing of development over a number of years. Planned unit development includes any conversion of existing structures and land uses that utilize this method of development. 2.665 **Plat.** Having the meaning given under Minnesota Statutes, sections 505 and 515B. 2.666 **Port.** A water transportation complex established and operated under the jurisdiction of a port authority according to Minnesota Statutes, section 458.	

Ordinance Language	*Commentary*
2.667 **Primary conservation areas.** Key resources and features, including shore impact zones, bluff impact zones, floodplains, wetlands, gorges, areas of confluence with tributaries, natural drainage routes, unstable soils and bedrock, native plant communities, cultural and historic properties, and significant existing vegetative stands, tree canopies, and other resources identified in local government plans. 2.668 **Private facilities.** Private roads, driveways, and parking areas, private water access and viewing facilities, decks and patios in setback areas, and private signs. 2.669 **Professional engineer.** An engineer licensed to practice in Minnesota. 2.670 **Public facilities.** Public utilities, public transportation facilities, and public recreational facilities. 2.671 **Public recreation facilities.** Recreational facilities provided by the state or a local government and dedicated to public use, including parks, scenic overlooks, observation platforms, trails, docks, fishing piers, picnic shelters, water access ramps, and other similar water-oriented public facilities used for recreation. 2.672 Public river corridor views. Views toward the river from public parkland, historic properties, and public overlooks, as well as views toward bluffs from the ordinary high water level of the opposite shore, as seen during the summer months and documented in the MRCCA plan/chapter of the comprehensive plan. 2.673 Public transportation facilities. All transportation facilities provided by federal, state, or local government and dedicated to public use, such as roadways, transit facilities, railroads, and bikeways. 2.674 **Public utilities.** Electric power facilities, essential services, and transmission services. 2.675 **Public waters.** Having the meaning given under Minnesota Statutes, section 103G.005. 2.676 **Readily visible.** Land and development that are easily seen from the ordinary high water level of the opposite shore during summer months. 2.677 **Resource agency.** A federal, state, regional, or local agency that engages in environmental, natural, or cultural resource protection or restoration activities, including planning, implementation, and monitoring. 2.678 **Retaining wall.** A vertical or nearly vertical structures constructed of mortar and rubble masonry, rock, or stone regardless of size, vertical timber pilings, horizontal timber planks with piling supports, sheet pilings, poured concrete, concrete blocks, or other durable materials. 2.679 **Rock Riprap.** Natural coarse rock placed or constructed to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, or water or ice erosion. 2.680 **River corridor boundary.** The boundary approved and adopted by the Metropolitan Council under Minnesota Statutes, section 116G.06, as approved and adopted by the legislature in Minnesota Statutes, section 116G.15, and as legally described in the Sate Register, volume 43, pages 508 to 518.	*2.679. This definition has been modified to be consistent with public waters rules. The MRCCA rule definition for riprap defines riprap as "coarse stones, boulders, cobbles, and broken rock, concrete, and bricks..." This material is not consistent with Minnesota Rules, 6115.0215 Subp. 4E and 6115.0216 Subp. 2 and has been replaced with "natural coarse*

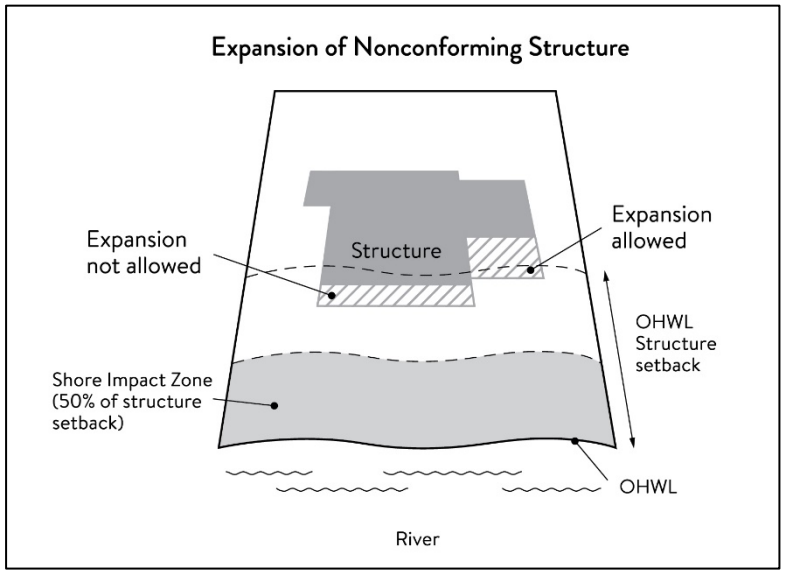
Ordinance Language	*Commentary*
2.681 **River-dependent use.** The use of land for commercial, industrial, or utility purposes, where access to and use of a public water feature is an integral part of the normal conduct of business and where the use is dependent on shoreline facilities. 2.682 **Selective vegetation removal.** The removal of isolated individual trees or shrubs that are not in a contiguous patch, strip, row, or block and that does not substantially reduce the tree canopy or understory cover. 2.683 **Setback.** A separation distance measured horizontally. 2.684 **Shore impact zone.** Land located between the ordinary high water level of public waters and a line parallel to it at a setback of 50 percent of the required structure setback or, for agricultural use, 50 feet landward of the ordinary high water level. See Figure 4. Figure 4. Shore Impact Zone  2.685 **Shoreline facilities.** Facilities that require a location adjoining public waters for ingress and egress, loading and unloading, and public water intake and outflow, such as barge facilities, port facilities, commodity loading and unloading equipment, watercraft lifts, marinas, short-term watercraft mooring facilities for patrons, and water access ramps. Structures that would be enhanced by a shoreline location, but do not require a location adjoining public waters as part of their function, are not shoreline facilities, such as restaurants, bait shops, and boat dealerships. 2.686 **Special purpose units of government.** The University of Minnesota, the St. Paul Port Authority, watershed management organizations established under Minnesota Statutes, chapter 103B, watershed districts	*rock" in order to be consistent with the pre-existing public waters rules.*

Ordinance Language	*Commentary*
established under Minnesota Statutes, chapter 103D, and any other unit of government other than local government or a state or regional agency. 2.687 **State or regional agency.** The Metropolitan Airports Commission, Minnesota Historical Society, University of Minnesota, Department of Natural Resources, Department of Transportation, Metropolitan Council and other state agencies. 2.688 **Steep slope.** A natural topographic feature with an average slope of 12 to 18 percent, measured over a horizontal distance equal to or greater than 50 feet, and any slopes greater than 18 percent that are not bluffs. 2.689 **Storm water management facilities.** Facilities for the collection, conveyance, treatment, or disposal of storm water. 2.690 **Structure.** A building, sign, or appurtenance thereto, except for aerial or underground utility lines, such as sewer, electric, telephone, or gas lines, and utility line towers, poles, and other supporting appurtenances. 2.691 **Subdivision**. Having the meaning given under Minnesota Statutes, section 462.352. 2.692 **Subsurface sewage treatment system**. Having the meaning given under Minnesota Rules, part 7080.1100. 2.693 **Transmission services.** A. Electric power lines, cables, pipelines, or conduits that are: (1) used to transport power between two points, as identified and defined under Minnesota Statutes, section 216E.01, subdivision 4; or (2) For mains or pipelines for gas, liquids, or solids in suspension, used to transport gas, liquids, or solids in suspension between two points; and B. Telecommunication lines, cables, pipelines, or conduits. 2.694 **Treeline.** The more or less continuous line formed by the tops of trees in a wooded area when viewed from a particular point. The treeline is determined during all seasons as if under full foliage. 2.695 **Twin Cities Metropolitan area.** The area over which the Metropolitan Council has jurisdiction according to Minnesota Statutes, section 473.121 subdivision 2. 2.696 **Variance.** Having the meaning given under Minnesota Statutes, section 394.22. 2.697 **Water access ramp.** A boat ramp, carry-down site, boarding dock, and approach road, or other access that allows launching and removal of a boat, canoe, or other watercraft with or without a vehicle and trailer.	

Ordinance Language	*Commentary*
2.698 **Water-oriented accessory structure.** A small building or other improvement, except stairways, fences, docks, and retaining walls, that, because of the relationship of its use to public waters, needs to be located closer to public waters than the normal structure setback. Examples include gazebos, screen houses, fish houses, pump houses, and detached decks and patios. 2.699 **Water quality impact zone.** Land within the shore impact zone or within 50 feet of the boundary of a public water, wetland, or natural drainage way, whichever is greater. 2.670 **Wetland.** Having the meaning given under Minnesota Statutes, section 103G.005. 2.671 **Wharf.** Having the meaning given under Minnesota Rules, part 6115.0170.	
3.0 ADMINISTRATION 3.1 **Purpose.** The purpose of this Section is to identify administrative provisions to ensure this *(section, chapter, or article)* is administered consistent with its purpose. 3.2 **Permits.** A permit is required for the construction of buildings or building additions (including construction of decks and signs), the installation and/or alteration of sewage treatment systems, vegetation removal consistent with Section 9.0 and land alterations consistent with Section 10.0. 3.3 **Variances.** Variances to the requirements under this *(section, chapter, or article)* may only be granted in accordance with Minnesota Statutes, Section 462.357 and must consider the potential impacts of variances on primary conservation areas, public river corridor views, and other resources identified in the MRCCA plan. In reviewing the variance application, the *(zoning authority, governing body, or other appropriate term)* shall: 3.31 Evaluate the impacts to these resources. and if negative impacts are found, require conditions to mitigate the impacts that are related to and proportional to the impacts, **consistent with Section 3.5** and 3.32 Make written findings that the variance is consistent with the purpose of this (*section, chapter, or article*)***, as follows***. **A. The extent, location and intensity of the variance will be in substantial compliance with the MRCCA Plan;** **B. The variance is consistent with the character and management purpose of the MRCCA district in which it is located;** **C. The variance will not be detrimental to PCAs and PRCVs nor will it contribute to negative incremental impacts to PCAs and PRCVs when considered in the context of past, present and reasonable future actions; and** **D. The variance will not negatively impact (other MRCCA plan-identified resources).**	*3.2. Cities and Townships delegating vegetation and land alteration permitting to another entity may wish to make that arrangement clear here or elsewhere in this administrative section.* *3.3. PRCV impact assessments* for variances and conditional uses should review the MRCCA Plan for how PRCVs are visually shown or identified, why they are important and what changes would enhance or degrade them. Impacts will vary depending on the Plan's description of them and the project's size, height, & location. Public hearing comments will be an important source of information in determining impacts and mitigation. *3.31. Optional. Including a reference to optional Section 3.5 provides the zoning authority with a list of mitigation ideas to consider for specific applications.* *3.32. Determining consistency with the purpose of this MRCCA section, chapter, or article, is variance criteria that must be evaluated in addition to the practical difficulties criteria in MS 462.357 Subd 6.* *3.32.A-D. Optional. These findings provide clarity on what it means to find that a variance is consistent with the purpose of this section, chapter, or article (as required by rule) and help strengthen protections for PCAs and PRCVs in variance reviews.* *3.4. The* conditional uses required under this section include: allowing heights to exceed those specified in the UM and RTC districts, wireless communication towers, and nonmetallic mining.

Ordinance Language	*Commentary*
3.4 **Conditional and interim use permits.** All conditional and interim uses, required under this *(section, chapter or article),* must comply with Minnesota Statutes, section 462.3595 and must consider the potential impacts on primary conservation areas, public river corridor views, and other resources identified in the MRCCA plan. In reviewing the application, the *(zoning authority, governing body, or other appropriate term)* shall: 3.41 Evaluate the impacts to these resources and if negative impacts are found, require conditions to mitigate the impacts that are related to and proportional to the impacts, **consistent with Section 3.5; and** **3.42 Make written findings that the conditional use is consistent with the purpose of this *(section, chapter, or article*), as follows.** **A. The extent, location and intensity of the conditional use will be in substantial compliance with the MRCCA Plan;** **B. The conditional use is consistent with the character and management purpose of the MRCCA district in which it is located;** **C. The conditional use will not be detrimental to PCAs and PRCVs nor will it contribute to negative incremental impacts to PCAs and PRCVs when considered in the context of past, present and reasonable future actions; and** **D. The conditional use will not negatively impact (other MRCCA plan-identified resources).** **3.5 Conditions of Approval. The *(zoning authority, governing body, or other appropriate term)* shall evaluate the impacts to PCAs, PRCVs, and other resources identified in the MRCCA Plan, and if negative impacts are found, require conditions to mitigate the impacts that are related to and proportional to the impacts. Mitigation may include:** **A. Restoration of vegetation identified as "vegetation restoration priorities" identified in the MRCCA plan.** **B. Preservation of existing vegetation;** **C. Stormwater runoff management;** **D. Reducing impervious surface;** **E. Increasing structure setbacks;** **F. Wetland and drainageway restoration and/or preservation; and** **G. And other conservation measures.**	*3.41. Optional. Including a reference to optional Section 3.5 provides the zoning authority with a list of mitigation ideas to consider for specific applications.* *3.42.A-D. Optional. Rules do not require findings for conditional uses. These findings help strengthen protection for PCAs and PRCVs in reviewing conditional use applications by providing clarity on what it means to find that the conditional use is consistent with the purpose of this section, chapter, or article.* *3.5. Optional. This list of mitigation ideas can help the zoning authority make decisions on appropriate mitigation that will reduce impacts from approved variances and conditional uses.*

Ordinance Language	*Commentary*
3.6 **Application materials.** Applications for permits and discretionary actions required under this *(section, chapter or article)* must submit the following information unless the (*insert designated official*) determines that the information is not needed.	*3.62.A. Please see the DNR-developed online mapper for locating PCAs by parcel.*
3.61 A detailed project description; and	
3.62 Scaled maps and plans, dimensional renderings, maintenance agreements, and other materials that identify and describe:	
A. Primary conservation areas;	
B. Public river corridor views;	
C. Buildable area;	
D. Existing and proposed topography and drainage patterns;	
E. Proposed storm water and erosion and sediment control practices;	
F. Existing and proposed vegetation to be removed and established;	
G. Ordinary high water level, blufflines, and all required setbacks;	
H. Existing and proposed structures;	
I. Existing and proposed impervious surfaces; and	
J. Existing and proposed subsurface sewage treatment systems.	
3.7 **Nonconformities**.	
3.71 All legally established nonconformities as of the date of this ordinance may continue consistent with 462.357 Subd. 1e .	
3.72 New structures erected in conformance with the setback averaging provisions of Section 6.34 are conforming structures.	*3.74 Optional. LGUs may choose to not include this provision as a higher standard.*
3.73 Site alterations and expansion of site alterations that were legally made prior to the effective date of this ordinance are conforming. Site alterations include vegetation, erosion control, storm water control measures, and other nonstructural site improvements.	
3.74 Legally nonconforming principal structures that do not meet the setback requirements of Section 6.3 may be expanded laterally provided that:	
A. The expansion does not extend into the shore or bluff impact zone or further into the required setback than the building line of the existing principal structure (See Figure 5); and	

Ordinance Language	*Commentary*
B. The expanded structure's scale and bulk is consistent with that of the original structure and existing surrounding development. Figure 5. Expansion of Nonconforming Structure  	
3.8 **Notifications.** 3.81 Amendments to this *(section, chapter, or article)* and to the MRCCA plan must be submitted to the Commissioner as provided in Minnesota Rules, part 6106.0070, Subp. 3, Items B – I.	*3.81 DNR's preferred notification method is via email to the appropriate DNR Area Hydrologist.*
3.82 Notice of public hearings for discretionary actions, including conditional and interim use permits, variances, appeals, rezonings, preliminary plats, final subdivision plats, **master plans,** and PUDs, must be sent to the following entities at least **thirty (30)** ~~**ten (10)**~~ days prior to the hearing: A. The Commissioner in a format prescribed by the DNR; B. National Park Service; and C. where building heights exceed the height limits specified in Section 6.2 as part of the conditional use or variance process, adjoining local governments within the MRCCA, including those with overlapping jurisdiction and those across the river.	*3.82. Optional. Increasing the lead time for the DNR, NPS and adjoining local governments will increase the chance of getting substantive feedback available for consideration at the public hearing.* *3.84 Changes to district boundaries must be supported by approved changes in the MRCCA Plan.* *3.85. Optional. Local governments will get better feedback and fewer surprises by engaging the DNR*

Ordinance Language	*Commentary*
3.83 Notice of final decisions for actions in Section 3.71, including findings of fact, must be sent to the Commissioner, the National Park Service, and adjoining local governments within the MRCCA within ten (10) days of the final decision. 3.84 Requests to amend district boundaries must follow the provisions in Minnesota Rules, part 6106.0100, Subp. 9, Item C. **3.85 The DNR will be notified at time of application submittal of master plans, PUDs, preliminary, and final plats** 3.9 **Accommodating disabilities.** Reasonable accommodations for ramps or other facilities to provide persons with disabilities access to the persons' property, as required by the federal Americans with Disabilities Act and the federal Fair Housing Act and as provided by Minnesota Rules, chapter 1341, must: 3.91 Comply with Sections 6.0 to 12.0; or 3.92 If Sections 6.0 to 12.0 cannot be complied with, ramps or other facilities are allowed with an administrative permit provided: A. The permit terminates on either a specific date or upon occurrence of a particular event related to the person requiring accommodation; and B. Upon expiration of the permit, the ramp or other facilities must be removed. **4.0 MRCCA DISTRICTS** 4.1 **Purpose**. The purpose of this Section is to establish districts under which building height and structure placement are regulated to protect and enhance the Mississippi River's resources and features consistent with the natural and built character of each district. 4.2 **District description and management purpose**. The MRCCA within the *(City or Town)* is divided into the following MRCCA Districts: 4.21 Rural and Open Space (ROS). A. Description. The ROS District is characterized by rural and low-density development patterns and land uses, and includes land that is riparian or visible from the river, as well as large, undeveloped tracts of high ecological and scenic value, floodplain, and undeveloped islands. Many primary conservation areas exist in the district. B. Management purpose. The ROS District must be managed to sustain and restore the rural and natural character of the corridor and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas.	*earlier in the review process for large projects with potential impacts to PCAs and PRCVs* *3.9. This provision has been revised from rules to allow use of an administrative permit instead of an IUP for accommodating disabilities to ensure that "reasonable accommodations" consistent with the federal ADA and Fair Housing Act can be made.* *4.2 Include only those districts in the city or town.*

Ordinance Language	*Commentary*
4.22 River Neighborhood (RN). A. Description. The RN District is characterized by primarily residential neighborhoods that are riparian or readily visible from the river or that abut riparian parkland. The district includes parks and open space, limited commercial development, marinas, and related land uses. B. Management purpose. The RN District must be managed to maintain the character of the river corridor within the context of existing residential and related neighborhood development, and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas. Minimizing erosion and the flow of untreated storm water into the river and enhancing habitat and shoreline vegetation are priorities in the district. 4.23 River Towns and Crossings (RTC). A. Description. The RTC District is characterized by historic downtown areas and limited nodes of intense development at specific river crossings, as well as institutional campuses that predate designation of the MRCCA, and that include taller buildings. B. Management purpose. The RTC district must be managed in a manner that allows continued growth and redevelopment in historic downtowns and more intensive redevelopment in limited areas at river crossings to accommodate compact walkable development patterns and connections to the river. Minimizing erosion and the flow of untreated storm water into the river, providing public access to and public views of the river, and restoring natural vegetation in riparian areas and tree canopy are priorities in the district. 4.24 Separated from River (SR). A. Description. The SR District is characterized by its physical and visual distance from the Mississippi River. The district includes land separated from the river by distance, topography, development, or a transportation corridor. The land in this district is not readily visible from the Mississippi River. B. Management purpose. The SR district provides flexibility in managing development without negatively affecting the key resources and features of the river corridor. Minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the Mississippi River are priorities in the district. The RTC district must be managed in a manner that allows continued growth and redevelopment in historic downtowns and more intensive redevelopment in limited areas at river crossings to accommodate compact walkable development patterns and connections to the river. Minimizing erosion and the flow of untreated storm water into the river, providing public access to and public views of the river, and restoring natural vegetation in riparian areas and tree canopy are priorities in the district.	

Ordinance Language	*Commentary*
4.25 Urban Mixed (UM). A. Description. The UM District includes large areas of highly urbanized mixed use that are a part of the urban fabric of the river corridor, including institutional, commercial, industrial, and residential areas and parks and open space. B. Management purpose. The UM District must be managed in a manner that allows for future growth and potential transition of intensely developed areas that does not negatively affect public river corridor views and that protects bluffs and floodplains. Restoring and enhancing bluff and shoreline habitat, minimizing erosion and flow of untreated storm water into the river, and providing public access to and public views of the river are priorities in the district. 4.26 Urban Core (UC). A. Description. The UC District includes downtown. B. Management purpose. The UC District must be managed with the greatest flexibility to protect commercial, industrial, and other high-intensity urban uses, while minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the river. Providing public access to and public views of the river are priorities in the district.	*4.3 Include a link to the city/town website or DNR website containing the map to make it easier for property owners to find the district for their property.*
4.3 **MRCCA district map**. The locations and boundaries of the MRCCA districts established by this *(section, chapter, or article)* are shown on *(insert name of MRCCA Overlay District map)* which is incorporated herein by reference. The district boundary lines are intended to follow the center lines of rivers and streams, highways, streets, lot lines, and municipal boundaries, unless a boundary line is otherwise indicated on the map. Where district boundaries cross unsubdivided property, the district boundary line is determined by use of dimensions or the scale appearing on the map.	*5.0. The uses and their special conditions in this section must be in the ordinance if the use is allowed. If not, the provision may be excluded from this section, but it should be clear in the ordinance that such uses are prohibited.*
5.0 SPECIAL LAND USE PROVISIONS	
5.1 **Purpose.** To identify development standards and considerations for land uses that have potential to negatively impact primary conservation areas and public river corridor views.	
5.2 **Underlying zoning.** Uses within the MRCCA are generally determined by underlying zoning, with additional provisions for the following land uses:	
5.21 **Agricultural use.** Perennial ground cover is required within 50 feet of the ordinary high water level and within the bluff impact zone.	
5.22 **Feedlots.** New animal feedlots and manure storage areas are prohibited. Existing animal feedlots and manure storage areas must conform with Minnesota Rules, chapter 7020.	*5.24. Optional. Consider prohibiting mining within the OHWL structure setback. Screening of mining operation is possible if the operation is setback from*

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5.23 **Forestry.** Tree harvesting and biomass harvesting within woodlands, and associated reforestation, must be consistent with recommended practices in Conserving Wooded Areas in Developing Communities: Best Management Practices in Minnesota.	*the water. This will enhance recreational use of the River.*
5.24 **Nonmetallic mining.** Nonmetallic mining requires a conditional use permit or interim use permit issued by the local government, subject to the following: A. New nonmetallic mining is prohibited within the shore impact zone and bluff impact zone and within the required structure setback from the bluffline and OHWL; B. Processing machinery must be located consistent with setback standards for structures as provided in Section 6.3; C. Only one barge loading area, which must be limited to the minimum size practicable, is permitted for each mining operation; D. New and, where practicable, existing nonmetallic mining operations must not be readily visible and must be screened by establishing and maintaining natural vegetation. The unscreened boundaries of nonmetallic mining areas are limited to only the barge loading area; E. A site management plan must be developed by the operator and approved by the local government before new nonmetallic mining commences. Operations must be consistent with the site plan throughout the duration of operations at the site. The site management plan must: (1) Describe how the site will be developed over time with an emphasis on minimizing environmental risk to public waters; F. Explain where staged reclamation may occur at certain points during the life of the site; G. Address dust, noise, storm water management, possible pollutant discharges, days and hours of operation, and duration of operations; and H. Describe any anticipated vegetation and topographic alterations outside the pit, and reclamation plans consistent with the stated end use for the land; and; I. Existing and new nonmetallic mining operations must submit land reclamation plans to the local government compatible with the purposes of this ordinance.	
5.25 **River-dependent uses.** River-dependent uses must comply with the following design standards: A. Structures and parking areas, except shoreline facilities and private roads and conveyances serving river-dependent uses as provided in Section 12.0, must meet the dimensional and performance standards in	

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this *(section, chapter, or article),* must be designed so that they are not readily visible, and must be screened by establishing and maintaining natural vegetation; B. Shoreline facilities must comply with Minnesota Rules, chapter 6115 and must: (1) be designed in a compact fashion so as to minimize the shoreline area affected; and (2) minimize the surface area of land occupied in relation to the number of watercraft or barges to be served; and C. Dredging and placement of dredged material are subject to existing federal and state permit requirements and agreements. 5.26 **Wireless communication towers.** Wireless communication towers require a conditional or interim use permit and are subject to the following design standards: A. The applicant must demonstrate that functional coverage cannot be provided through co-location, a tower at a lower height, or a tower at a location outside of the MRCCA; B. The tower must not be located in a bluff or shore impact zone; and C. Placement of the tower must minimize impacts on public river corridor views. D. Comply with the general design standards in Section 8.2.	*5.26. The word "facilities" is replaced with "towers" to improve consistency throughout this provision.*
6.0 STRUCTURE HEIGHT AND PLACEMENT AND LOT SIZE 6.1 **Purpose.** To establish standards that protect primary conservation areas and public river corridor views from development impacts and ensure that new development is sited consistent with the purpose of the MRCCA. 6.2 **Structure height.** Structures and facilities must comply with the following standards unless identified as exempt in Section 12.0. 6.21 Structures and facilities must comply with the following standards unless identified as exempt in Section 12.0. A. ROS District: 35 feet **(or lower).** B. RN District: 35 feet. C. RTC District: 48 feet **(or lower)**, provided tiering of structures away from the Mississippi River and from blufflines is given priority, with lower structure heights closer to the river and blufflines, and that structure design and placement minimizes interference with public river corridor views. Structures over 48 feet **(or lower) and up to (fill in a max. height)** are allowed as a conditional use according to Section 6.23.	*6.21. Optional. Reduce the maximum heights allowed by right in any district and implement a maximum height allowed through a CUP in the RTC and UM District. This will reduce the heights requested by developers and provide better protection of scenic resources. These changes will also provide more opportunities to add conditions or require mitigation, especially in redevelopment areas.* *6.21 Optional. Replace the vague tiering and priority language in the RTC, UM, and UC Districts with specific height standards based on distance from the river that would be zoned/mapped through additional zoning districts (e.g. RTC-1, RTC-2, etc.). For each district further from the river, a maximum height allowed by CUP would be increased.*

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D. SR District: Height is determined by underlying zoning, provided the allowed height is consistent with that of the mature treeline, where present, and existing surrounding development, as viewed from the OWHL of the opposite shore. E. UM District: 65 feet, provided tiering of structures away from the Mississippi River and from blufflines is given priority, with lower structure heights closer to the river and blufflines, and that structure design and placement minimize interference with public river corridor views. Structures over 65 feet **(or lower) and up to (fill in a max. height)** are allowed as a conditional use according to Section 6.23. F. UC District: Height is determined by underlying zoning, provided tiering of structures away from the Mississippi River and blufflines is given priority, with lower structure heights closer to the river and blufflines, and structure design and placement minimize interference with public river corridor views. 6.22 Height is measured on the side of the structure facing the Mississippi River. 6.23 In addition to the conditional use permit requirements of Section 3.4, criteria for considering whether to grant a conditional use permit for structures exceeding the height limits must include: A. Assessment of the visual impact of the proposed structure on public river corridor views, including views from other communities; **B. Determination that the proposed structure meets the required bluff and OHWL setbacks;** C. Identification and application of techniques to minimize the perceived bulk of the proposed structure, such as: (1) Placing the long axis of the building perpendicular to the river; (2) Stepping back of portions of the facade; **(3) Lowering the roof pitch or use of a flat roof;** **(4) Using building materials or mitigation techniques that will blend in with the natural surroundings such as green roofs, green walls, or other green and brown building materials;** (5) Narrowing the profile of upper floors of the building; or (6) Increasing the setbacks of the building from the Mississippi River or blufflines; (7) Identification of techniques for preservation of those view corridors identified in the MRCCA Plan; and (8) Opportunities for creation or enhancement of public river corridor views.	*6.22 Communities may wish to cross reference their building height definition in their ordinance for compatibility with this provision.* *6.23 LGUs may want to use visual analysis tools to help understand and communicate visual impacts during project review and approval. See DNR guidance for PRCV Viewshed Analysis, using Google Earth and Sketch up, which are freely available visual assessment tools.* *6.23.B. Optional. This standard would link CUP approval with conformance to bluff setback standards.* *6.23.C. 3&4. Optional. These additional techniques can help reduce visual impacts in certain situations.* *6.3. Local governments may apply stricter standards than those listed here. Increasing structure setbacks can help reduce the risk of erosion in near shore and bluff areas and enhance the aesthetic character of*

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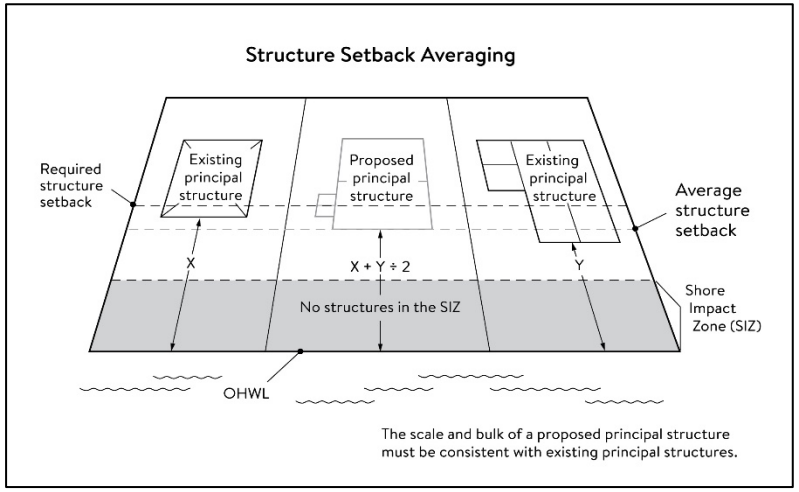
6.3 **Structure and impervious surface placement.** 6.31 Structures and impervious surface must not be placed in the shore or bluff impact zones unless identified as an exemption in Section 12.0. 6.32 Structures and facilities must comply with the following OHWL setback provisions unless identified as exempt in Section 12.0. A. ROS District: 200 feet from the Mississippi River and 150 feet from the Minnesota and Vermillion Rivers. B. RN District: 100 feet from the Mississippi River and 75 feet from the Rum and Vermillion Rivers. C. RTC District: 75 feet from the Mississippi, Crow, and Rum Rivers. D. SR District: 75 feet from the Vermillion River. E. UM District: 50 feet from the Mississippi River. F. UC District: Setbacks are determined by underlying zoning. 6.33 Structures and facilities must comply with the following bluffline setback provisions unless identified as exempt in Section 12.0: A. ROS District: 100 feet. B. RN District: 40 feet. C. RTC District: 40 feet. D. SR District: 40 feet. E. UM District: 40 feet. F. UC District: 40 feet. 6.34 Where principal structures exist on the adjoining lots on both sides of a proposed building site, the minimum setback may be altered to conform to the average of the adjoining setbacks, provided that the new structure's scale and bulk riverward or bluffward of the setbacks required under Sections 6.32 and 6.33 are consistent with adjoining development. See Figure 6.	*the river. Larger setbacks also allow room for larger riparian buffers.*

Ordinance Language	*Commentary*
Figure 6. Structure Setback Averaging  6.35 Subsurface sewage treatment systems, including the septic tank and absorption area, must be located at least 75 feet from the ordinary high water level of the Mississippi River and all other public waters. 6.4 **Lot size and buildable area.** 6.41 The width of lots abutting the Mississippi River in the ROS District must be at least 200 feet, unless alternative design methods are used that provide greater protection of the riparian area. 6.42 All new lots must have adequate buildable area to comply with the setback requirements of Sections 6.32 and 6.33 so as to not require variances to use the lots for their intended purpose. **7.0 PERFORMANCE STANDARDS FOR PRIVATE FACILITIES** 7.1 **Purpose.** To establish design standards for private facilities that are consistent with best management practices and that minimize impacts to primary conservation areas, public river corridor views and other resources identified in the MRCCA plan. 7.2 **General design standards**. All private facilities must be developed in accordance with the vegetation management and land alteration requirements in Sections 9.0 and 10.0. 7.3 **Private roads, driveways, and parking areas**. Except as provided in Section 12.0, private roads, driveways and parking areas must:	*6.41. This provision only applies in the ROS district.*

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7.31 Be designed to take advantage of natural vegetation and topography so that they are not readily visible; 7.32 Comply with structure setback requirements according to Section 6.3; and 7.33 Not be placed within the bluff impact zone or shore impact zone, unless exempt under Section 12.0 and designed consistent with Section 8.2. 7.4 **Private water access and viewing facilities**. 7.41 Private access paths must be no more than: A. Eight feet wide, if placed within the shore impact zone; and B. Four feet wide, if placed within the bluff impact zone. 7.42 Private water access ramps must: A. Comply with Minnesota Rules, chapters 6115.0210 and 6280.0250; and B. Be designed and constructed consistent with the applicable standards in Design Handbook for Recreational Boating and Fishing Facilities. 7.43 Design and construction of private stairways, lifts, and landings are subject to the following standards: A. Stairways and lifts must not exceed four feet in width on residential lots. Wider stairways may be used for commercial properties and residential facilities held in common, if approved by (insert name of LGU permit or approval type); B. Landings for stairways and lifts on residential lots must not exceed 32 square feet in area. Landings larger than 32 square feet area allowed for commercial properties and residential facilities held in common, if approved by *(insert name of LGU permit or approval type);* C. Canopies or roofs are prohibited on stairways, lifts, or landings; D. Stairways, lifts, and landings must be located in the least visible portion of the lot whenever practical; and E. Ramps, lifts, mobility paths, or other facilities for persons with physical disabilities are allowed for achieving access to shore areas according to Section 7.43 A. – D, and as provided under Section 3.9. 7.45 One water-oriented accessory structure is allowed for each riparian lot or parcel less than 300 feet in width at the ordinary high water level, with one additional water-oriented accessory structure allowed for each additional 300 feet of shoreline on the same lot or parcel. Water-oriented accessory structures are prohibited in the bluff impact zone and must: A. not exceed 12 feet in height;	*7.42.B.* This publication is available as a hard copy from the US Fish & Wildlife Services Conservation Library or by purchase from States Organization for Boating Access (SOBA) for $55. *7.5. Optional. Eliminate this provisions and prohibit decks and patios within the structure setback.*

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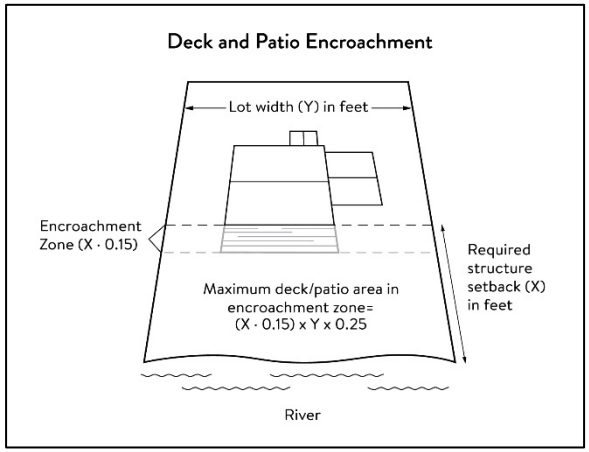
B. not exceed 120 square feet in area; and C. be placed a minimum of 10 feet from the ordinary high water level. 7.5 **Decks and patios in setback areas.** Decks and at-grade patios may encroach into the required setbacks from the ordinary high water level and blufflines without a variance, when consistent with Sections 9.0 and 10.0, provided that: 7.51 The encroachment of the deck or patio into the required setback area does not exceed 15 percent of the required structure setback; 7.52 the area of the deck or patio that extends into the required setback area occupies no more than 25 percent of the total area between the required setback and the 15 percent using the formula: [required setback depth (feet) x 0.15 x lot width (feet) = maximum total area] 7.53 The deck or patio does not extend into the bluff impact zone. See Figure 7. Figure 7. Deck and Patio Encroachment  7.6 **Off-premise and directional signs.** 7.61 Off-premise advertising signs must: A. Meet required structure placement and height standards in Sections 6.2 and 6.3. B. Not be readily visible 7.62 Directional signs for patrons arriving at a business by watercraft must comply with the following standards:	*7.6. If local governments choose to allow off-premise signs and signs in the shore impact zone, these provision must be included. If not, LGUs must exclude them.*

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A. They must be consistent with Minnesota Statutes, section 86B.115. B. Only convey the location and name of the establishment and the general types of goods and services available, if located in a shore impact zone. C. Be no greater than ten feet in height and 32 square feet in surface area; and D. If illuminated, the lighting must be shielded to prevent illumination out across the river or to the sky. **7.7 Fences. Fences between principal structures and the river are allowed provided that fences are:** **7.71 Not higher than six feet.** **7.72 Not located within 40 feet of slopes greater than 12%.** **7.73 Not located in the regulatory floodplain.** **8.0 PERFORMANCE STANDARDS FOR PUBLIC FACILITIES** 8.1 **Purpose.** To establish design standards for public facilities that are consistent with best management practices and that minimize impacts to primary conservation areas, public river corridor views and other resources identified in the MRCCA plan. Public facilities serve the public interest by providing public access to the Mississippi River corridor or require locations in or adjacent to the river corridor and therefore require some degree of flexibility. 8.2 **General design standards**. All public facilities must be designed and constructed to: 8.21 Minimize visibility of the facility **from the river** to the extent consistent with the purpose of the facility; 8.22 Comply with the structure placement and height standards in Section 6.0, except as provided in Section 12.0; 8.23 Be consistent with the vegetation management standards in Section 9.0 and the land alteration and storm water management standards in Section 10.0, including use of practices identified in Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001, where applicable; 8.24 Avoid primary conservation areas, unless no alternative exists. If no alternative exists, then disturbance to primary conservation areas must be avoided to the greatest extent practicable, and design and construction must minimize impacts; and 8.25 Minimize disturbance of spawning and nesting times by scheduling construction at times when local fish and wildlife are not spawning or nesting. 8.3 **Right-of-way maintenance standards**. Right-of-way maintenance must comply with the following standards:	*7.61.B. Note that the term "readily visible" is defined in the definitions section.* *7.62. This language may conflict with supreme court decisions regarding free speech and the first amendment. The provision is intended to prohibit nonessential signs in the shore impact zone to limit the impact on scenic views while allowing directional signage. If LGUs want to allow such signs and are uncomfortable with this language, they should propose alternative language. If LGUs do not want signs in the SIZ, then this language should be eliminated and replaced with language prohibiting nonessential signs in the SIZ.* *7.7. Optional. Language regulating fences in the SIZ will protect river views and may minimize neighbor conflicts over fences and views to the river.* *8.21. Optional. Added text provides administrative clarity that views from the river are important to protect.*

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8.31 Vegetation currently in a natural state must be maintained to the extent feasible; 8.32 Where vegetation in a natural state has been removed, native plants must be planted and maintained on the right-of-way; and 8.33 Chemical control of vegetation must be avoided when practicable, but when chemical control is necessary, chemicals used must be in accordance with the regulations and other requirements of all state and federal agencies with authority over the chemical's use. 8.4 **Crossings of public water or public land.** Crossings of public waters or land controlled by the commissioner are subject to approval by the commissioner according to Minnesota Statutes, sections 84.415 and 103G.245. 8.5 **Public utilities**. Public utilities must comply with the following standards: 8.51 High-voltage transmission lines, wind energy conversion systems greater than five megawatts, and pipelines are regulated according to Minnesota Statutes, chapter 216E, 216F, and 216G respectively; and 8.52 If overhead placement is necessary, utility **facility** crossings must **minimize visibility of the facility from the river ~~be hidden from view~~ and follow other existing right of ways** as much as practicable. 8.53 The appearance of structures must be as compatible as practicable with the surrounding area in a natural state with regard to height and width, materials used, and color. 8.54 Wireless communication facilities, according to Section 5.26. 8.6 **Public transportation facilities**. Public transportation facilities shall comply with structure placement and height standards in Section 6.0. Where such facilities intersect or about two or more MRCCA districts, the least restrictive standards apply. Public transportation facilities must be designed and constructed to give priority to: 8.61 Providing scenic overlooks for motorists, bicyclists, and pedestrians; 8.62 Providing safe pedestrian crossings and facilities along the river corridor; 8.63 Providing access to the riverfront in public ownership; and 8.64 Allowing for use of the land between the river and the transportation facility. 8.7 **Public recreational facilities**. Where such facilities intersect or abut two or more MRCCA districts, the least restrictive dimensional standards apply. Public transportation facilities must be designed and constructed to give priority to: 8.71 Buildings and parking associated with pubic recreational facilities must comply with the structure placement and height standards in Section 6.0, except as provided in Section 12.0; 8.72 Roads and driveways associated with public recreational facilities must not be placed in the bluff or shore impact zones unless no other placement alternative exists. If no alternative exists, then design and	*8.5. There are situations where local governments have jurisdiction for approving transmission projects. See 216E.05 Subd. 1. In those cases, the local government would apply these standards in reviewing and approving the transmission application 8.52. Optional. Added text provides administrative clarity that views from the river are important to protect when local governments have approval authority.*

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construction must minimize impacts to shoreline vegetation, erodible soils and slopes, and other sensitive resources.	
8.73 Trails, access paths, and viewing areas associated with public recreational facilities and providing access to or views of the Mississippi River are allowed within the bluff and shore impact zones if design, construction, and maintenance methods are consistent with the best management practice guidelines in Trail Planning, Design, and Development Guidelines.	*8.73. Contact the DNR Parks and Trails Division at 651-259-5600 to get the password to download a free copy.*
A. Hard-surface trails are not allowed on the face of bluffs with a slope exceeding 30 percent. Natural surface trails are allowed, provided they do not exceed eight feet in width.	
B. Trails, paths, and viewing areas must be designed and constructed to minimize:	*8.73.A. While this is an accessibility concern, there is no requirement to make all places accessible. Most hiking trails are not accessible. The impacts to bluffs with slopes over 30% to build accessible trails would result in enormous grading changes and vegetation removal.*
(1) Visibility from the river;	
(2) Visual impacts on public river corridor views; and	
(3) Disturbance to and fragmentation of primary conservation areas.	
8.74 Public water access facilities must comply with the following requirements:	
A. Watercraft access ramps must comply with Minnesota Rules chapters 6115.0210 and 6280.0250; and	
B. Facilities must be designed and constructed consistent with the standards in Design Handbook for Recreational Boating and Fishing Facilities.	
8.75 Public signs and kiosks for interpretive or directional purposes are allowed in the bluff or shore impact zones, provided they are placed and constructed to minimize disturbance to these areas and avoid visual impacts on public river corridor views.	*8.74.B.* This publication is available as a hard copy from the US Fish & Wildlife Services Conservation Library or by purchase from States Organization for Boating Access (SOBA) for $55.
8.76 Public stairways, lifts, and landings must be designed as provided in Section 7.43.	
9.0 VEGETATION MANAGEMENT	
9.1 **Purpose.** To establish standards that sustain and enhance the biological and ecological functions of vegetation; preserve the natural character and topography of the MRCCA; and maintain stability of bluffs and steep slopes and ensure stability of other erosion-prone areas.	
9.2 **Applicability.** This section applies to:	
9.21 Shore impact zones;	
9.22 Areas within 50 feet of a wetland or natural drainage way;	*9.2 LGUs are not allowed to restrict the height of ground cover vegetation in these "designated" areas such as through nuisance weed control ordinances. If*
9.23 Bluff impact zones;	

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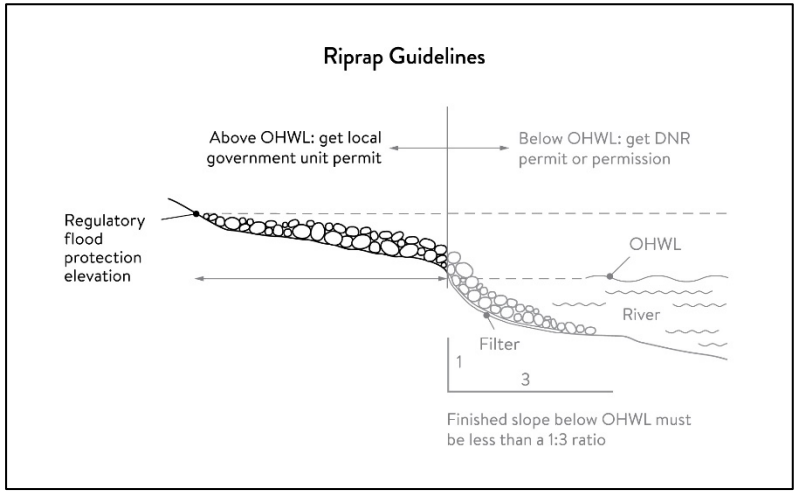
9.24 Areas of native plant communities; and 9.25 Significant existing vegetative stands identified in the MRCCA plan. 9.3 **Activities allowed without a vegetation permit.** 9.31 Maintenance of existing lawns, landscaping and gardens; 9.32 Removal of vegetation in emergency situations as determined by *(insert name of LGU);* 9.33 Right-of-way maintenance for public facilities meeting the standards Section 8.3; 9.34 Agricultural and forestry activities meeting the standards of Sections 5.21 and 5.23; 9.35 Selective vegetation removal, provided that vegetative cover remains consistent with the management purpose of the MRCCA District, including: A. Vegetation that is dead, diseased, dying, or hazardous; B. To prevent the spread of diseases or insect pests; **C. Individual trees and shrubs; and** D. Removal of invasive non-native species. 9.4 **Activities allowed with a vegetation permit.** 9.41 The following intensive vegetation clearing activities are allowed with a vegetation permit: A. Clearing of vegetation that is dead, diseased, dying, or hazardous; B. Clearing to prevent the spread of diseases or insect pests; C. Clearing to remove invasive non-native species. D. Clearing to prepare for restoration and erosion control management activities consistent with a plan approved by (*insert name of LGU or name of resource agency*). E. The minimum necessary for development that is allowed with a building permit or as an exemption under Section 12.0. 9.42 Conditions of vegetation permit approval: A. Development is sited to minimize removal of or disturbance to natural vegetation; B. Soil, slope stability, and hydrologic conditions are suitable for the proposed work as determined by a professional engineer or (insert name of resource agency, if someone other than professional engineer is desired);	*such ordinance provisions exist, LGUs must amend them so they do not apply to these designated areas.* *9.35.C. This provides clarity that removing individual trees and shrubs is allowed under the rules.* *9.4 LGUs must develop a new or use an existing permit process consistent with 6106.0150 Subp. 4. LGUs must submit documentation to the DNR verifying a process and administrative forms and procedures as part of ordinance review and approval process. LGUs have the authority to approve, approve with conditions or deny a vegetation permit application.*

Ordinance Language	*Commentary*
C. Clearing is the minimum necessary and designed to blend with the natural terrain and minimize visual impacts to public river corridor views; D. Any native plant communities removed are replaced with vegetation that provides equivalent biological and ecological functions consistent with an approved vegetation restoration plan as provided in Section 9.62. If replaced, priorities for restoration are stabilization of erodible soils, restoration or enhancement of shoreline vegetation, and revegetation of bluffs or steep slopes visible from the river; E. All other vegetation removed is restored with natural vegetation to the greatest extent practicable consistent with an approved vegetation restoration plan as provided in Section 9.62. Priorities for replacement are the same as under Section 9.42.D; F. Any disturbance of highly erodible soils is replanted with deep-rooted vegetation with a high stem density; G. Vegetation removal activities are conducted so as to expose the smallest practical area of soil to erosion for the least possible time; H. **Areas of vegetation restoration priorities identified in the MRCCA plan are restored, if applicable;** and I. Any other condition determined necessary to achieve the purpose of this section. 9.5 **Prohibited activities.** All other intensive vegetation clearing is prohibited. 9.6 **Vegetation restoration plan.** 9.61 Development of a vegetation restoration plan and reestablishment of natural vegetation is required: A. As a condition of a vegetation permit issued under Section 9.42, items D and E; B. Upon failure to comply with any provisions in this section; or C. As part of the planning process for subdivisions as provided in Section 11.0. 9.62 The vegetation restoration plan must satisfy the application submittal requirements in 3.6, and: A. Include vegetation that provides suitable habitat and effective soil stability, runoff retention, and infiltration capability. Vegetation species, composition, density, and diversity must be guided by nearby patches of native plant communities and by Native Vegetation Establishment and Enhancement Guidelines; B. Be prepared by a qualified individual; and	*9.42. H. Optional. This condition implements a required implementation action in the approved MRCCA plan. The action calls for establishing a vegetation permitting process that includes permit review procedures to ensure consideration of restoration priorities identified in the plan in permit issuance and conditions requiring vegetation restoration for those priority areas.*

Ordinance Language	*Commentary*
C. Include a maintenance plan that includes management provisions for controlling invasive species and replacement of plant loss for three years. 9. 63 A certificate of compliance will be issued after the vegetation restoration plan requirements have been satisfied. **10.0 LAND ALTERATION STANDARDS AND STORMWATER MANAGEMENT** 10.1 **Purpose.** To establish standards that protect water quality from pollutant loadings of sediment, nutrients, bacteria, and other contaminants; and maintain stability of bluffs, shorelines, and other areas prone to erosion. 10.2 **Land alteration permit**. 10.21 Within the bluff impact zone, land alteration is prohibited, except for the following which are allowed by permit. A. Erosion control consistent with Section 10.6; B. The minimum necessary for development that is allowed as an exception under Section 12; and C. Repair and maintenance of existing buildings and facilities. 10.22 Within the water quality impact zone, land alteration that involves more than ten cubic yards of material or affects an area greater than 1,000 square feet requires a permit. 10.3 **Rock riprap, retaining walls, and other erosion control structures**. 10.31 Construction, repair, or replacement of rock riprap, retaining walls, and other erosion control structures located at or below the OHWL must comply with Minnesota Rules, chapters 6115.0215, subpart 4, item E, and 6115.0216, subpart 2. Work must not proceed until approved by the commissioner. See Figure 8.	*9.62. LGUs could consider identifying what a qualified professional means in different situations.* *10.22. Optional. LGUs may increase the distance or area where a land alteration permit is required.*

Ordinance Language	*Commentary*
Figure 8. Riprap Guidelines  10.32 Construction or replacement of rock riprap, retaining walls, and other erosion control structures within the bluff impact zone and the water quality impact zone are allowed with a permit consistent with provisions of Section 10.6 provided that: A. If the project includes work at or below the OHWL, the commissioner has already approved or permitted the project. B. The structures are used only to correct an established erosion problem as determined by the (insert name of LGU and/or resource agency). C. The size and extent of the structures are the minimum necessary to correct the erosion problem and are not larger than the following, unless a professional engineer determines that a larger structure is needed to correct the erosion problem: (1) Retaining walls must not exceed five feet in height and must be placed a minimum horizontal distance of ten feet apart; and (2) Riprap must not exceed the height of the regulatory flood protection elevation. 10.33 Repair of existing rock riprap, retaining walls, and other erosion control structures above the OHWL does not require a permit provided it does not involve any land alteration under Section 10.2. 10.4 **Stormwater management.** 10.41 In the bluff impact zone, storm water management facilities are prohibited**,** except by permit if:	*10.41. Optional. Could add the bluff setback to this standard to increase the area in which stormwater treatment facilities would not be allowed.*

Ordinance Language	*Commentary*
A. There are no alternatives for storm water treatment outside the bluff impact zone on the subject site; B. The site generating runoff is designed so that the amount of runoff reaching the bluff impact zone is reduced to the greatest extent practicable; C. The construction and operation of the facility does not affect slope stability on the subject property or adjacent properties; and D. Mitigation based on the best available engineering and geological practices is required and applied to eliminate or minimize the risk of slope failure. 10.42 In the water quality impact zone, development that creates new impervious surface, as allowed by exemption in Section 12.0, or fully reconstructs existing impervious surface of more than 10,000 square feet requires a storm water permit or approved storm water plan. Multipurpose trails and sidewalks are exempt if there is down gradient vegetation or a filter strip that is at least five feet wide. 10.43 In all other areas, storm water runoff must be directed away from the bluff impact zones or unstable areas. 10.5 **Development on steep slopes**. Construction of structures, impervious surfaces, land alteration, vegetation removal, or other construction activities are allowed on steep slopes if: 10.21 The development can be accomplished without increasing erosion or storm water runoff; 10.22 The soil types and geology are suitable for the proposed development; and 10.23 Vegetation is managed according to the requirements of Section 9.0. 10.6 **Conditions of land alteration permit approval.** 10.61 Temporary and permanent erosion and sediment control measures retain sediment onsite consistent with best management practices in the Minnesota Stormwater Manual; 10.62 Natural site topography, soil, and vegetation conditions are used to control runoff and reduce erosion and sedimentation; 10.63 Construction activity is phased when possible; 10.64 All erosion and sediment controls are installed before starting any land disturbance activity; 10.65 Erosion and sediment controls are maintained to ensure effective operation; 10.66 The proposed work is consistent with the vegetation standards in Section 9.0; and 10.67 Best management practices for protecting and enhancing ecological and water resources identified in Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001.	*10.42 Local governments must review and approve storm water permits/plans using the same standard used in their MS4 permit for post construction storm water management, or if no MS4 permit, then compliance with the current NPDES program permit for construction storm water.*

Ordinance Language	*Commentary*
10.7 **Compliance with other plans and programs.** All development must: 10.71 Be consistent with Minnesota Statutes, chapter 103B, and local water management plans completed under chapter 8410; 10.72 Meet or exceed the wetland protection standards under Minnesota Rules, chapter 8420; and 10.73 Meet or exceed the floodplain management standards under Minnesota Rules, chapter 6120. 5000 – 6120.6200	*10.7 Local governments may eliminate these provisions if similar language is included elsewhere in the ordinance.*
11.0 SUBDIVISION AND LAND DEVELOPMENT STANDARDS 11.1 **Purpose.** 11.11 To protect and enhance the natural and scenic values of the MRCCA during development or redevelopment of the remaining large sites 11.12 To establish standards for protecting and restoring biological and ecological functions of primary conservation areas on large sites; and 11.13 To encourage restoration of natural vegetation during development or redevelopment of large sites where restoration opportunities have been identified in MRCCA Plans.	
11.2 **Applicability.** 11.21 The design standards in this section apply to subdivisions, planned unit developments and master- planned development and redevelopment of land involving ten or more acres for **contiguous** parcels that abut the Mississippi River and 20 or more acres for all other parcels, including smaller individual sites within the following developments that are part of a common plan of development that may be constructed at different times: A. Subdivisions; B. Planned unit developments; and C. Master-planned development and redevelopment of land. 11.22 The following activities are exempt from the requirements of this section: A. Minor subdivisions consisting of three or fewer lots; B. Minor boundary line corrections; C. Resolutions of encroachments; D. Additions to existing lots of record;	*11.21. Optional. The 10-acre threshold is high considering redevelopment in urban areas of the corridor. Consider reducing to a lower threshold such as five-acres. This way communities can ensure more public access to the river and better protection or restoration of PCAs and PRCVs.* *Additionally, this provision is intended to ensure that all land adjacent to the River be protected. The optional word "contiguous" helps to communicate this and to reduce the potential for using existing parcel sizes to weaken protections for land adjacent to the river.*

Ordinance Language	*Commentary*
E. Placement of essential services; and F. Activities involving river-dependent commercial and industrial uses. 11.3 **Application materials.** Project information listed in Section 3.6 must be submitted for all proposed developments. 11.4 **Design standards.** 11.41 Primary conservation areas, where they exist, must be set aside and designated as protected open space in quantities meeting the following as a percentage of total parcel area: A. CA-ROS District: 50%; B. CA-RN District: 20%; C. CA-RTC, CA-UM, and CA-UC Districts: 10%; and D. CA-SR District: 10% if the parcel includes native plant communities or provides feasible connections to a regional park or trail system, otherwise no requirement. 11.42 If the primary conservation areas exceed the amounts specified in Section 11.41, then protection of native plant communities and natural vegetation in riparian areas shall be prioritized. 11.43 If primary conservation areas exist but do not have natural vegetation (identified as restoration priorities in the MRCCA Plan), then a vegetation assessment must be completed to evaluate the unvegetated primary conservation areas and determine whether vegetation restoration is needed. If restoration is needed, vegetation must be restored according to Section 9.62. 11.44 If primary conservation areas do not exist on the parcel and portions of the parcel have been identified in the MRCCA plan as a restoration area, vegetation must be restored in the identified areas according to Section 9.62 and the area must be set aside and designated as protected open space. 11.45 Storm water treatment areas or other green infrastructure may be used to meet the protected open space requirements if the vegetation provides biological and ecological functions. 11.46 Land dedicated under (insert LGU ordinance citation) for public river access, parks, or other open space or public facilities may be counted toward the protected open space requirement. 11.47 Protected open space areas must connect open space, natural areas, and recreational areas, where present on adjacent parcels, as much as possible to form an interconnected network. 11.5 **Permanent protection of designated open space**. 11.51 Designated open space areas must be protected through one or more of the following methods: A. Public acquisition by a government entity for conservation purposes;	*11.3. Local governments must provide for pre-project review of all proposed subdivisions, redevelopments, and planned unit developments.* *11.41.C. Optional. Increase set aside percentage in all district. As land in these districts gets redeveloped, it will be important to ensure PCAs and land is set aside for future parks and open space, especially for urban areas where there is greater density and opportunities to work and play along the river.* *11.46 This ordinance citation refers to LGU "park" dedication or in-lieu fee provisions adopted under Minnesota Statutes, section 462.358, subdivision 2b. If LGU has not adopted such provisions this section may be omitted.*

Ordinance Language	Commentary
B. A permanent conservation easement, as provided in Minnesota Statutes, chapter 84C; C. A deed restriction; and D. Other arrangements that achieve an equivalent degree of protection. 11.52 Permanent protection methods must ensure the long-term management of vegetation to meet its biological and ecological functions, prohibit structures, and prohibit land alteration, except as needed to provide public recreational facilities and access to the river. 11.6 **Alternative design standards**. **12.0 EXEMPTIONS** 12.1 **Purpose.** To provide exemptions to structure placement, height and other standards for specific river or water access dependent facilities as provided in Minnesota Statutes 116G.15 Subd. 4. 12.2 **Applicability.** 12.21 Uses and activities not specifically exempted must comply with this *(section, chapter, or article)*. Uses and activities exempted under shore impact zone and bluff impact zone must comply with the vegetation management and land alteration standards in Sections 9 and 10. 12.22 Uses and activities in Section 12.3 are categorized as: A. **Exempt – E.** This means that the use or activity is allowed; B. **Exempt if no alternative - (E).** This means that the use or activity is allowed only if no alternatives exist; and C. **Not exempt - N.** This means that a use or activity is not exempt and must meet the standards of this ordinance. 12.3 **Use and activity exemptions classification.** 12.31 General uses and activities.	*11.6 The MRCCA rules state that local ordinances must contain provisions, including incentives, for alternative design methods that achieve better protection or restoration of PCAs. Local governments must develop provisions that achieve additional protections for or restoration of primary conservation areas. These should address PCA resources specific to the community and unique opportunities for their protection or restoration within the type of development or redevelopment that is likely to happen in the community. The DNR will consider a wide variety of provisions to meet this requirement. Some ideas include:* • *Protection and restoration of continuous vegetation – preventing the fragmentation of vegetation and habitat by individual lots, especially along the river and natural drainage areas and protecting it as common open space.* • *Density bonus and smaller lots in return for protection of open space beyond the minimum identified in 11.41.* • *Use of conservation design or transfer of development rights in return for protection of open space beyond the minimum identified in 11.41.* • *Other zoning and site design techniques.*

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Industrial and utility structures requiring greater height for operational reasons (such as elevators, refineries and railroad signaling towers)	N	E	N	N	Structure design and placement must minimize interference with public river corridor views.
Barns, silos, and farm structures	N	E	N	N	
Bridges and bridge approach roadways	E	E	E	(E)	Section 8
Wireless communication towers	E	E	N	N	Section 5.26

Ordinance Language						Commentary
Chimneys, church spires, flag poles, public monuments, and mechanical stacks and equipment	N	E	N	N		
Historic properties and contributing properties in historic districts	E	E	E	E	Exemptions do not apply to additions or site alterations	
Buildings and structures on the face of or abutting the bluff in the CA-UC district of St. Paul, between Chestnut Street and Highway 52.	E	n/a	n/a	E	Height in CA-UC district is governed by underlying zoning	

12.32 Public utilities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Electrical power facilities	E	E	E	(E)	Section 8
Essential services (other than storm water facilities)	E	E	E	(E)	Section 8
Storm water facilities	E	N	E	(E)	Section 10
Wastewater treatment	E	N	E	N	Section 8
Public transportation facilities	E	N	(E)	(E)	Section 8

12.33 Public recreational facilities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Accessory structures, such as monuments, flagpoles, light standards, and similar park features	E	E	(E)	(E)	Section 8; within BIZ, only on slopes averaging less than 30%. Exemptions do not apply to principal structures.
Picnic shelters and other open-sided structures	E	N	(E)	N	Section 8
Parking lots	(E)	N	(E)	(E)	Section 8; within BIZ, only within 20 feet of toe of bluff; not on face of bluff; and must not affect stability of bluff
Roads and driveways	(E)	N	(E)	(E)	Section 8
Natural-surfaced trails, access paths, and viewing areas	E	N	E	E	Section 8
Hard-surfaced trails and viewing platforms	E	N	E	(E)	Section 8; within BIZ, only on slopes averaging less than 30%

Ordinance Language						*Commentary*
Water access ramps	E	N	E	(E)	Section 8	
Public signs and kiosks for interpretive or directional purposes	E	N	E	(E)	Section 8	

12.34 River-dependent uses.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Shoreline facilities	E	N[1]	E	(E)	Section 5.25. Exemptions do not apply to buildings, structures, and parking areas that are not part of a shoreline facility
Private roads and conveyance structures serving river-dependent uses	E	N[1]	E	(E)	Section 5.25

12.35 Private residential and commercial water access and use facilities.

Use or Activity	Set backs	Height Limits	SIZ	BIZ	Applicable standards with which the use or activity must comply
Private roads serving 3 or more lots	(E)	N	N	(E)	Section 7; in BIZ, only on slopes averaging less than 30%. Exemption does not apply to private roads serving fewer 3 lots or to private driveways and parking areas
Access paths	E	N	E	E	Section 7
Water access ramps	E	N	E	N	Section 7
Stairways, lifts, and landings	E	N	E	E	Section 7
Water-oriented accessory structures	E	N	E	N	Section 7
Patios and decks	E	N	N	N	Section 7.5

[1] River-dependent commercial, industrial, and utility structures are exempt from height limits only if greater height is required for operational reasons.

Ordinance Language						*Commentary*
Directional signs for watercraft (private)	E	N	E	N	Section 7.6; exemption does not apply to off-premise advertising signs	
Temporary storage of docks, boats, and other equipment during the winter months	E	N	E	N		
Erosion control structures, such as rock riprap and retaining walls	E	N	E	(E)	Sections 10.3, 10.5 and 10.6	
Flood control structures	E	N	E	(E)	Section 10	

Chapter 06: Mississippi River Corridor Critical Area Plan (MRCCA)

Previously Approved
For Background Only

Introduction

Designated by Governor's Executive Order in the 1970s, the Mississippi River Corridor Critical Area (MRCCA) is a land corridor along the Mississippi River in the Twin Cities Metropolitan Area governed by special land planning requirements and land development regulations. These regulations, which are implemented through local MRCCA plans and ordinances, protect and preserve the natural, scenic, recreational, and transportation resources of this section of the Mississippi River. The MRCCA comprises 72 miles of river and 54,000 acres of surrounding land in 30 local jurisdictions.

Ramsey adopted its first Critical Area Plan in 1980. Ramsey adopted its first Critical Area Ordinance in 1985, and has processed several amendments since that date.

Ramsey has ensured that plan preparation has included extensive public engagement. In 2013, Ramsey hosted a series of public workshops on the topic, and maintains a contact database. With the 2040 Comprehensive Plan update that included the updating of the MRCCA plan, the City has conducted the most extensive public engagement process to date for any of its Comprehensive Plan updates. Community engagement included both online and in person activities resulting in feedback from a wide variety of stakeholders, many of which had likely not previously participated in community planning efforts.

In 1988, the U.S. Congress established the Mississippi River and Recreation Area (MNRRA), a unit of the National Park System. The MNRRA shares the same boundary as the MRCCA, and the park's Comprehensive Management Plan (CMP), signed by the Governor and Secretary of the Interior, incorporates by reference the MRCCA program for land use management. Rather than institute a separate layer of federal regulations, the MNRRA largely relies on the MRCCA to manage land use within the park. This reliance establishes a unique partnership and framework for land use management amongst the local, state, and federal governments to protect the intrinsic resources of the Mississippi River Corridor.

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Comprehensive Plan Strategic Imperatives

- A Balance of Rural Character and Urban Growth
- An Active Community (Parks, Recreation, and Open Space)
- A Connected Community (Transportation)
- A Positive Learning Environment

Initiatives for the Critical Area

- Protect and Restore Significant Ecological Resources
- Improve Water Quality
- Maintain and Improve Recreation Opportunities along and adjacent to the Mississippi River
- Improve Access to the Mississippi River
- Communicate the Benefits of Protection of Ecological Resources

Progress on MRCCA goals

The City of Ramsey has accomplished many goals described in previously approved plans including the Critical Area Plan.

1. Pearson Place Residential Development – a 12 unit large lot subdivision which is serviced by an extension of Bowers Drive was recently approved by the City. The City maintained large lot standards to improve pretreatment of runoff prior to flowing down to the Mississippi River.

2. Connexus Solar Garden – Connexus Energy recently developed a solar garden near the intersection of Riverdale Dr NW and Llama St NW. The solar garden had native pollinator plants established as ground cover providing additional water treatment benefits as well as increased habitat for area wildlife.

3. Riverwalk Village – a 14 unit single family residential development on the southeastern edge of the City will result in the removal of a former landfill and will have stormwater ponds constructed for additional pretreatment of runoff. The project received Tax Base Revitalization Account (TBRA) funds from the Metropolitan Council to assist with the clean up costs.

Mississippi River Corridor Critical Area Districts

The City is not currently aware of any conflicts with future land use designations and the established purpose of the MRCCA districts.

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River Neighborhood (CA-RN)

The river neighborhood district is characterized by primarily residential neighborhoods that are riparian or readily visible from the river or that abut riparian parkland. The district includes parks and open space, limited commercial development, marinas, and related land uses.

The river neighborhood district must be managed to maintain the character of the river corridor within the context of existing residential and related neighborhood development, and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas. Minimizing erosion and the flow of untreated storm water into the river and enhancing habitat and shoreline habitat vegetation are priorities in the district.

Rural Open Space (CA-ROS)

The rural and open space district is characterized by rural and low-density development patterns and land uses, and includes land that is riparian or visible from the river, as well as large, undeveloped tracts of high ecological and scenic value, floodplain, and undeveloped islands. Many primary conservation areas exist in the district.

The rural open space district must be managed to sustain and restore the rural and natural character of the corridor and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas.

Separated From River (CA-SR)

The separated from river district is characterized by its physical and visual distance from the Mississippi River. The district includes land separated from the river by distance, topography, development, or a transportation corridor. The land in this district is not readily visible from the Mississippi River.

The CA-SR district provides flexibility in managing development without negatively affecting the key resources and features of the river corridor. Minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the Mississippi River are priorities in the district.

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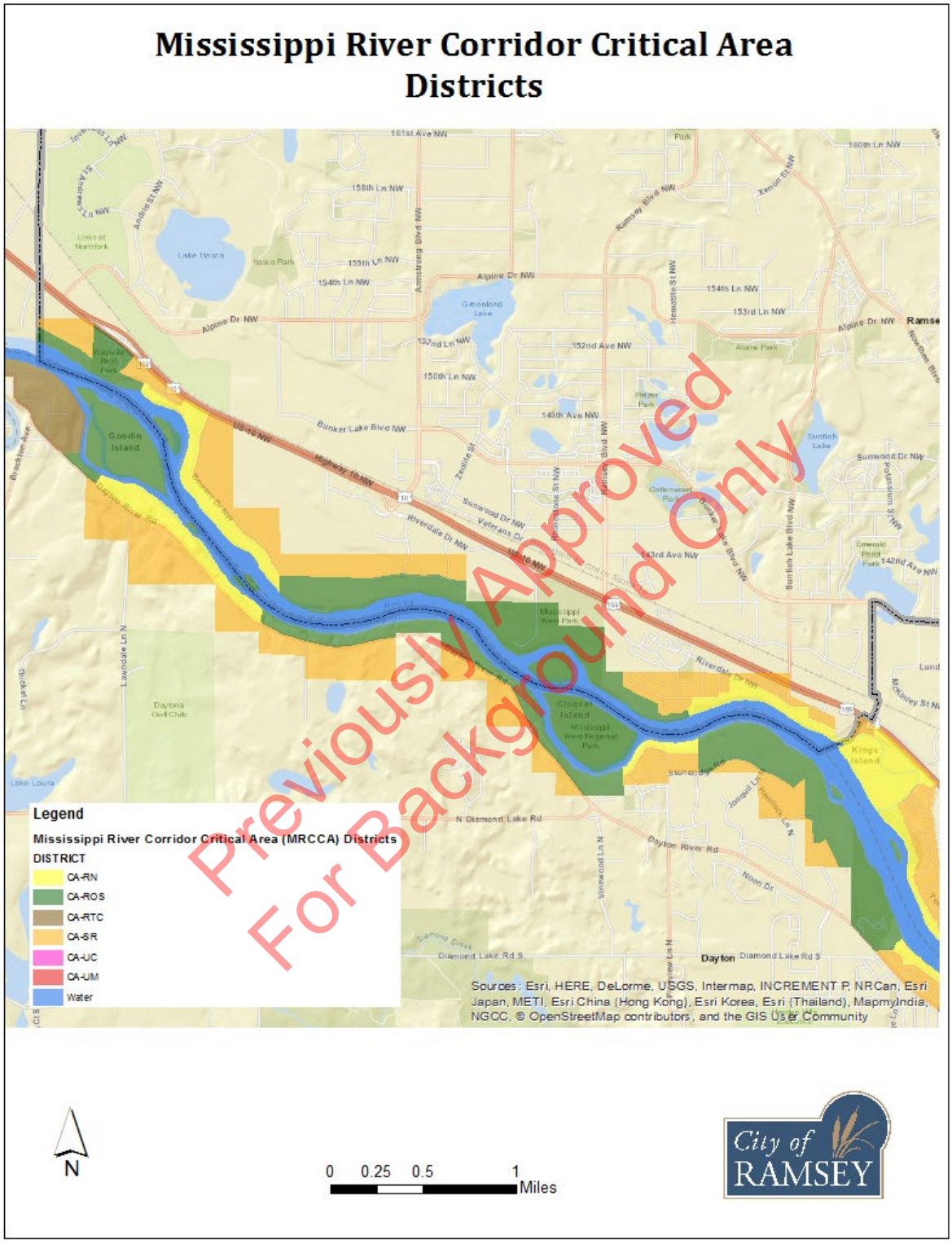
Figure 33: Mississippi River Corridor Critical Area Districts



Primary Conservation Areas

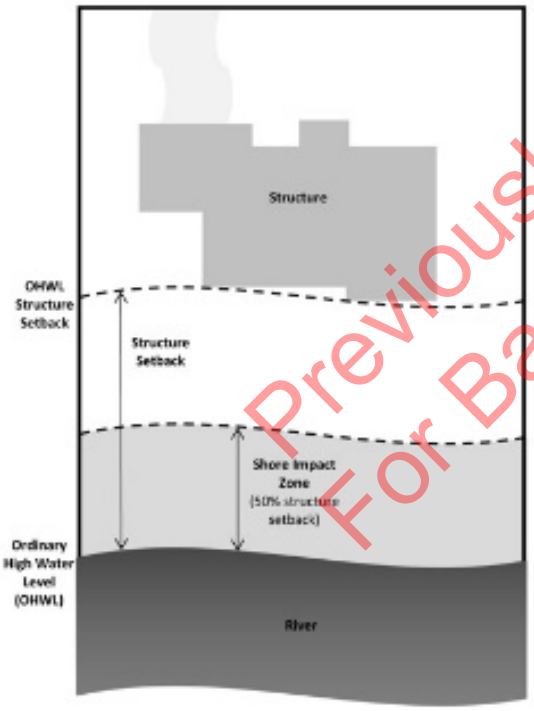
"Primary conservation areas" means key resources and features, including shore impact zones, bluff impact zones, floodplains, wetlands, gorges, areas of confluence with tributaries, natural drainage routes, unstable soils and bedrock, native plant communities, cultural and historic properties, significant existing vegetative stands, tree canopies, and other resources identified in local government plans.

General Overview and Description

The City recognizes bluffs, wetlands, floodplains, natural drainage routes, bluff impact zones, cultural and historic properties, unstable soils and bedrock, as well as shore impact zones and DNR identified native plant communities as primary conservation areas (PCAs) within the MRCCA boundary in the City. These areas are shown on Figures 34, 35, 36, 37, 38, and 39. The City will strive to protect these areas from public and private development and land use activities.

Shore Impact Zones

"Shore impact zone" means land located between the ordinary high water level of public waters and a line parallel to it at a setback of 50 percent of the required structure setback or, for areas in agricultural use, 50 feet landward of the ordinary high water level.



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Floodplains and Wetlands

"Floodplain" means the areas adjoining a watercourse which has been or hereafter may be covered by the regional flood.

Confluence with Key Tributaries

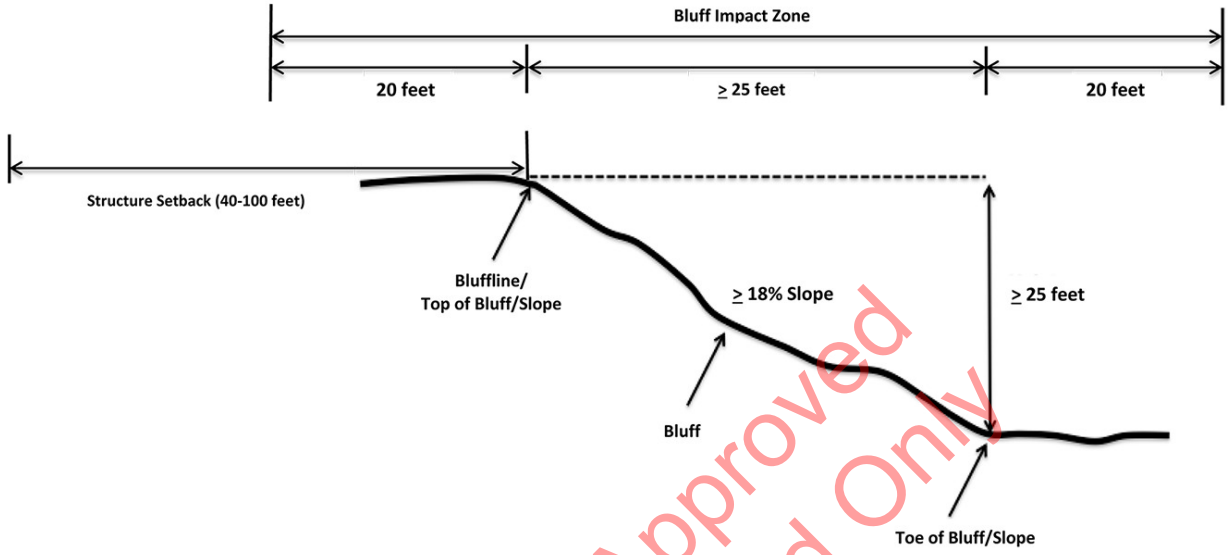
There are no confluences with key tributaries within Ramsey.

Natural Drainage Areas

The Critical Area Plan includes mapping of natural drainage areas that impact the Mississippi River.

Bluff Impact Zone

"Bluff impact zone" means the bluff and land within 20 feet of the bluff.



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Native Plant Communities and Significant Existing Vegetative Stands

"Native plant community" means a plant community that has been identified as part of the Minnesota biological survey or biological survey issued or adopted by a local, state, or federal agency. Significant existing vegetation stands refers to vegetation considered 'significant'. The plant communities are significant based on their state of being largely intact and connected and contain a sufficient representation of the original native plant community. This vegetation provides high ecological value in addition to the water quality and scenic values of "natural vegetation".

Cultural & Historic Properties

Historic property" means an archaeological site, standing structure, site, district, or other property that is:

- Listed in the National Register of Historic Places or the State Register of Historic Places or locally designated as a historic site under Minnesota Statutes, chapter 471;
- Determined to meet the criteria for eligibility to the National Register of Historic Places or the State Register of Historic Places; or
- An unplatted cemetery that falls under the provisions of Minnesota Statutes, chapter 307, in consultation with the Office of the State Archeologist.

One area of cultural and historic significance is located in the corridor. It does not meet the definition above. The location of the first settlement in Ramsey is located within the corridor, originally known as Itasca Village. There are no remaining structures or assets from this original settlement.

Gorges

There are no gorges located in Ramsey.

Unstable Soils and Bedrock

There are significant areas of shoreline erosion located along Ramsey's Mississippi River Shoreline. This erosion is documented through a 2016 Anoka Conservation District Survey. The results of said survey are incorporated into this document by reference. Ramsey will be utilizing this information for education, outreach, and funding purposes to restore priority areas from further erosion.

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Figure 34: Shore Impact Zone Map

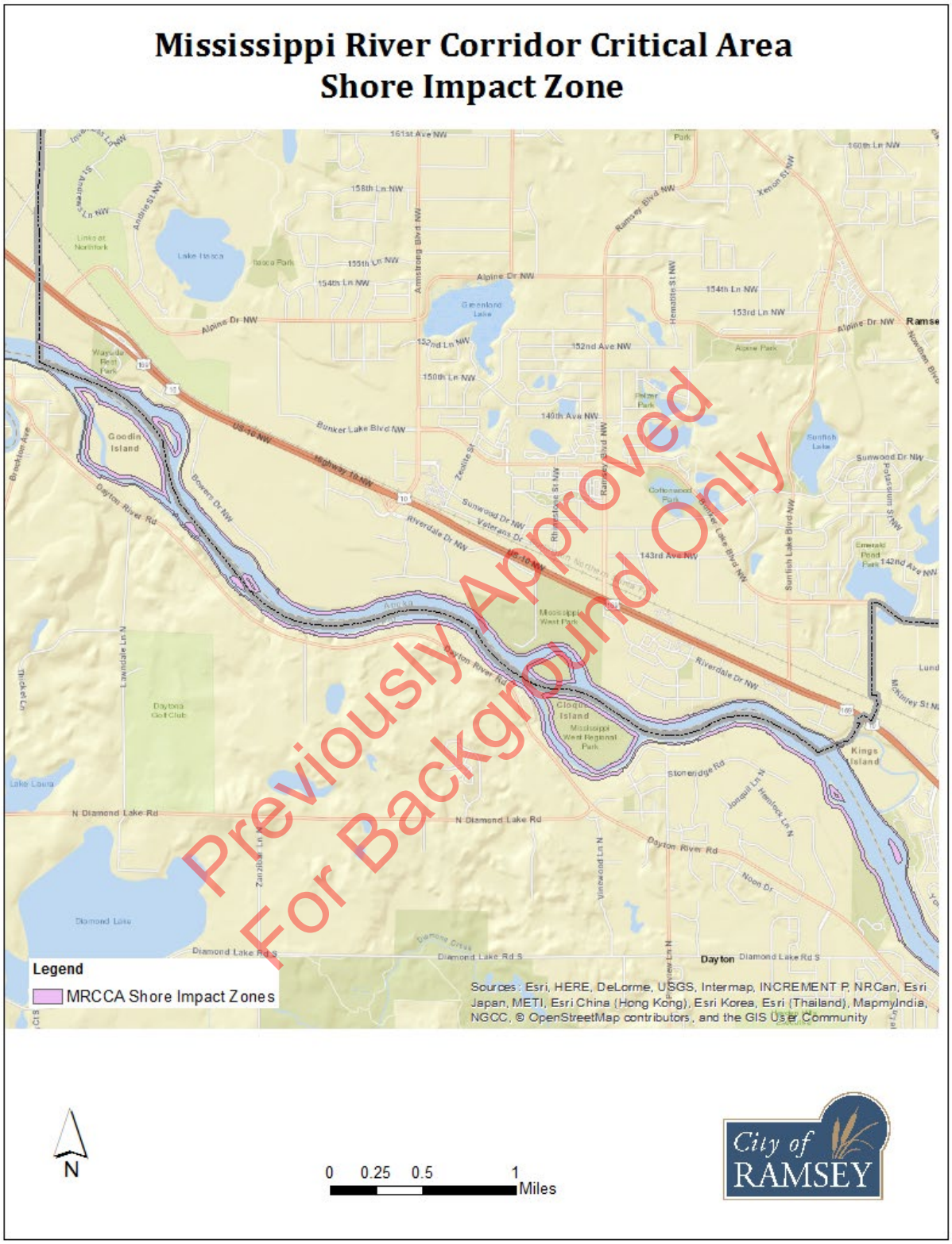

Figure 35: Floodplains and Wetland

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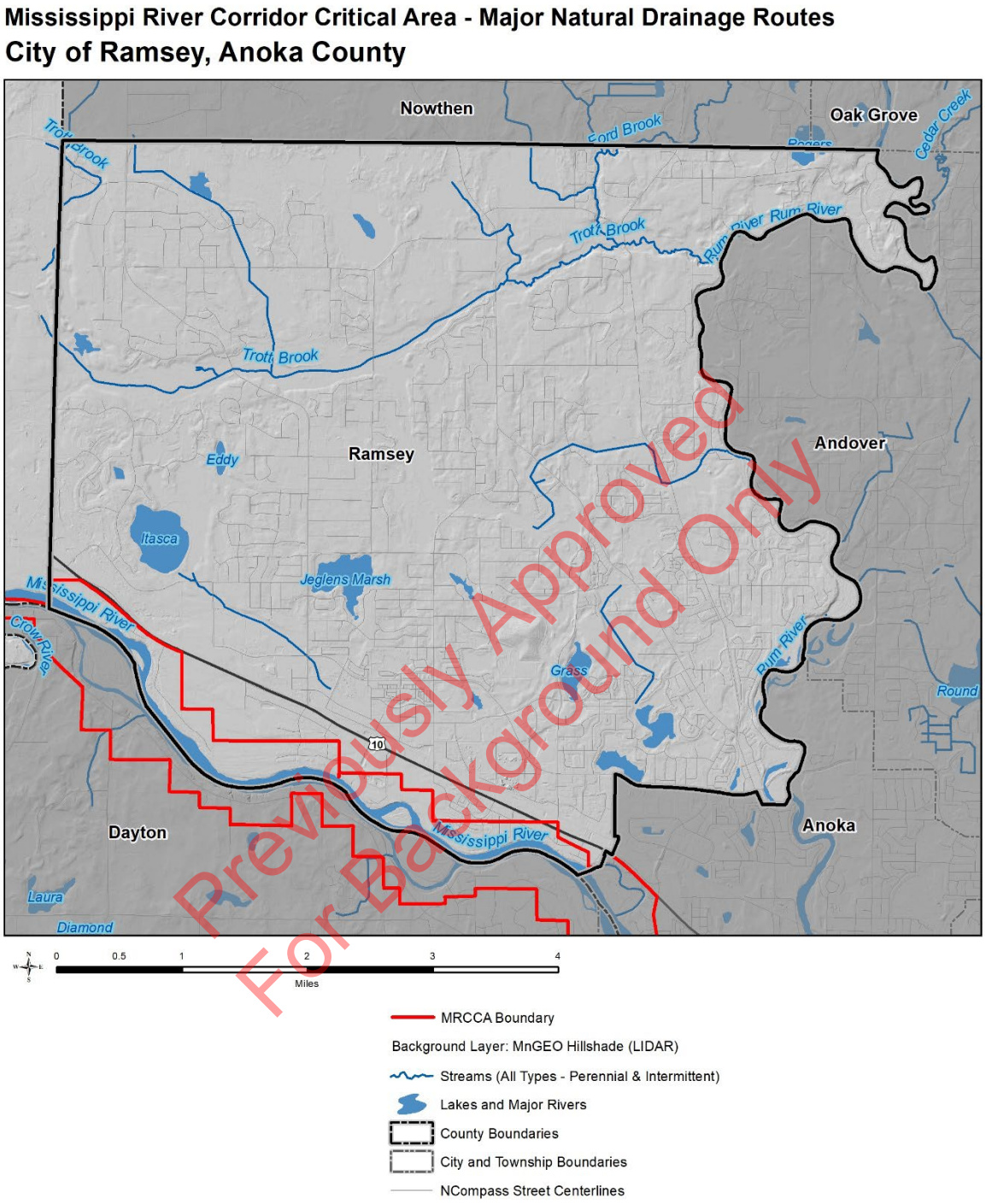
Figure 36: Natural Drainage Areas



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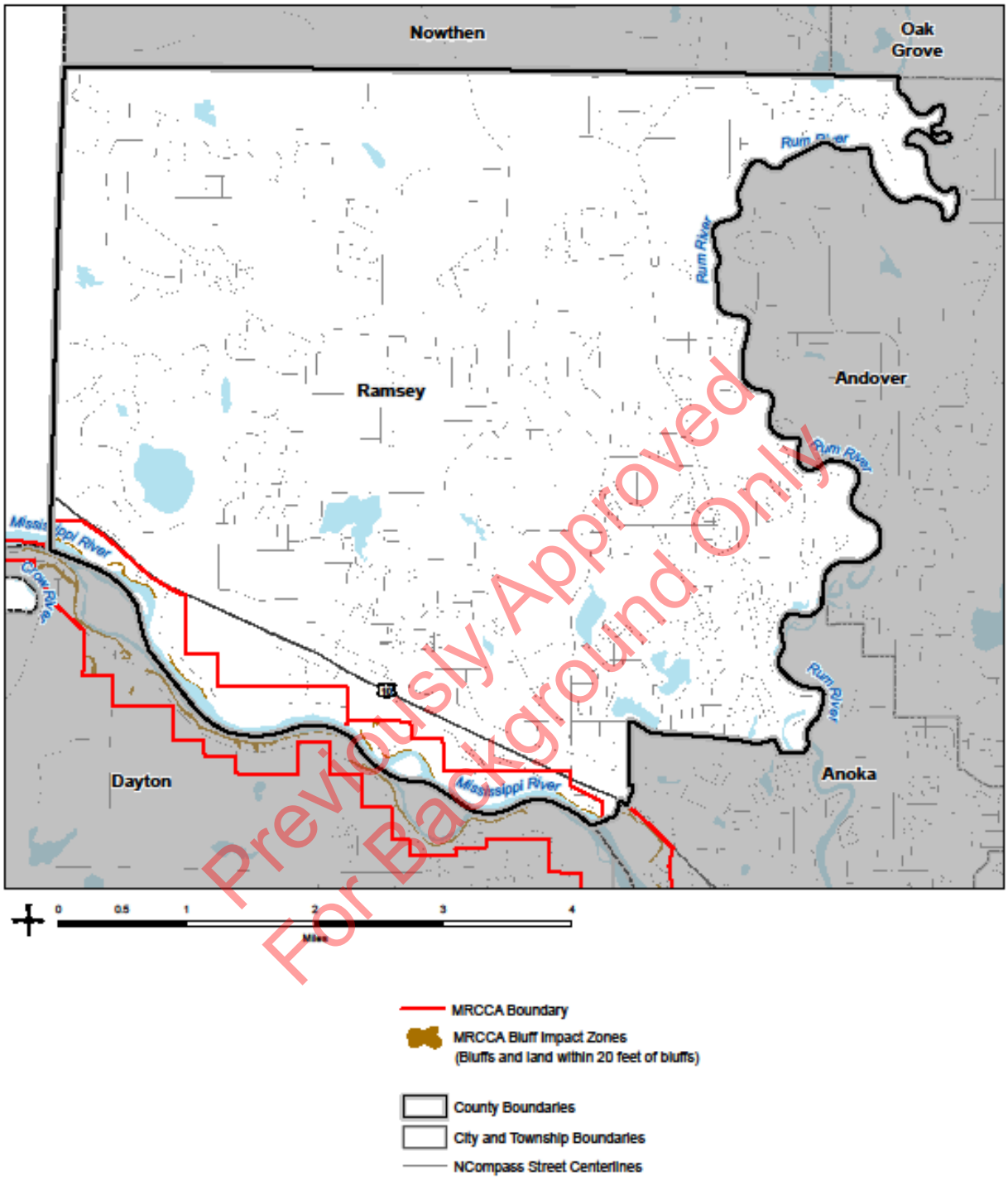
The Mississippi River serves as the only natural drainage route within the MRCCA within the City's municipal boundary.

Figure 37: Bluffs and Bluff Impact Zones



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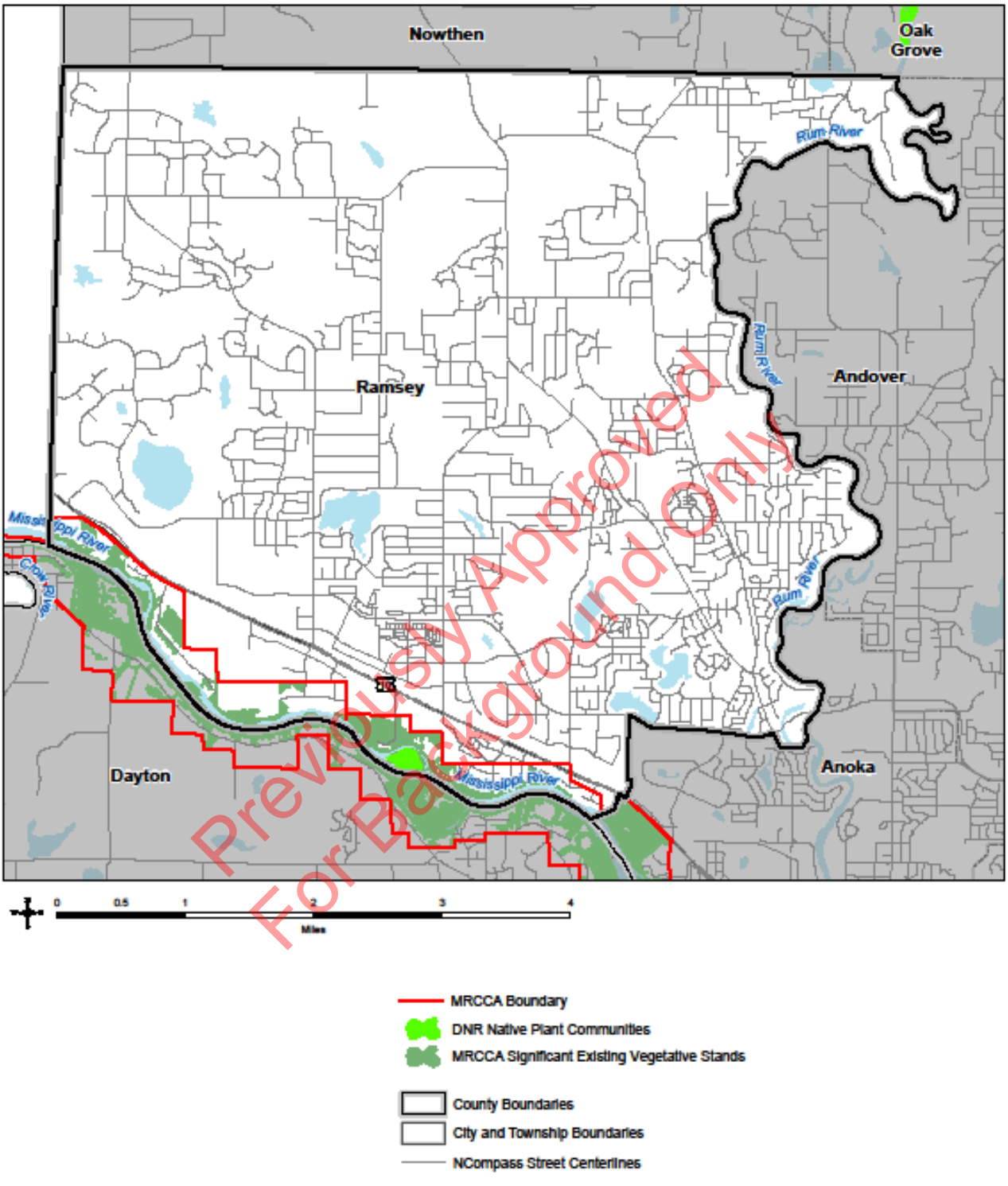
Bluffs are located on both the City of Ramsey as well as City of Dayton sides of the river. These bluffs are visible from the adjacent communities and provide valuable scenic views due to the bluffs themselves as well as the vegetation which exists along the bluffs. These views are of scenic value to those on land as well as river users.

Figure 38: Native Plant Communities & Significant Existing Vegetative Stands



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Public River Corridor Views

General Overview

The City of Ramsey is fortunate to have the Mississippi West Regional Park from which residents and visitors can view the Mississippi River. The location of this park is shown on Map 39. A key component of the Critical Area Plan is to when possible to improve access to public river corridor views and protect the views of bluffs from the river.

Views Toward River from Public Places (PRCV)

Two views were identified by Staff as being key public river corridor views (PRCVs) which are showing below as well as the location of the PRCV mapped with the direction of the view included.

PRCV View 1

PRCV View 2

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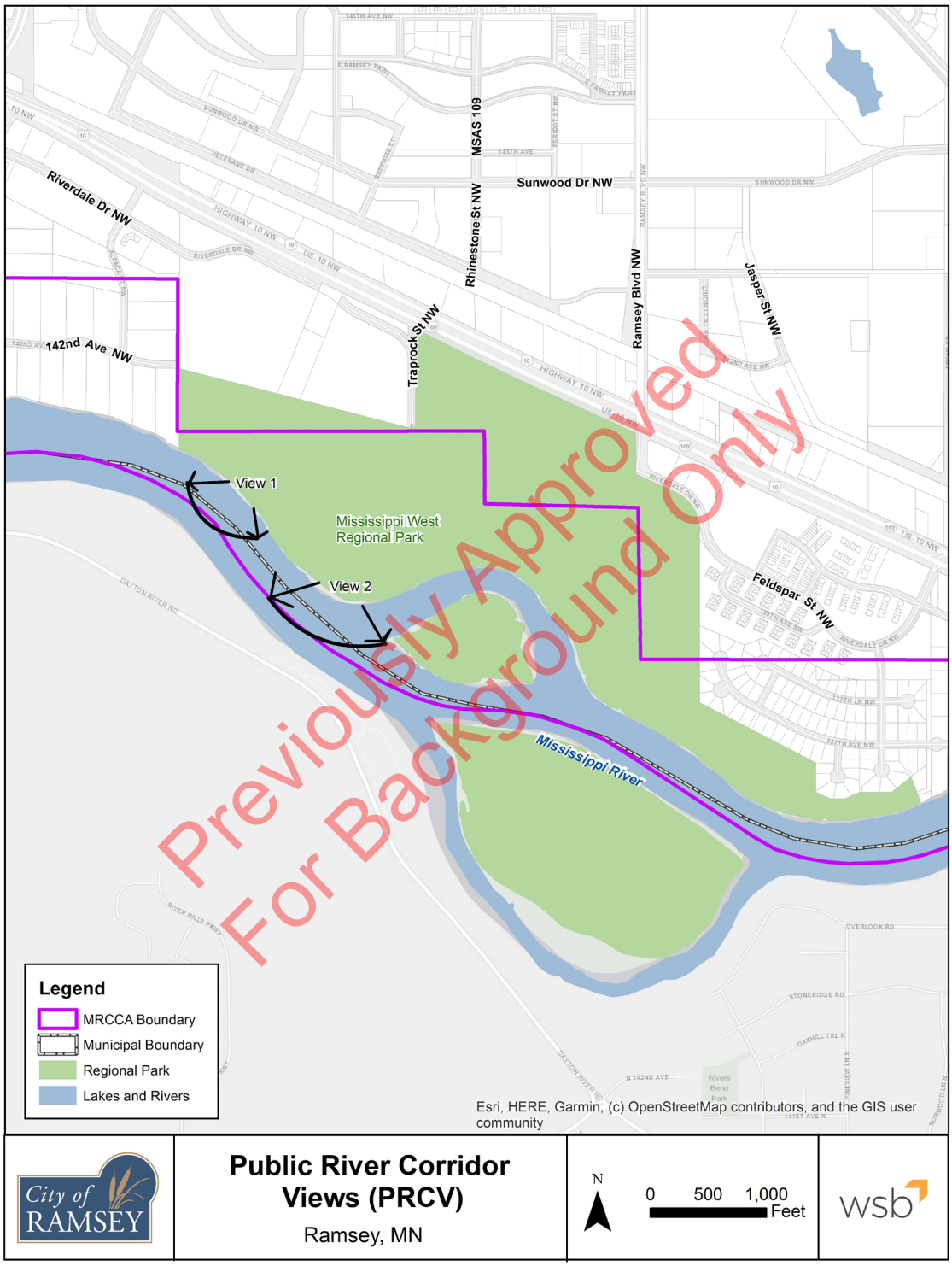
View 1 and 2 are deemed important PRCV's due to their direct pedestrian (view 1) and vehicular (view 2) access to the waterfront as well as existing dense vegetation at both sites. Loss of vegetation at either site may result in erosion that could reduce water quality in the area and thus degrade the overall aesthetic of the area.

Figure 39: Public River Corridor View Location



Priorities for Restoration

Ramsey's priority for restoration within the Corridor is protecting the Corridor from significant erosion as identified by the 2017 Anoka Conservation District Mississippi River Shoreline Inventory for Ramsey.

The City will work to make available the location of natural vegetation restoration priorities and the relevant ordinance requirements that apply to their property for project planning and permitting.

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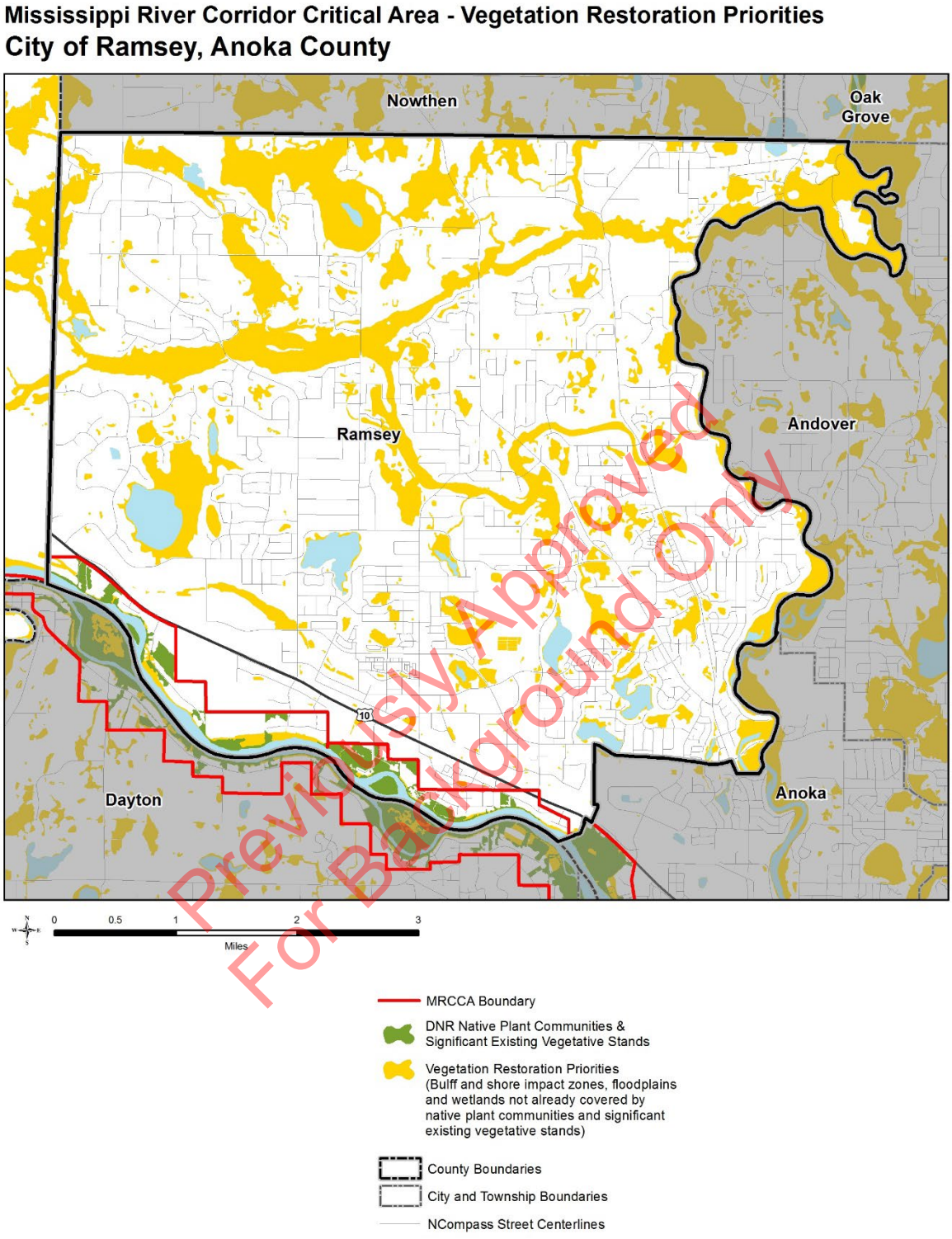
Figure 40: Vegetation Restoration Priorities



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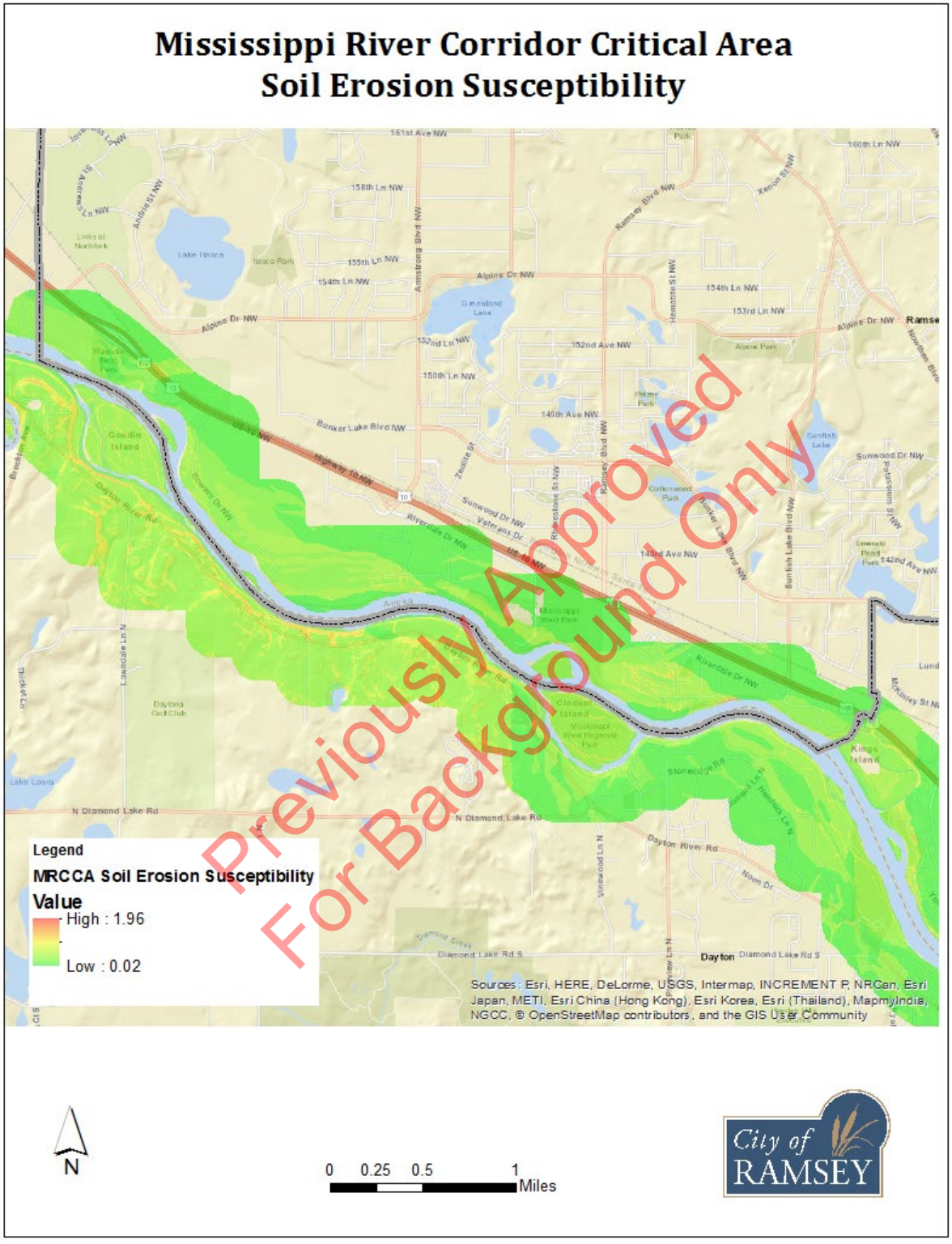
Vegetation restoration priorities are shore and bluff impact zones, floodplains and wetland that do not have native or natural vegetation cover and are susceptible to erosion or degradation because they are not stabilized with high quality vegetation. Restoration priorities are composed of both vegetation establishment as well as erosion and bank stabilization.

Figure 41: Soil Erosion Susceptibility



Those areas with higher erosion susceptibility are of increased importance for vegetation restoration and bank and slope stabilization as the likelihood of damage is higher due to the increase susceptibility of soil erosion in these areas.

Surface Water Uses

Surface water Uses can have negative impacts on riverbank erosion. The City is aware that recreational boat uses have known impacts on the Coon Rapids Dam Pool. The City does not currently regulate any surface water use under Chapter 86B (MR 6110.3000 – 6110.3800).

Open Space & Recreational Facilities

Existing Recreation Facilities

The Mississippi River Trail, Mississippi West Regional Park, and Riverdale Park are currently located within the Corridor.

Future Recreation Facilities

The future Mississippi West Regional Park is located within the Corridor. In addition, the future alignment of Central Anoka County Regional Trail connects to the Corridor. A future component of the Central Anoka County Regional Trail is a grade-separated pedestrian crossing over the BNSF/Northstar Commuter Rail Corridor and U.S. Highway 10, known as the Mississippi Skyway.

Water-Oriented Land Uses

Water oriented land uses are land uses on land riparian to the river that need to be there because they are water-oriented, such as a marina or restaurant with views of the river. As such, a boat launch classifies as a water-oriented land use.

Water-Oriented Use

Currently there is a boat launch at the site of the planned Mississippi River West Regional Park. This is an important community asset for the purposes of public river access. The Mississippi West Regional Park will be a primary access to encourage interaction with the Mississippi River. There is also a future local park planned west of Mississippi West Regional Park. The location of this water-oriented use is identified as "view 2" on the Public River Corridor View figure.

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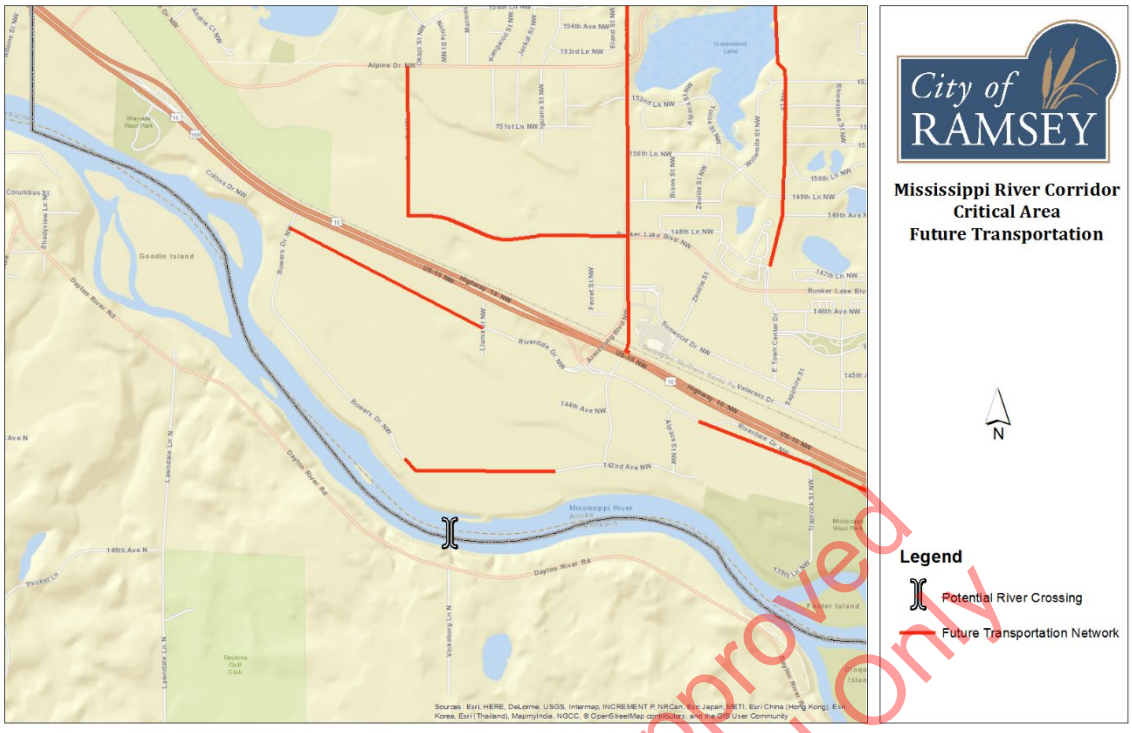
Transportation & Public Utilities

An existing Connexus Energy Electric Transmission Line current crosses the Mississippi River connecting Ramsey and Dayton. Ramsey continues to plan for a future River Crossing between Ramsey and Dayton which is shown in Figure 23 in the Transportation chapter.

Figure 42: Mississippi River Bridge/Crossing



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There are currently no electric power generating facilities installed within the MRCCA boundary. There is however a solar garden owned and operated by Connexus Energy just outside of the boundary. The City and will work with Connexus Energy to minimize the visual impact future transmission lines to the system would have on PCAs and PRCVs in the area. Solar power generating facilities are allowed as an accessory use is all city zoning districts. Ground mounted solar energy systems are required to comply with all building setbacks in the applicable zoning district. The height of ground mounted solar energy systems at maximum designed tilt shall not exceed the distance from the nearest property boundary or the maximum allowable building height for the applicable zoning district, whichever is more restrictive. Building mounted solar energy systems shall comply with the maximum allowable building height for the applicable zoning district. The limitations on height to be in conformance with height of other structures in the zoning district will limit the amount of impact a solar energy system could have on area PRCV's.

MRCCA Policies

Districts/Land Use

Policy 1: The City will implement the policies of the Critical Area by adopting the new MRCCA districts within our Zoning Code and amend the City's Zoning Map accordingly.

Policy 2: The City will protect native and existing vegetation during the development process and require restoration if any is removed by development. Priorities for restoration shall include stabilization of erodible soils, riparian buffers and bluffs or steep slopes visible from the river.

Policy 3: Identify and encourage connection of CA-SR district land to existing and planned parks and trails for Local Governing Units (LGUs) with developable land in CA-SR districts.

Policy 4: Encourage that land dedication requirements be used to acquire land suitable for public river access.

Policy 5: Guide land use and development consistent with management purpose of each district.

Policy 6: Amending existing or adopting new MRCCA ordinance overlay district compliant with the goals of the MRCCA Plan and Minnesota Rules, part 6106.0070, Subp. 5 – Content of Ordinances

Primary Conservation Areas

Policy 1: The City will encourage conservation subdivision design to protect Primary Conservation Areas.

Policy 2: Conservation Subdivision Design will be utilized to allow the clustering of lots in exchange for permanent protection of Primary Conservation Areas.

Policy 3: The City will continue its proactive approach to subdivision design by encouraging setbacks and adequate lot depth to preserve Primary Conservation Areas.

Policy 4: The City will support mitigation of impacts to PCAs through subdivisions/PUDs, variances, CUPs, and other permits.

Policy 5: The City will where possible and feasible restore previously removed native plant communities and natural vegetation in riparian areas a high priority during development.

Policy 6: The City will seek to establish permanent protection of PCAs through either public acquisition, conservation easement, or deed restrictions.

Policy 7: The City will seek to minimize impacts to PCAs from solar and wind generation facilities, public transportation facilities and public utilities.

Policy 8: The City will protect Primary Conservation Areas as shown and described within this MRCCA plan.

Public River Corridor Views

Policy 1: The City will strive to work with applicable partners, especially Anoka County Parks, to improve access to Public River Corridor Views.

Policy 2: When feasible, the City will protect and minimize impacts to PRCVs from public and private development activities.

Policy 3: The City will protect and minimize impacts to PRCVs from public and private vegetation management activities.

Policy 4: The City will protect PRCVs located within the community and identified by other communities adjacent or across the river.

Policy 5: The City will seek to minimize impacts on PRCVs from solar and wind generation facilities, public transportation facilities and public utilities.

Restoration Priorities

Policy 1: The City will continue to implement pilot demonstration projects and incentives to encourage restoration of priority areas.

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Policy 2: The City will seek opportunities to restore vegetation to protect and enhance PRCVs identified in this plan.

Policy 3: The City will seek opportunities to restore vegetation in restoration priority areas identified in this plan through the CUP, variance, vegetation permit and subdivision/PUD processes.

Policy 4: The City will work to sustain and enhance ecological functions (habitat value) during vegetation restorations.

Policy 5: The City will require that proposed development sites be evaluated for erosion prevention and bank and slope stabilization issues and require restoration as part of the development process.

Surface Water Uses

Policy 1: The City will continue to support Anoka County's operation of a Boat Launch along Traprock Street.

Policy 2: The City recognizes the Mississippi River as a "working river" that is important to the economy of the Twin Cities metropolitan area and the Midwest.

Policy 3: The City does not currently regulate surface water use under Minn. Statute, Chapter 86B and does not intend to assume that responsibility.

Policy 4: Where applicable, the City will seek to balance commercial and recreational surface water uses.

Water Oriented Uses

Policy 1: The City will work to minimize potential conflicts of water-oriented uses with other land uses.

Policy 2: The City acknowledges the existing water oriented uses described in this MRCCA plan and will protect those uses within the MRCCA boundary.

Open Space & Recreation Facilities

Ramsey will continue to support planning and implementation for Mississippi West. Ramsey will continue to own and maintain Riverdale Park. Ramsey will continue to plan for a new municipal park along the Mississippi River between the Alpaca Estates and Bowers neighborhoods.

Transportation & Public Utilities

Ramsey will continue to support future planning for the future Mississippi River Crossing to the City of Dayton in Hennepin County.

Ramsey will continue to support Connexus Energy's electric transmission line across the Mississippi River to the City of Dayton.

Natural Resources Planning

Ramsey undertook two (2) comprehensive inventories in the mid-2000s; a Natural Resources Inventory (NRI) and a Wetland Inventory. Both of these data sets are referenced any time a new development is proposed. These data sets help inform Ramsey if there are significant and/or high value natural resources within a development site that may warrant greater protections. While both provide valuable insight, Ramsey acknowledges that both require periodic updates to ensure that the data is accurate and relevant. There has been no specific timeframe identified for updates

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to either, but for this data to remain useful, they should be revisited no less than every ten (10) to fifteen (15) years. This may be useful as Ramsey continues to consider partnering with other agencies, especially as it relates to shoreline stabilization efforts.

City Code Amendments

In order to properly administer this amended plan, the City will need to make certain amendments to City Code. These amendments include but are not necessarily limited to the following.

- Establish General Land Use Review Procedures.
- Develop administrative procedures for shoreline stabilization.
- Establish a vegetation permitting process that includes permit review procedures to ensure consideration of restoration priorities identified in this plan in permit issuance, as well as standard conditions requiring vegetation restoration for those priority areas.
- Establish process for evaluating priorities for natural vegetation restoration, erosion prevention and bank and slope stabilization, or other restoration priorities identified in this plan in CUP, variances and subdivision/PUD processes.
- Develop visual analysis approach for CUPs for additional height in the RTC and UM districts (if applicable), as well as for proposed PUDs and variances.
- Develop a system for reviewing, tracking, and monitoring open space required as part of the subdivision process.

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Critical Area Implementation Plan

Strategy: Protect and Restore Significant Ecological Resources

- Update Zoning Code to reflect Amended Plan
- Establish a plan to reduce erosion, protect canopy coverage, protect significant vegetative areas, and encourage pollinator-friendly landscapes
- Ensure that information on the location of PRCVs is readily available to property owners to understand how PRCV-relevant ordinance requirements, such as vegetation management and land alteration permits, apply to their property for project planning and permitting.
- Actively communicate with other communities to protect views they have identified in your community that are valuable, and vice versa
- Establish procedures for processing applications with potential impacts to PRCVs including
    - Identifying the information that must be submitted and how it will be evaluated
    - Determining appropriate mitigation procedures/methods for variances and CUPs

Strategy: Improve Water Quality

- Establish a plan to reduce the amount of sediment and phosphorus entering the river.

Strategy: Maintain and Improve Recreation Opportunities along and adjacent to the Mississippi River

- Prioritize areas for acquisition to increase opportunities to access the river
- Coordinate jurisdictional planning efforts

Strategy: Improve Access to the Mississippi River

- Encourage creation, connection, and maintenance of open space, recreational facilities, including public access to the river
- Create and maintain access facilities for public access
- Complete the Central Anoka County Regional Trail Connection
- Update the Capital Improvement Program (CIP) to reflect the amended Plan
- Update Surface Water Use Regulations
- Provide Guidance to Private Property Owners for Private Accesses

Strategy: Communicate the Benefits of Protection of Ecological Resources

- Create Informational Packets that provide the location of PCAs and information for property owners to understand how PCA-relevant ordinance requirements, such as vegetation management and land alternation permits apply to their property for project planning and permitting
- Establish procedures and criteria for processing applications with potential impacts to PCA's including:
    - Identify what information must be submitted for projects within the MRCCA boundary and the way in which it will be evaluated
    - Determine appropriate mitigation procedures/methods for variances and CUPs
    - Establish evaluation criteria for protecting PCAs when a development site contains multiple types of PCAs and the total area of PCAs exceed the required set aside percentages

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    - Develop administrative procedures for integrating DNR and local permitting of riprap, walls and other hard armoring.
- Develop a Communications Plan
- Create a new Critical Area Webpage
- Create a Signage Package for Public Spaces
- Provide information on the location of natural vegetation restoration priorities to property owners to help them understand how relevant ordinance requirements apply to their property for project planning and permitting.

Strategy: Prioritize Areas of Preservation

- Focus efforts on stabilizing erosion at Mississippi West Regional Park
- Work collaboratively with owners of undeveloped land with shoreline to partner of preservation and flexibility in subdivision design

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MRCCA Standards Comparison

The following is a **sampling** of how key neighborhoods are impacted. This is not an exhaustive review.

Neighborhood General Comparison – Bulk Standards

- River Lots
    - Tungsten District (SE Ramsey)
        - No Change – designation remains the same (urban residential style)
    - Alpaca Estates (South Central Ramsey)
        - No Change – designation remains the same (rural residential style)
    - Bowers Drive
        - Changed to River Neighborhood – reflective of actual development pattern
        - Many lawful, nonconforming designations removed and are now simply conforming to code
- Non-River Lots
    - All lots without frontage on the shoreline now generally default to underlying zoning
    - Standards are generally reduced for non-riparian lots

Other Changes of Note

- Vegetative Management **standards** generally remain unchanged compared to Ramsey's current ordinance
- The Vegetation Management Permit is a new requirement
- The administrative provisions of the ordinance remain generally unchanged, but language updated to reflect current processes already used

General Note

Ramsey was fortunate to derive significant benefit from the revised rules as our ordinance already included most of the provisions. The benefit to Ramsey is in the change to the districts that better reflect existing development and future plans/vision. It is acknowledged that in other communities in the corridor, many of these standards are new and not included in existing regulations and can be seen as adding regulations. This is generally not the case for Ramsey.

Regular Planning Commission **6. 4.**

Meeting Date: 01/07/2021

By: Tim Gladhill, Community Development

Information

Title:

PUBLIC HEARING: Consider Recommendations Related to Riverstone South; Case of Capstone Homes/Riverstone Development

1. Adopt Resolution #21-015 Approving Comprehensive Plan Amendment from Low Density Residential to Medium Density Residential for Detached Townhome Section and Preliminary Plat for Riverstone South
2. Adopt Ordinance #21-03 Approving Zoning Amendment from R-1 Residential (MUSA - 80) District to R-1 Residential (MUSA - 65) District, R-1 Residential (MUSA - 50) District and R-2 Residential (Detached Townhome) District

Purpose/Background:

The purpose of this case is to consider Preliminary Plat approval and associated approvals related to the proposed Riverstone South neighborhood. The City has been working with the Developer, Capstone Homes, over the past year on a long-range planning exercise to come to a consensus on a concept plan for this site. This Preliminary Plat Submittal represents conformance to the planning framework approved by the Planning Commission and City Council as well as the Sketch Plan recently submitted and reviewed by the Planning Commission.

Notification:

Staff has attempted to notify all Property Owners listed with Anoka County Property Records within 700 feet of the Subject Property and the Bowers Drive Neighborhood via Standard US Mail. The Public Hearing Notice was properly advertised in the Anoka County UnionHerald, the City's Official Newsletter.

Previously, the same mailing list was used to invite residents to 2 virtual/hybrid Open Houses as well as Sketch Plan Review.

Observations/Alternatives:

This step is the result of a 12 month planning and collaboration process between the City, Developer, Property Owner and adjacent neighborhood. The Preliminary Plat has been prepared consistent with previous City direction. This case has been prepared at a summary level. Materials from the City Council direction at the Sketch Plan Phase are attached for more detailed background.

Comprehensive Plan

A majority of the site is consistent with the 2040 Comprehensive Plan showing this portion of the site as Low Density Residential. The smaller detached townhome portion will need to be amended to Medium Density Residential.

Zoning Code

The project site is generally located in the R-1 Residential (MUSA) District allowing for detached single-family homes on municipal services. However, lot sizes are smaller than allowed within this district and will need to be amended accordingly to R-1 Residential (MUSA - 65) and R-1 Residential (MUSA - 50). The detached townhomes will need to be amended to be included in the R-2 (Detached Townhome) District. Note - a previous case amends City Code to have a more logical distinction of districts and subdistricts based on lot size. Additional detail is included in the attached review memo.

Environmental Assessment Worksheet (EAW)

The State of Minnesota Environmental Quality Board (EQB) administers mandatory environmental review parameters. For a project of this type, an EAW would not be required if the project is consistent with the City's Comprehensive Plan and less than 250 units. While the project is less than 250 units, it does require a Comprehensive Plan Amendment due to the detached townhomes and therefore meets the criteria for Mandatory EAW. The Planning Commission may make a recommendation now, but the City Council cannot take action on the Preliminary Plat until the EAW process is finalized. The Riverstone North Neighborhood went through this same process without issue. Given the quality ecological resources (significant native tree canopy and proximity to Mississippi River), the relative closeness of meeting the mandatory criteria based on lot count (242/250), Staff was leaning towards recommending a discretionary EAW anyway. All materials have been prepared for the EAW, it is just a matter of process at this point.

Bowers Drive Connection

Direction of the City Council at Sketch Plan Phase was to not create a second connection within the previous Pearson Place to Bowers Drive as previously discussed. However, the Developer shall still be required to extend watermain with a hydrant at Bowers Drive through the City-Owned Parcel for public safety purposes and improved Fire Department Response.

Architectural Standards

Generally speaking, the City requires a sliding scale of increased architectural elements as density increases/lot sizes decrease. This is a fair trade off for allowing smaller lots. The intent of the regulations is not simply to create a smaller lot for a standard, basic dwelling. There remain ample opportunities for the style of homes in areas throughout the community. Staff will honor any direction provided by the Planning Commission and City Council, but highly recommends a higher degree of architectural control, especially for the detached townhomes.

The City has some additional discretion in this project.

1. Project Requires Comprehensive Plan Amendment and Zoning Amendment (highest level of discretion the City can have in land use decisions)
2. The Project is requesting that the City contribute dollars to the Riverdale Drive Extension

Staff is not recommending anything significant in this instance. The only parameter suggested at this point is a limit on the number of split entry homes (50%) in the detached townhomes. Preference should be given to full one-level and two-level homes with or without a full basement. The intent of the detached townhome district is not to simply allow a split level home on smaller lots. Split Entry Homes are a cost effective solution (save money on basement construction), but have other drawbacks (architectural design, heavier reliance on stairs, neighborhood design). Staff feels it is appropriate to allow some split levels in this area, but is concerned that these small lots are becoming dominated by the most basic of designs. Staff would like to see these standards held to a higher degree. It should be noted that unlike the existing Riverstone North Neighborhood, also by Capstone, there are Villa Style Homes (one level slab on grade) in this proposed Riverstone South Subdivision. Staff is open to other suggestions, such as better defining required architectural elements required for split entries without a restriction on percentage, etc. For example, in other similar neighborhoods, the City has defined limits on exposed roof, roof pitch, required front porch, etc.

Previous Steps

- Concept Plan Review
- Planning Framework
- Sketch Plan

Future Steps

- Environmental Assessment Worksheet (EAW)
- Final Plat

- Riverdale Drive Extension Approval

Please note that this will be the final time the Planning Commission will see this case. All future actions are handled directly by the City Council. If the Planning Commission feels it needs more time to evaluate the project, it should postpone action until the February Planning Commission Meeting.

Alternatives

1. Recommend that the City Council approve the project as presented
2. Request amendments to the project
3. Postpone action requesting additional information
4. Recommend that the City Council deny the project

Funding Source:

All costs associated with reviewing this Application are the responsibility of the Applicant.

This site will require the extension of Riverdale Drive from Llama Street to Highway 10/Bowers Drive. While not a binding agreement, the Council's approved framework for cost share/funding essentially splits the cost of this extension evenly between the City, Property Owner (Pearson Properties of Ramsey) and Developer (Capstone Homes). This cost share agreement is outside the review purview of the Planning Commission, but is noted as the Preliminary Plat Approval will not be valid until a contract for the extension of Riverdale Drive is approved by the City Council. This is the same arrangement as with Riverstone North with the Puma Street Realignment.

Additionally, the City has not yet secured a funding source for the acquisition of the 7 acre Tree Preservation Area. Staff strongly recommends against using Park Dedication Dollars for this purpose, as it will not leave sufficient funding to develop the 1 acre park also included within the proposed subdivision. The Preliminary Plat is also not valid until this funding source is solved.

Recommendation:

Staff recommends approval of the project with the following contingencies:

- Address any comments contained within the Official EAW Review Record when available
- Plans subject to current Staff Review Comments and final approval by City Engineer
- Approval of a contract for the Riverdale Drive Extension along with Cost Share Agreement consistent with previous City Council Direction
    - Must also include an Assessment/Petition and Waiver Agreement to assess the Property Owner and Developer shares back to benefiting properties
- Securing $350,000 for the acquisition of the Tree Preservation Area
- Architectural Approval for Detached Townhomes ~~- No more than 50% of the Detached Townhomes may be split entry, split level or modified basement (at least 50% full one-level of full two-story)~~ *Shall include all of the following minimum requirements:*
    - *Garage may not extend closer to the front property line than the covered front porch/stoop – garage must be even with or behind*
    - *Garage must be tucked under second level – second level should extend over the entire garage*
    - *Front façade must have at least 3 materials (exception 'farm house' design) – should not be dominated by horizontal siding*
    - *Stoop/front porch must be covered*
    - *Plans must include the minimum number of windows shown on the approved master plans*
- Architectural approval is limited to those models included in the review record. Any significant changes from these models shall require City Council approval
- Noise Study Meeting MnDOT Requirements must be completed and approved by City
- Post-Preliminary Plat Approvals Required
    - Comprehensive Plan Amendment Approval by Metropolitan Council
    - Critical Area Overlay District Amendment by Minnesota DNR
    - City Approval of Zoning Amendment
    - Approval of the Environmental Assessment Worksheet (EAW)

Action:

Motion to recommend that the City Council adopt Ordinance #21-03 and Resolution #21-015 approving actions related to the Riverstone South Preliminary Plat.

(Note: recommended contingencies are already included in the attached Resolution).

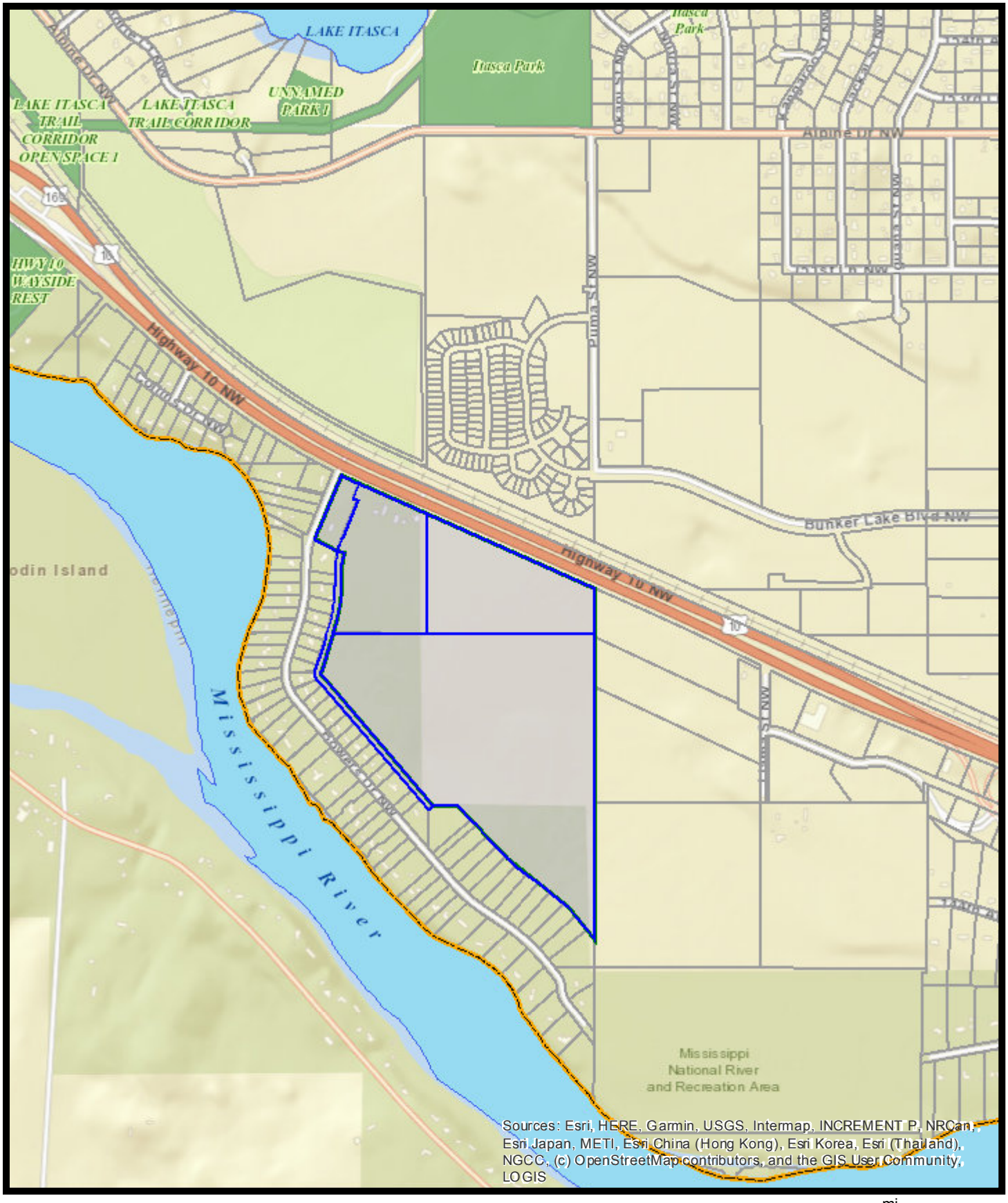
Attachments

Site Location Map
Plan Set (clean)
Architectural Renderings
Density Exhibit
Sketch Plan
Phasing Plan
Plan Set (redlined sheets only)
Zoning Review Memo
Technical Review Comments
Additional Technical Comments
MnDOT Review Comments
CONTEXT: Most Recent Action
CONTEXT: Previous Minutes
EAW
Archaeological Survey
Resolution #21-015
Ordinance #21-03

Form Review

Inbox	Reviewed By	Date
Chris Anderson	Chris Anderson	12/31/2020 09:42 AM
Tim Gladhill (Originator)	Tim Gladhill	12/31/2020 11:02 AM
Form Started By: Tim Gladhill		Started On: 12/30/2020 08:15 AM
Final Approval Date: 12/31/2020		

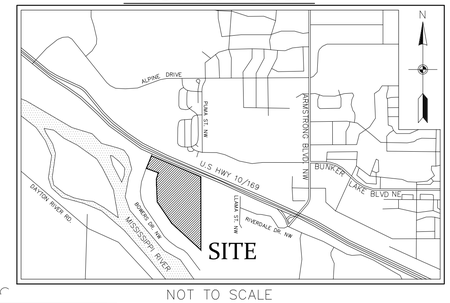
Site Location Map



RIVERSTONE SOUTH

RAMSEY, MINNESOTA

VICINITY MAP



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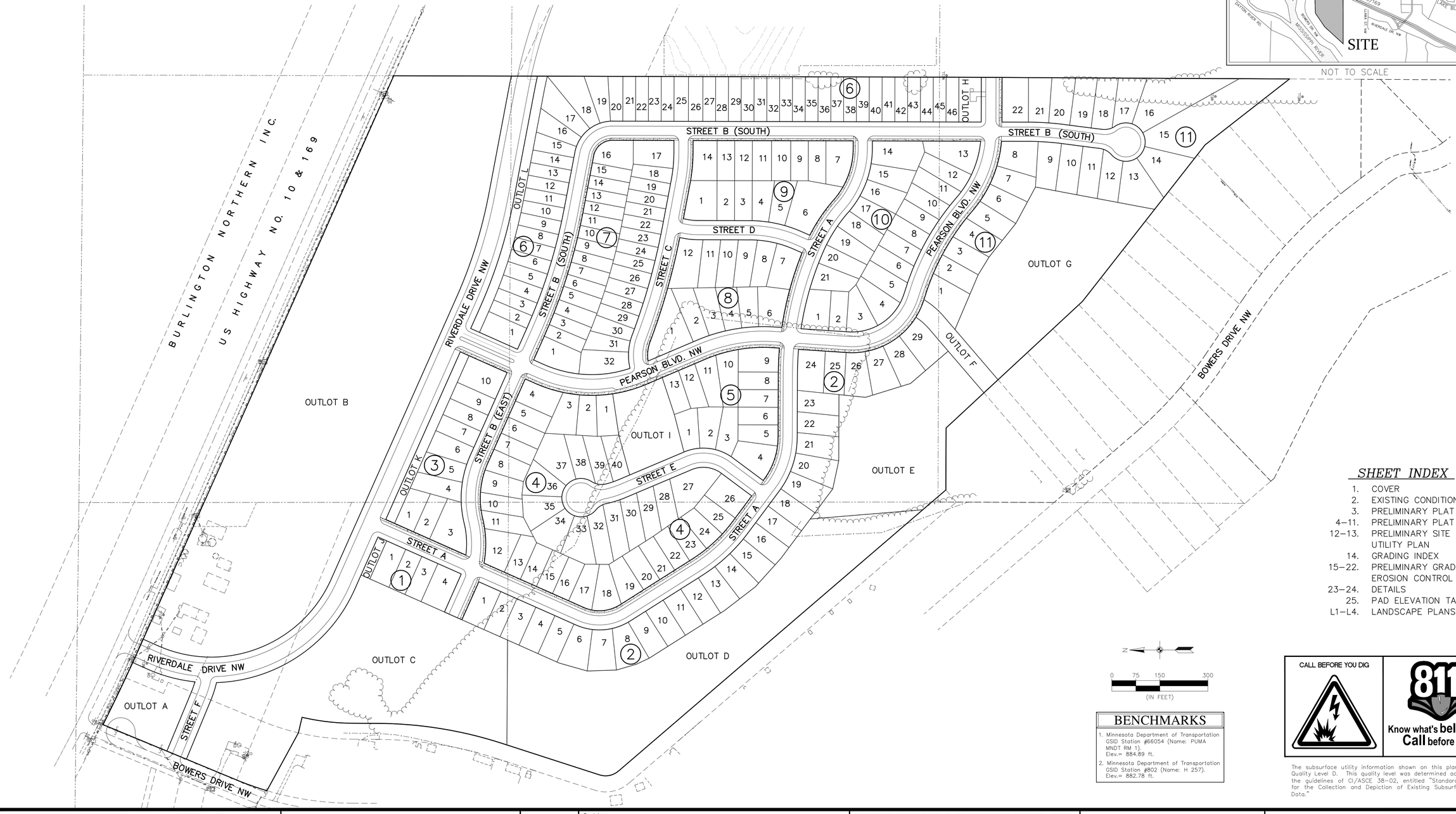


SHEET INDEX

1.	COVER
2.	EXISTING CONDITIONS
3.	PRELIMINARY PLAT INDEX
4–11.	PRELIMINARY PLAT
12–13.	PRELIMINARY SITE & UTILITY PLAN
14.	GRADING INDEX
15–22.	PRELIMINARY GRADING & EROSION CONTROL PLANS
23–24.	DETAILS
25.	PAD ELEVATION TABLES
L1–L4.	LANDSCAPE PLANS

0 75 150 300

(IN FEET)

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
2. Minnesota Department of Transportation GSID Station #802 (Name: H 257). Elev.= 882.78 ft.

CALL BEFORE YOU DIG

811 Know what's **below.** **Call** before you dig.

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL

3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

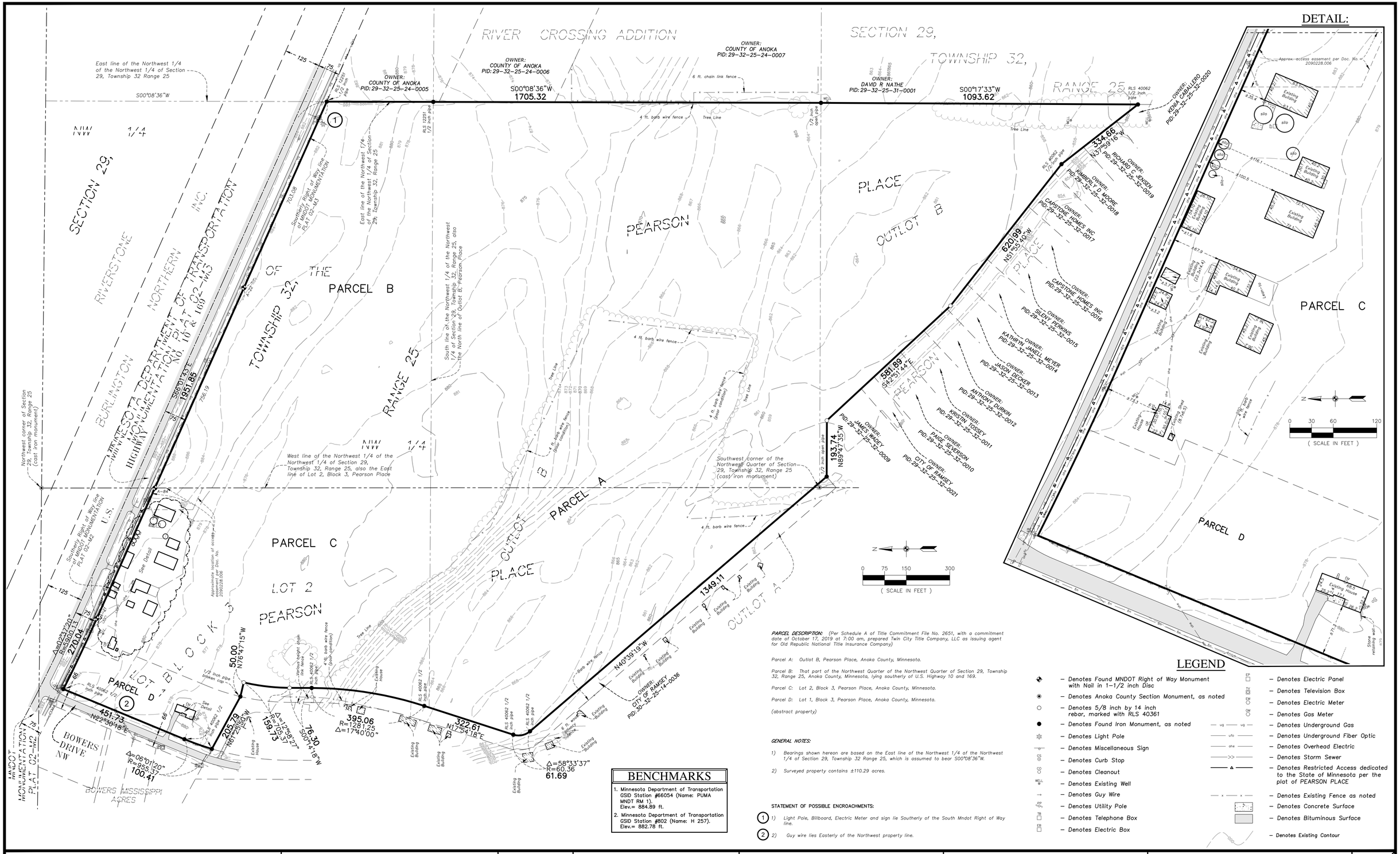
COVER SHEET

1 of 25

Save Date: 12/02/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_cover.dwg

#8494

DETAIL:


East line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32 Range 25
S00°08'36"W
RIVER CROSSING ADDITION
SECTION 29, TOWNSHIP 32, RANGE 25
OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0005
OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0006
OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0007
OWNER: DAVID R NATHE PID: 29-32-25-31-0001
S00°08'36"W 1705.32
S00°17'33"W 1093.62
RLS 40062 1/2 inch pipe
6 ft. chain link fence
4 ft. barb wire fence
Tree Line
WCL
OWNER: KENIA CABALLERO PID:29-32-25-32-0020
Approx. access easement per Doc. No. 2090228.006
OWNER: RICHARD C. JENSEN PID: 29-32-25-32-0019
334.66 N37°59'16"W
OWNER: KIMBERLY D. MOORE PID: 29-32-25-32-0018
OWNER: CAPSTONE HOMES INC PID: 29-32-25-32-0017
620.89 N57°53'40"W
OWNER: CAPSTONE HOMES INC PID: 29-32-25-32-0016
OWNER: SILONY PERKINS PID: 29-32-25-32-0015
OWNER: KATHRYN VANELL MEYER PID: 29-32-25-32-0014
OWNER: JASON DECKER PID: 29-32-25-32-0013
OWNER: ANTHONY DURKIN PID: 29-32-25-32-0012
OWNER: KRISTIN TERSEY PID: 29-32-25-32-0011
OWNER: PAGE SEVERSON PID: 29-32-25-32-0010
OWNER: CITY OF RAMSEY PID: 29-32-25-32-0021
581.89 S42°51'44"E
193.74 N89°47'35"W
1349.11 N40°39'19"W
OWNER: CITY OF RAMSEY PID:35-32-25-14-0036
PLACE
OUTLOT B
PEARSON
PARCEL A
PARCEL B
PARCEL C
PARCEL D
LOT 2
BLOCK 3
OUTLOT A
Existing Building
Existing House
Existing Shed
Existing Garage
Existing Pool
Existing Deck
Existing Fence
Existing Gazebo
Existing Pergola
Existing Pool Equipment
Existing Hot Tub
Existing Fire Pit
Existing Playground Equipment
Existing Sport Court
Existing Basketball Hoop
Existing Trampoline
Existing Landscaping Wall
Existing Retaining Wall
Existing Concrete Patio
Existing Concrete Walk
Existing Concrete Driveway
Existing Asphalt Driveway
Existing Asphalt Parking Lot
Existing Gravel Driveway
Existing Gravel Parking Lot
Existing Gravel Shed
Existing Gravel Garage
Existing Gravel Pergola
Existing Gravel Pool Equipment
Existing Gravel Hot Tub
Existing Gravel Fire Pit
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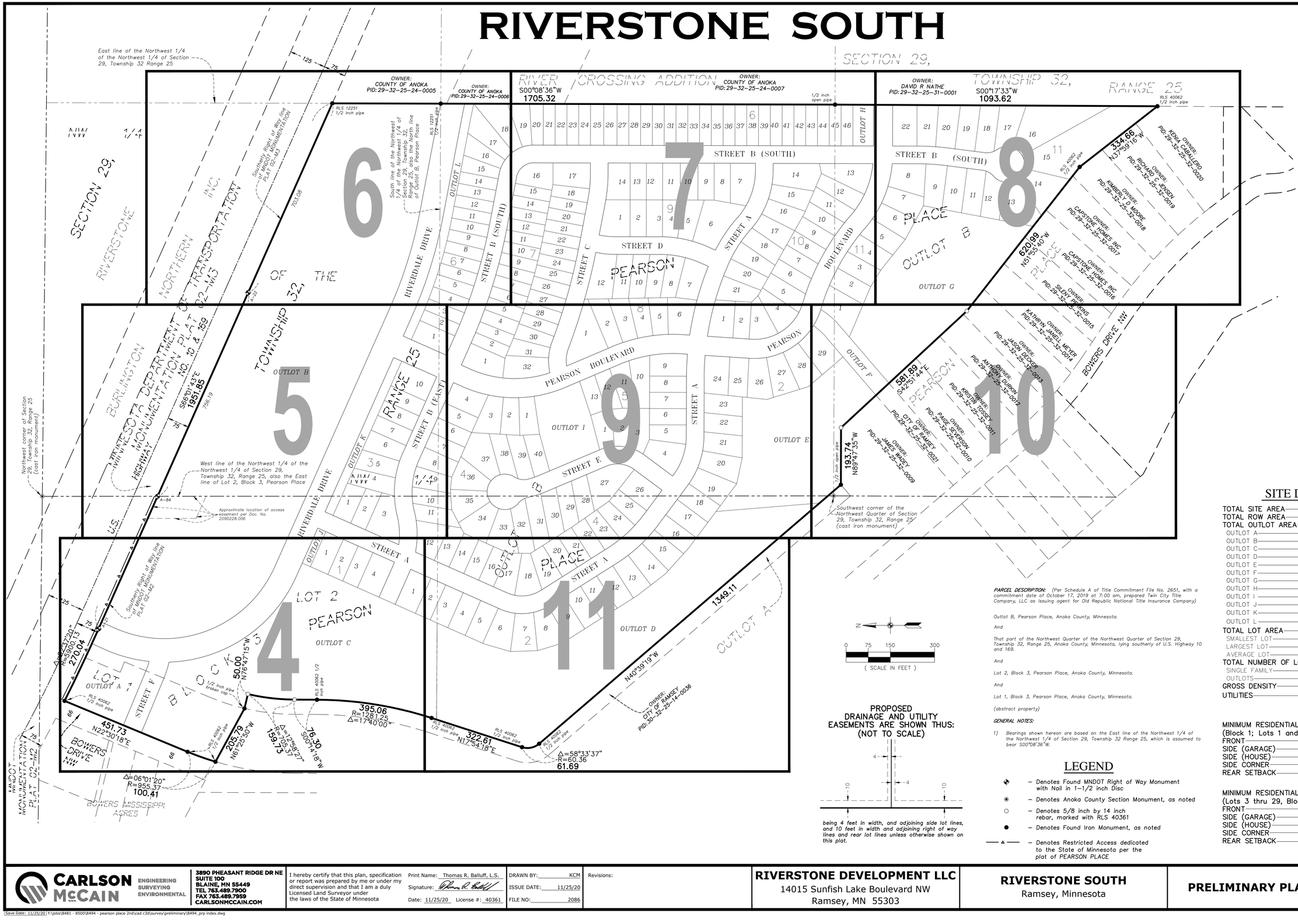
Existing Gravel

RIVERSTONE SOUTH



SITE DATA

TOTAL SITE AREA	±110.29 AC.
TOTAL ROW AREA	±18.73 AC.
TOTAL OUTLOT AREA	±45.67 AC.
OUTLOT A	±1.05 AC.
OUTLOT B	±19.75 AC.
OUTLOT C	±7.51 AC.
OUTLOT D	±7.00 AC.
OUTLOT E	±3.49 AC.
OUTLOT F	±0.45 AC.
OUTLOT G	±4.14 AC.
OUTLOT H	±0.22 AC.
OUTLOT I	±1.01 AC.
OUTLOT J	±0.09 AC.
OUTLOT K	±0.39 AC.
OUTLOT L	±0.57 AC.
TOTAL LOT AREA	±45.89 AC.
SMALLEST LOT	±5,040 S.F.
LARGEST LOT	±46,280 S.F.
AVERAGE LOT	±8,227 S.F.
TOTAL NUMBER OF LOTS	255
SINGLE FAMILY	243
OUTLOTS	12
GROSS DENSITY	2.31 LOTS/AC.
UTILITIES	AVAILABLE

PARCEL DESCRIPTION: *(Per Schedule A of Title Commitment File No. 2651, with a commitment date of October 17, 2019 at 7:00 am, prepared Twin City Title Company, LLC as issuing agent for Old Republic National Title Insurance Company)*

Outlot B, Pearson Place, Anoka County, Minnesota.

And

That part of the Northwest Quarter of the Northwest Quarter of Section 29, Township 32, Range 25, Anoka County, Minnesota, lying southerly of U.S. Highway 10 and 169.

And

Lot 2, Block 3, Pearson Place, Anoka County, Minnesota.

And

Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

GENERAL NOTES:

1) *Bearings shown hereon are based on the East line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32 Range 25, which is assumed to bear S00°08'36"W.*

PROPOSED DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THUS: (NOT TO SCALE)

being 4 feet in width, and adjoining side lot lines, and 10 feet in width and adjoining right of way lines and rear lot lines unless otherwise shown on this plat.

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- ——▲—— – Denotes Restricted Access dedicated to the State of Minnesota per the plat of PEARSON PLACE

MINIMUM RESIDENTIAL SETBACK DATA:
(Block 1; Lots 1 and 2, Block 2; Blocks 3 thru 10)

FRONT	25 FT.
SIDE (GARAGE)	5 FT.
SIDE (HOUSE)	5 FT.
SIDE CORNER	25 FT.
REAR SETBACK	30 FT.

MINIMUM RESIDENTIAL SETBACK DATA:
(Lots 3 thru 29, Block 2; Block 11)

FRONT	25 FT.
SIDE (GARAGE)	7.5 FT.
SIDE (HOUSE)	7.5 FT.
SIDE CORNER	25 FT.
REAR SETBACK	30 FT.

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota

Print Name: Thomas R. Balluff, L.S.
Signature:
Date: 11/25/20 License #: 40361

DRAWN BY: KCM
ISSUE DATE: 11/25/20
FILE NO: 2086

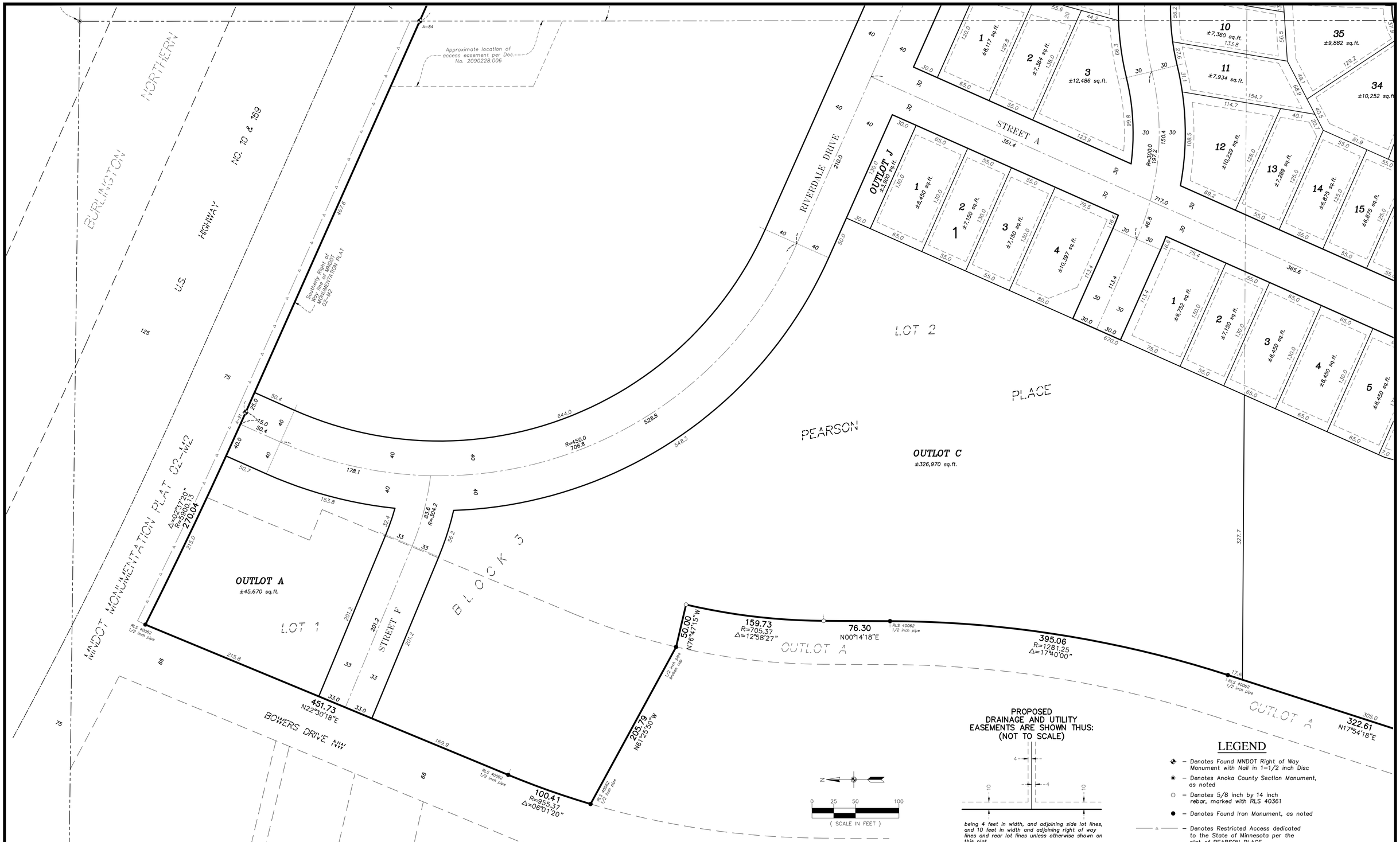
Revisions:

RIVERSTONE DEVELOPMENT LLC
14015 Sunfish Lake Boulevard NW
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

PRELIMINARY PLAT INDEX

Save Date: 11/25/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\preliminary\8494_prp index.dwg



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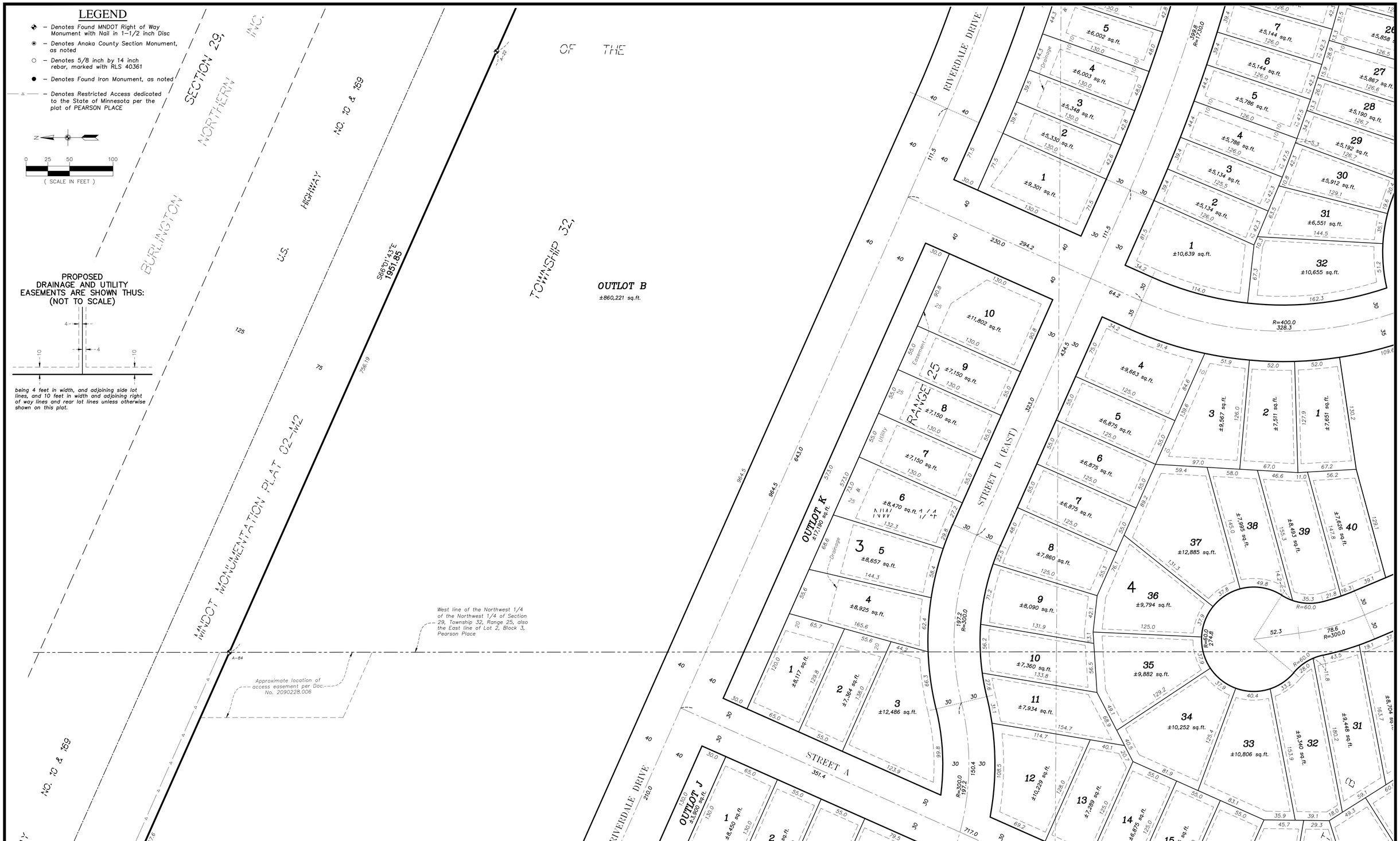

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RIVERSTONE SOUTH
Ramsey, Minnesota

PRELIMINARY PLAT

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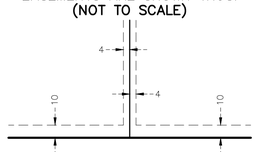

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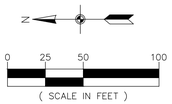

BURLINGTON NORTHERN INC. — U.S. HIGHWAY NO. 10 & 169 — MNDOT MONUMENTATION PLAT 02-M12

125 75

East line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32 Range 25

OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0005

OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0006

RIVER CROSSING ADDITION

RLS 12251 1/2 inch pipe

S00°08'36"W 1705.32

367.1

South line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32, Range 25, also the North line of Outlot B, Pearson Place

703.08

Southwest Right of Way line MNDOT MONUMENTATION PLAT 02-M12

OUTLOT L ±24,748 sq.ft.

RIVERDALE DRIVE

STREET B (SOUTH)

STREET C

Utility

Easement

Drainage

1 ±9,301 sq.ft. 130.0	2 ±5,330 sq.ft. 130.0	3 ±5,348 sq.ft. 130.0	4 ±6,003 sq.ft. 130.0
5 ±6,002 sq.ft. 130.0	6 ±5,347 sq.ft. 130.0	7 ±5,351 sq.ft. 130.0	8 ±5,347 sq.ft. 130.0
9 ±5,347 sq.ft. 130.0	10 ±5,298 sq.ft. 130.0	11 ±5,215 sq.ft. 130.0	12 ±5,200 sq.ft. 130.0
13 ±5,200 sq.ft. 130.0	14 ±5,200 sq.ft. 130.0	15 ±6,059 sq.ft. 130.0	16 ±7,487 sq.ft. 133.2
17 ±11,221 sq.ft. 135.6	18 ±12,082 sq.ft. 211.0	19 ±7,744 sq.ft. 135.2	20 ±5,971 sq.ft. 140.0
21 ±5,600 sq.ft. 140.0	22 ±5,600 sq.ft. 140.0	23 ±5,600 sq.ft. 140.0	24 ±5,600 sq.ft. 140.0
25 ±6,300 sq.ft. 140.0	26 ±6,300 sq.ft. 140.0		

1 ±5,134 sq.ft. 125.5	2 ±5,134 sq.ft. 126.0	3 ±5,134 sq.ft. 125.5	4 ±5,786 sq.ft. 126.0
5 ±5,786 sq.ft. 126.0	6 ±5,144 sq.ft. 126.0	7 ±5,144 sq.ft. 126.0	8 ±5,144 sq.ft. 126.0
9 ±5,144 sq.ft. 126.0	10 ±5,144 sq.ft. 126.0	11 ±5,144 sq.ft. 126.0	12 ±5,047 sq.ft. 126.0
13 ±5,040 sq.ft. 126.0	14 ±5,040 sq.ft. 126.0	15 ±5,040 sq.ft. 126.0	16 ±9,453 sq.ft. 126.0
17 ±10,231 sq.ft. 125.0	18 ±5,466 sq.ft. 126.0	19 ±5,040 sq.ft. 126.0	20 ±5,040 sq.ft. 126.0
21 ±5,040 sq.ft. 126.0	22 ±5,091 sq.ft. 126.2	23 ±5,132 sq.ft. 126.2	24 ±5,176 sq.ft. 126.3
25 ±5,179 sq.ft. 126.4	26 ±5,858 sq.ft. 126.5	27 ±5,867 sq.ft. 126.6	28 ±5,190 sq.ft. 126.7
29 ±5,192 sq.ft. 126.7	30 ±5,912 sq.ft. 129.1	31	

1 ±16,117 sq.ft. — 2 ±9,916 sq.ft. — 12 ±12,577 sq.ft.

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RIVERSTONE SOUTH
Ramsey, Minnesota

PRELIMINARY PLAT

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PROPOSED
DRAINAGE AND UTILITY
EASEMENTS ARE SHOWN THUS:
(NOT TO SCALE)

4 — 4 — 10 — 10

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0 25 50 100
(SCALE IN FEET)

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OWNER:
COUNTY OF ANOKA
PID: 29-32-25-24-0006

RIVER CROSSING ADDITION

S00°08'36"W
1705.32

OWNER:
COUNTY OF ANOKA
PID: 29-32-25-24-0007

SECTION 29,

1/2 inch open pipe

OWNER:
DAVID R NATHE
PID: 29-32-25-31-0001

STREET B (SOUTH)

STREET C

STREET D

STREET A

PEARSON PLACE

PEARSON BOULEVARD

OUTLOT H ±9,783 sq.ft.

OUTLOT L ±24,748 sq.ft.

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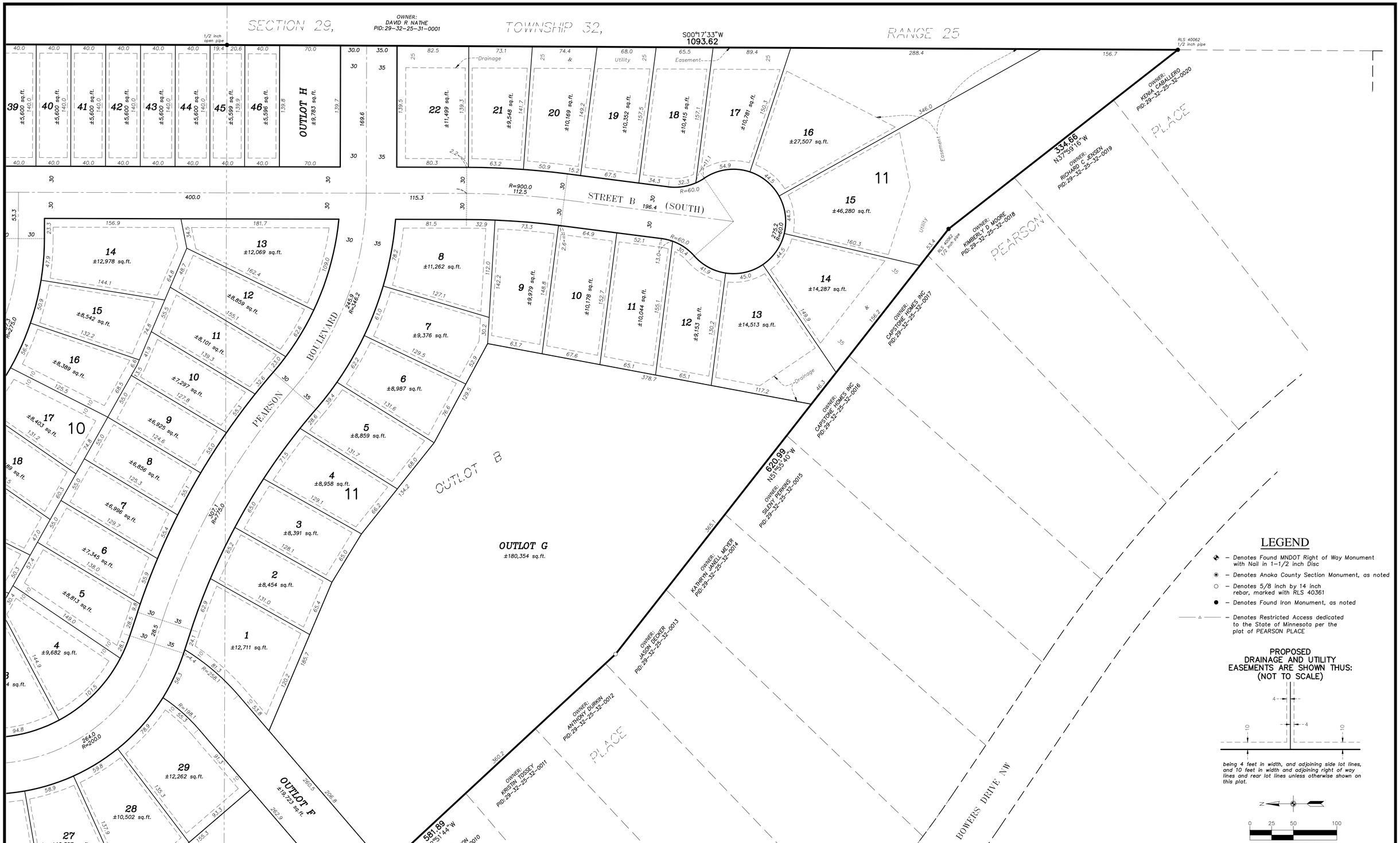

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PEARSON BOULEVARD

STREET A

STREET B (EAST)

STREET E

OUTLOT I
±43,993 sq.ft.

OUTLOT E
±151,921 sq.ft.

OUTLOT F
±19,123 sq.ft.

OWNER:
JAMES WADEY
PID: 29-32-25-12-0009

Southwest corner of the Northwest Quarter of Section 29, Township 32, Range 25 (cast iron monument)

1/2 inch open pipe

193.74
N89°47'35"W

PROPOSED
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EASEMENTS ARE SHOWN THUS:
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OUTLOT G
±180,354 sq.ft.

OUTLOT F
±19,723 sq.ft.

OUTLOT E
±151,921 sq.ft.

STREET A

PEARSON PLACE

581.89
N42°51'44"W

193.74
N89°47'35"W

OWNER:
PAIGE SEVERSON
PID:29-32-25-32-0010

OWNER:
KRISTIN TOSSEY
PID:29-32-25-32-0011

OWNER:
ANTHONY DURKIN
PID:29-32-25-32-0012

OWNER:
JASON L BECKER
PID:29-32-25-32-0013

OWNER:
KATHRYN JANELL MEYER
PID:29-32-25-32-0014

CITY OWNER OF RAMSEY
PID:29-32-25-32-0021

OWNER:
JAMES WAILEY
PID:29-32-25-32-0009

Southwest corner of the Northwest Quarter of Section 29, Township 32, Range 25 (cast iron monument)

1/2 inch open pipe

PROPOSED
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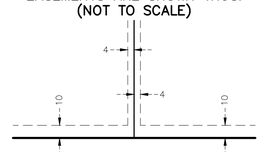

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N

0 25 50 100
(SCALE IN FEET)

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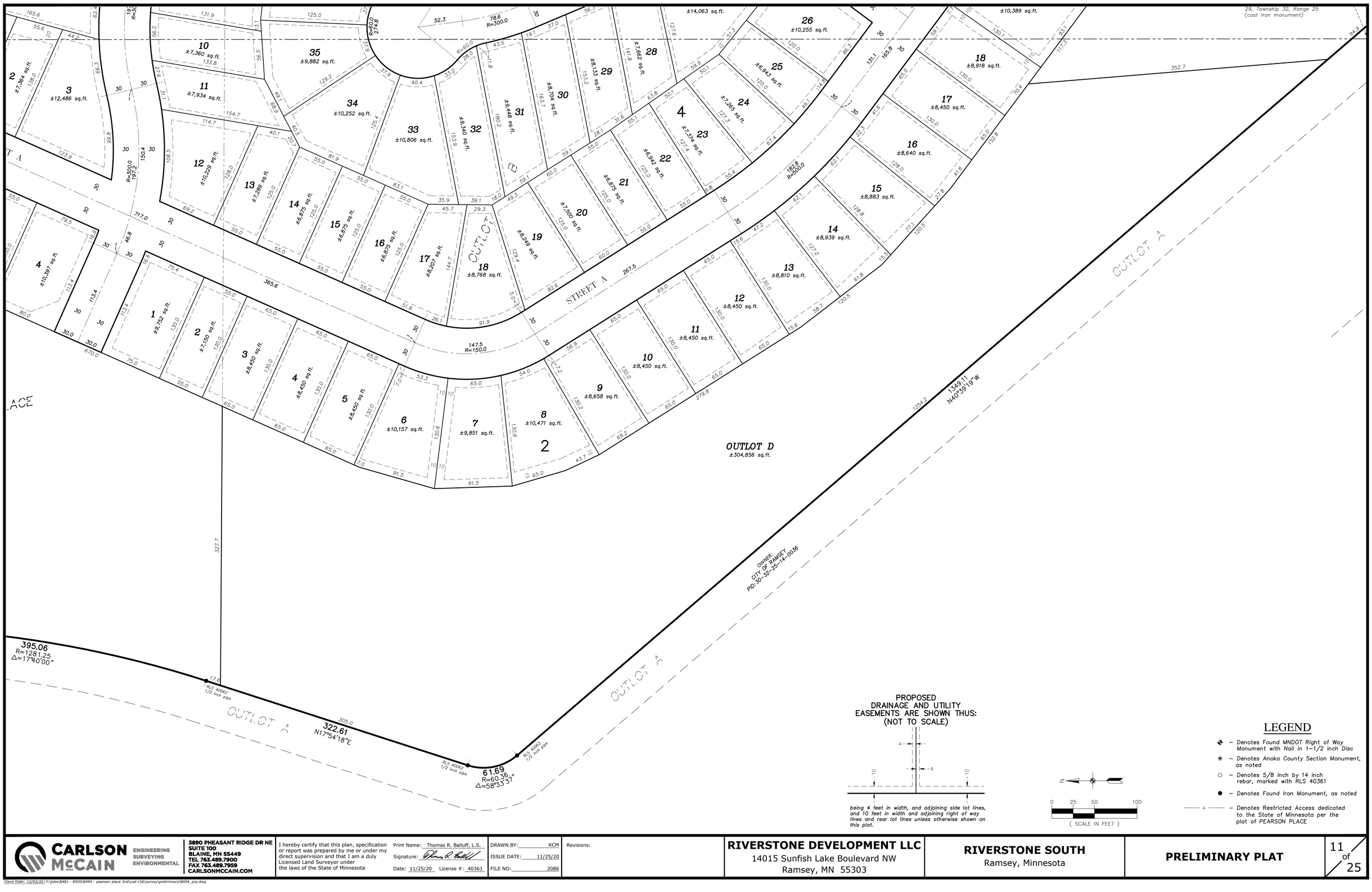
Ramsey, Minnesota

PRELIMINARY PLAT

Save Date: 12/02/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\preliminary\8494_prp.dwg



CARLSON McCAIN
ENGINEERING
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3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota

Print Name: Thomas R. Balluff, L.S.
Signature:
Date: 11/25/20 License #: 40361

DRAWN BY: KCM
ISSUE DATE: 11/25/20
FILE NO: 2086

Revisions:

RIVERSTONE DEVELOPMENT LLC
14015 Sunfish Lake Boulevard NW
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

PRELIMINARY PLAT

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SEE SHEET 13

SEE SHEET 13

US HIGHWAY NO. 10 & 169

EXISTING BITUMINOUS TRAIL

~ concept commercial ~

OUTLOT B

OUTLOT C

OUTLOT D

OUTLOT E

OUTLOT F

OUTLOT G

OUTLOT H

OUTLOT I

OUTLOT J

OUTLOT K

OUTLOT L

STREET A

STREET B (SOUTH)

STREET B (EAST)

STREET C

STREET D

STREET E

PEARSON BLVD. NW

RIVERDALE DRIVE NW

BOWERS DRIVE NW

LAKE

POND

INFILTRATION BASIN

INFILTRATION BENCH

OUTLET CONTROL STRUCTURE

LIFT STATION
*IE: 845.86
(BY OTHERS)

SAN SWR STUB
*IE.: 846.72

* SEWER DEPTH FOR FUTURE DEVELOPMENT TO THE EAST TO BE VERIFIED BY CITY.

REMOVE & ABANDON EXISTING WELL PER MDH STANDARDS.

12" WM EXTENSION (BY OTHERS)

12" WM EXTENSION (BY OTHERS)

8" PVC SAN SWR STUB IE.: 864.27

8" PVC SAN SWR STUB IE.: 862.67

8" PVC SAN SWR STUB IE.: 861.00

8" PVC SAN SWR STUB IE.: 862.24

8" PVC SAN SWR STUB IE.: 863.54

8" PVC SAN SWR STUB IE.: 864.84

SAN SWR STUB IE.: 864.00

RE 873.40
IE 863.25 W,SE

RE 877.35
IE 864.07
IE 863.97

RE 876.15
IE 862.47 N
IE 862.47 E
IE 862.37 W

RE 877.85
IE 860.80 N
IE 860.80 W
IE 860.80 E
IE 860.70 S

RE 876.15
IE 862.04 N
IE 862.04 W
IE 861.94 E

RE 877.35
IE 863.34 N
IE 863.34 W
IE 863.24 E

RE 876.95
IE 864.64
IE 864.54

RE 872.95
IE 862.16
IE 862.06

RE 873.45
IE 858.76 W
IE 858.76 N
IE 858.66 S

RE 872.35
IE 860.15
IE 860.05

RE 871.05
IE 857.61
IE 857.51

RE 868.47
IE 856.33 W
IE 856.33 N
IE 856.23 S

RE 868.75
IE 854.33 S
IE 854.33 N
IE 847.78 W
IE 847.68 E

RE 867.00
IE 846.51 E
IE 846.51 W
IE 846.41 N

RE 869.08
IE 857.06

RE 867.40
IE 855.83
IE 855.73

RE 868.65
IE 848.41
IE 848.31

RE 867.50
IE 856.93
IE 856.83

RE 867.43
IE 857.43
IE 857.33

RE 867.15
IE 849.51
IE 849.41

RE 864.85
IE 850.41
IE 850.31

RE 865.45
IE 850.91
IE 850.81

RE 868.55
IE 858.71

RE 869.78
IE 856.71 N
IE 852.48 W
IE 852.38 S

RE 868.20
IE 851.42
IE 851.31

RE 867.85
IE 854.39
IE 854.29

RE 867.25
IE 854.89
IE 854.79

RE 868.39
IE 855.79
IE 855.69

RE 870.05
IE 857.28
IE 857.18

RE 870.90
IE 857.53
IE 857.43

RE 870.75
IE 859.53
IE 859.43

RE 869.59
IE 858.43 W
IE 858.43 N
IE 858.33 E

RE 873.50
IE 862.27

RE 872.05
IE 861.55

RE 872.05
IE 861.01

RE 872.05
IE 860.68
IE 860.58

RE 872.95
IE 860.41
IE 860.31

RE 873.70
IE 862.50 W
IE 859.78 E
IE 859.78 N
IE 859.68 S

RE 871.65
IE 859.13
IE 859.03

RE 872.71
IE 858.84 E
IE 858.84 N
IE 858.74 S

RE 872.25
IE 858.43
IE 858.33

RE 868.55
IE 857.60
IE 857.50

RE 875.30
IE 863.30

RE 878.00
IE 867.00 E,W

RE 878.23
IE 867.17

RE 877.10
IE 866.01
IE 865.91

RE 876.07
IE 864.96 /E
IE 864.96 /N
IE 863.36 /W
IE 863.26 /S

RE 867.95
IE 857.06
IE 856.96

RE 873.45
IE 862.51
IE 862.41

RE 871.45
IE 859.28
IE 859.18

RE 870.70
IE 858.88
IE 858.78

INSERT A:

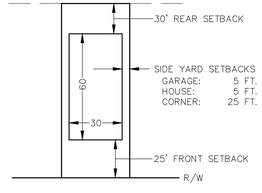
- 1.5" TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C)
- BITUMINOUS MATERIAL FOR TACK COAT
- 2" TYPE SP 12.5 NON WEARING COURSE MIXTURE (SPNWB330C)
- MIN. 4" MODIFIED CLASS 5 AGGREGATE BASE (2)
- PLACED ON PREPARED SUBGRADE (3)

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
2. Minnesota Department of Transportation GSID Station #802 (Name: H 257). Elev.= 882.78 ft.

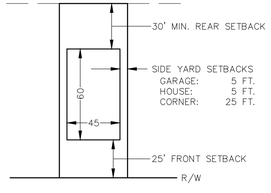
0 50 100 200

40' LOT DETAIL
(NOT TO SCALE)



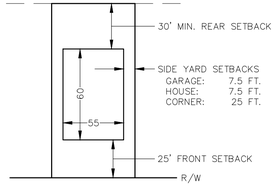
TYPICAL SERVICES SHALL BE:
WATER: 1" COPPER TYPE K
SEWER: 4" PVC SDR 26
CURB STOP TO BE PLACED AT THE R/W

55' LOT DETAIL
(NOT TO SCALE)



TYPICAL SERVICES SHALL BE:
WATER: 1" COPPER TYPE K
SEWER: 4" PVC SDR 26
CURB STOP TO BE PLACED AT THE R/W

65' LOT DETAIL
(NOT TO SCALE)



TYPICAL SERVICES SHALL BE:
WATER: 1" COPPER TYPE K
SEWER: 4" PVC SDR 26
CURB STOP TO BE PLACED AT THE R/W

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Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
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RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
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RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY SITE & UTILITY PLAN

12 of 25

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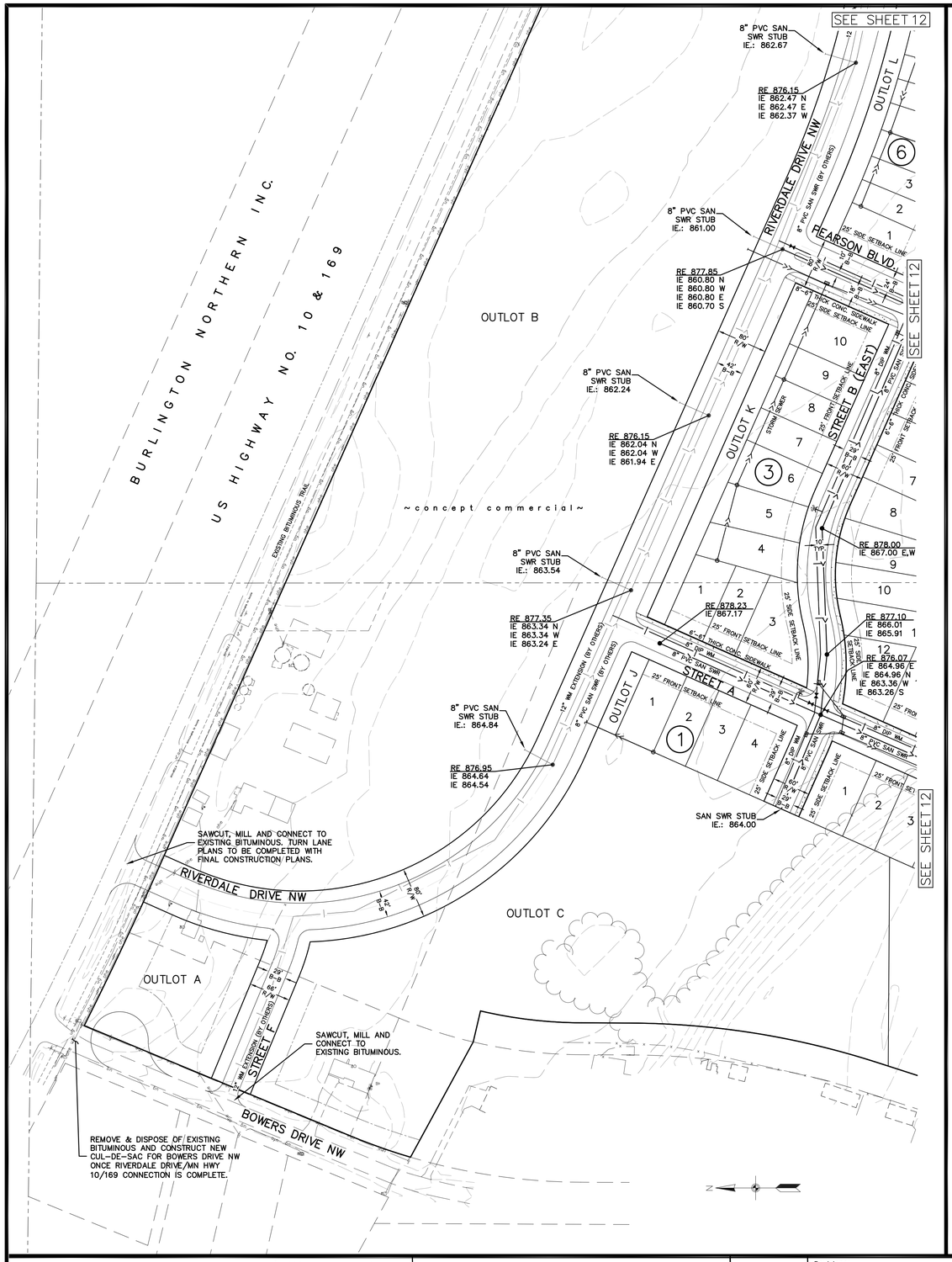

SITE PLAN LEGEND

	EXISTING	PROPOSED
LIGHT POLE		
SANITARY MANHOLE	SAN	
MISCELLANEOUS SIGN		
EXISTING SPOT ELEVATION	x0000.0	
EXISTING TREE		
TELEVISION BOX	TV	
FIRE HYDRANT	FIRE	
FLUSHING HYDRANT		
GATE VALVE	GV	
CLEANOUT	CO	
ELECTRIC BOX	ELEC	
GAS METER	GAS	
CATCH BASIN	or	or
RAIN GUARDIAN		RG
ELECTRIC METER	ELEC	
TELEPHONE BOX	TEL	
UTILITY POLE		
FLARED END SECTION	FES HES	
STORM MANHOLE	STORM	
SERVICE	SAN GAS W	
SOIL BORING/TEST HOLE		

	MODULAR	ROCK
RETAINING WALL		
WATERMAIN		
SANITARY SEWER		
FORCEMAIN	FM	FM
STORM SEWER		
PROPERTY LINE		
SETBACK LINE		
CURB		
WETLAND		
DITCH		
UNDERGROUND TELEPHONE	ut	ut
UNDERGROUND ELECTRIC	ue	ue
UNDERGROUND GAS	ug	ug
UNDERGROUND FIBEROPTIC	ufo	ufo
FENCE		
OVERHEAD ELECTRIC	ohe	ohe
CONCRETE SURFACE		
BITUMINOUS SURFACE		

N

0 50 100 200

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
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RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY SITE & UTILITY PLAN

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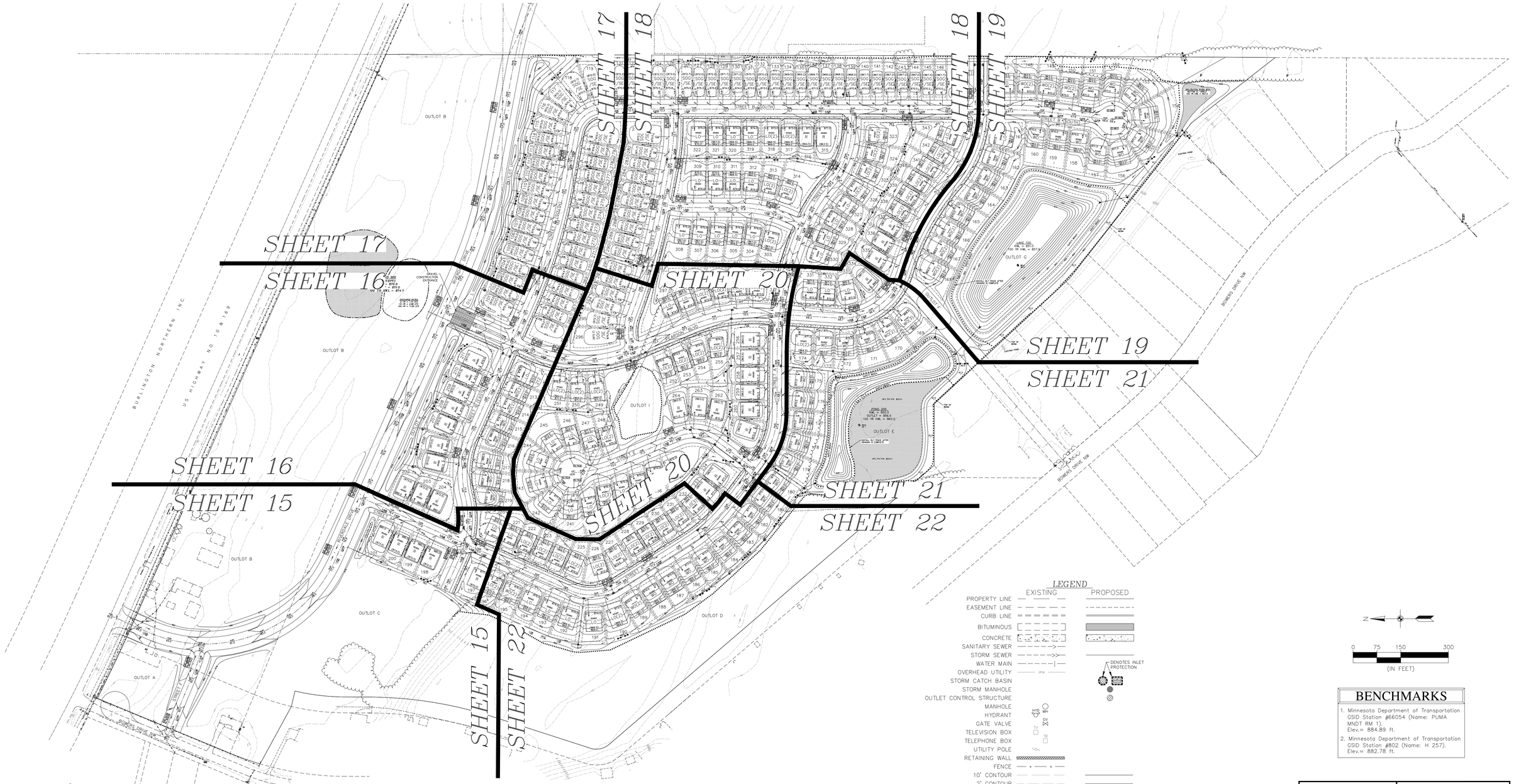

WETLAND SUMMARY

THERE ARE NO DELINEATED WETLANDS ONSITE.

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
EASEMENT LINE		
CURB LINE		
BITUMINOUS		
CONCRETE		
SANITARY SEWER		
STORM SEWER		
WATER MAIN		
OVERHEAD UTILITY		
STORM CATCH BASIN		DENOTES INLET PROTECTION
STORM MANHOLE		
OUTLET CONTROL STRUCTURE		
MANHOLE		
HYDRANT		
GATE VALVE		
TELEVISION BOX		
TELEPHONE BOX		
UTILITY POLE		
RETAINING WALL		
FENCE		
10' CONTOUR		
2' CONTOUR		
SPECIFIED CONTOUR		
FEMA FLOOD PLAIN		
WETLAND LINE		
SPOT ELEVATION		00.0
EMERGENCY OVERFLOW		E.O.F. 000.0
SILT FENCE		
TREE FENCE		
GRADING LIMITS		
TREELINE		
SOIL BORING		

N

0 75 150 300

(IN FEET)

BENCHMARKS

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CALL BEFORE YOU DIG

811 Know what's below. Call before you dig.

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

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RIVERSTONE SOUTH
Ramsey, MN

GRADING INDEX

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#8494

SEE SHEET 16

OUTLOT B

OUTLOT C

OUTLOT A

RIVERDALE DRIVE

STREET A

STREET F

BOWERS DRIVE NW

SEE SHEET 22

N

0 25 50 100

(IN FEET)

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RIVERSTONE SOUTH
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PRELIMINARY GRADING & EROSION CONTROL PLAN

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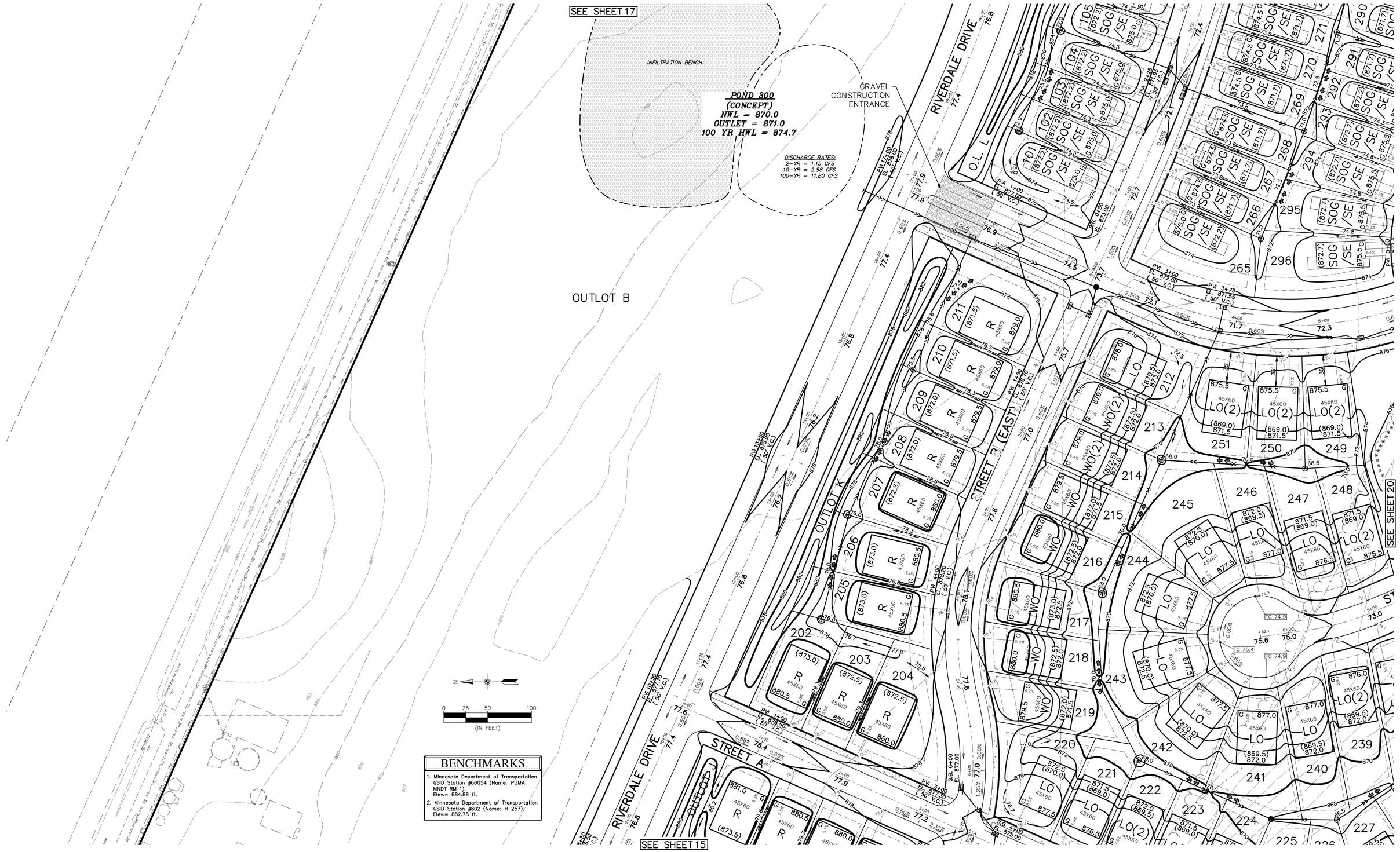

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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BENCHMARKS

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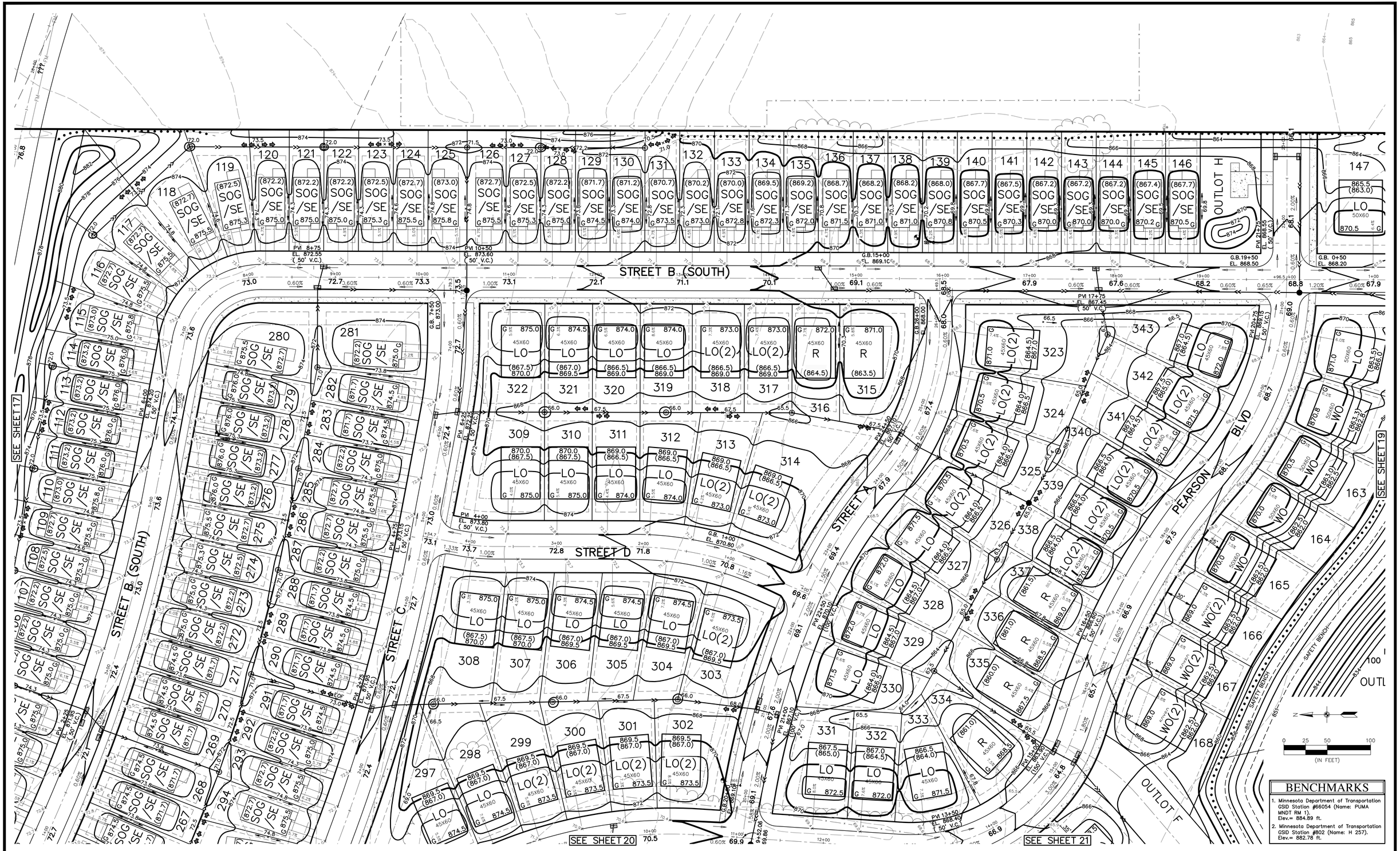

BENCHMARKS

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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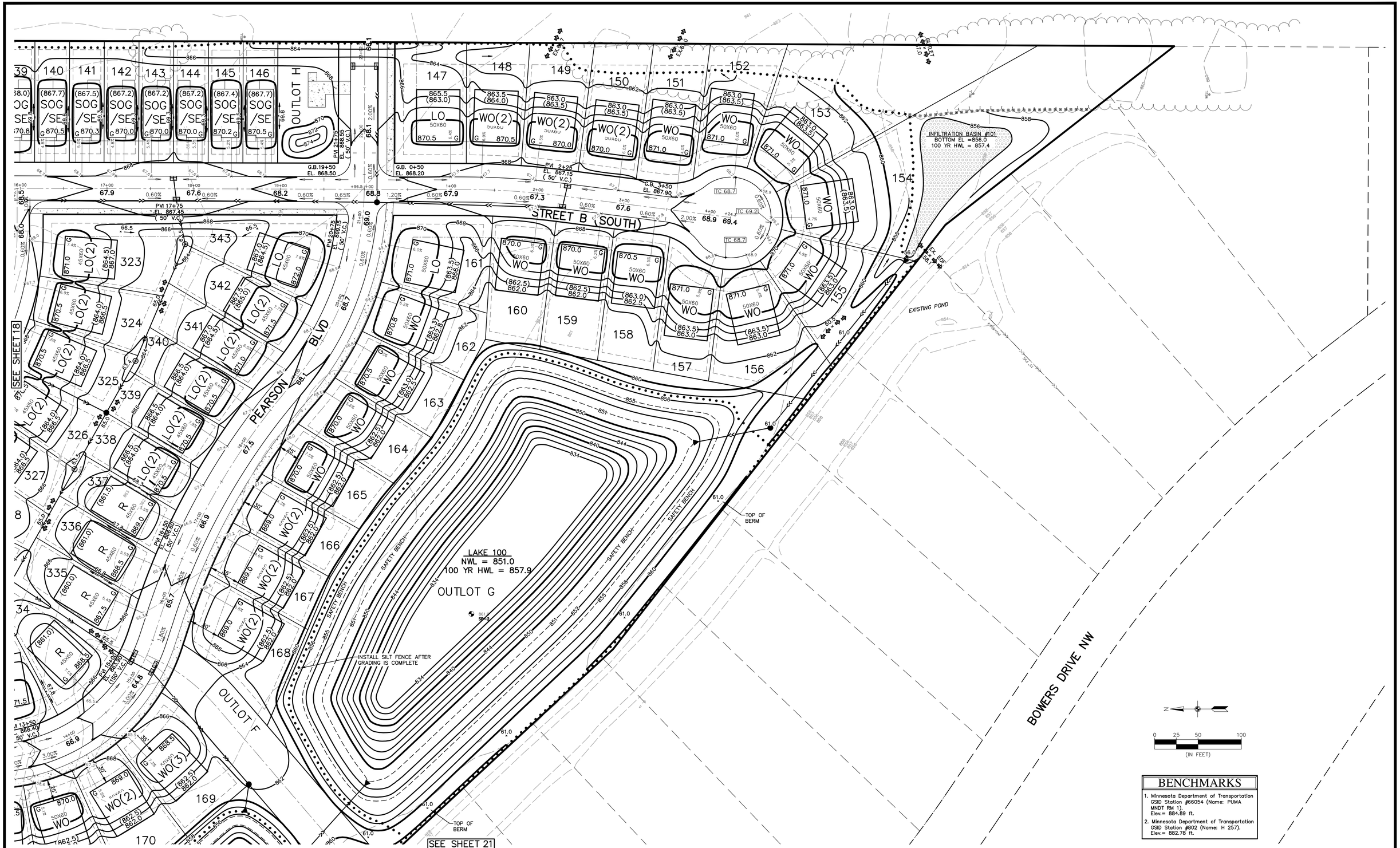

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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#8494

SEE SHEET 18

SEE SHEET 19

SEE SHEET 20

SEE SHEET 22

LAKE 100
NWL = 851.0
100 YR HWL = 857.9

OUTLOT G

OUTLOT F

OUTLOT E

INSTALL SILT FENCE AFTER GRADING IS COMPLETE

TOP OF BERM

EXISTING POND

SAFETY BENCH

INFILTRATION BENCH

POND 200
NWL = 855.5
OUTLET = 856.5
100 YR HWL = 860.0

STREET A

BOWERS DRIVE NW

0 25 50 100
(IN FEET)

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TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY GRADING & EROSION CONTROL PLAN

Save Date: 11/24/20 F:\Jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_gr.dwg

#8494

N

0 25 50 100
(IN FEET)

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
2. Minnesota Department of Transportation GSID Station #802 (Name: H 257). Elev.= 882.78 ft.

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL

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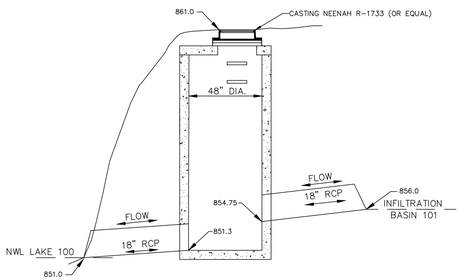
PRELIMINARY GRADING & EROSION CONTROL PLAN

22 of 25

Save Date: 11/24/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_gr.dwg

#8494

OUTLET CONTROL STRUCTURE LAKE 100



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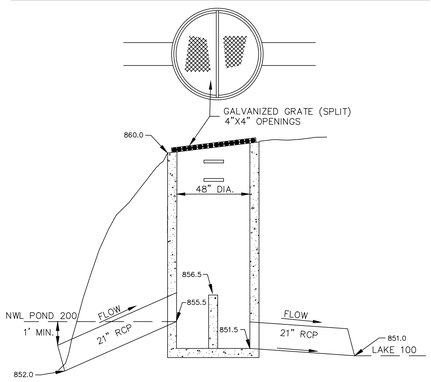
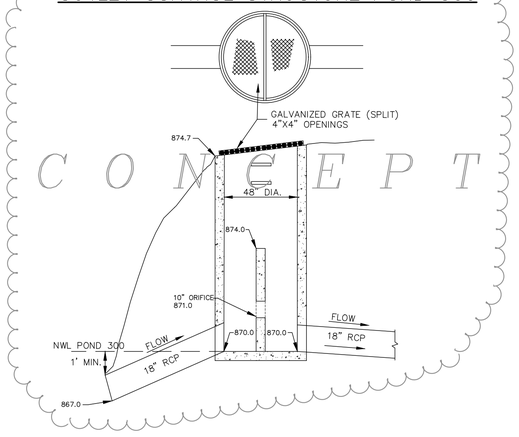
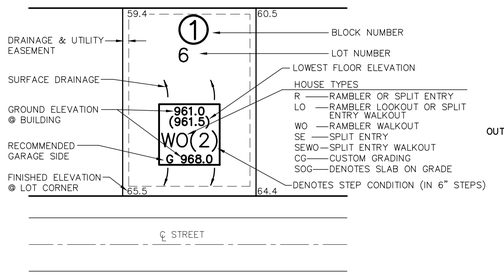


OUTLET CONTROL STRUCTURE POND 300

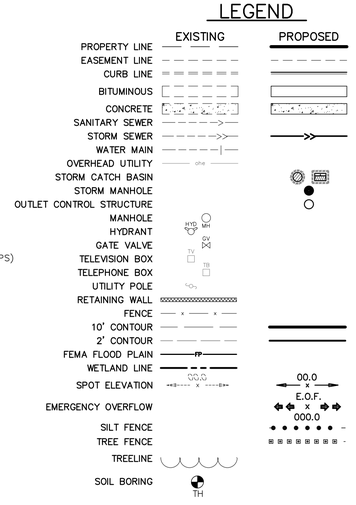


CONCEPT

GRADING PLAN LOT KEY

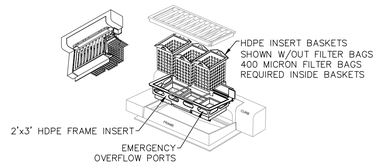


LEGEND



INFRASAFE – 2'x3' DEBRIS COLLECTION DEVICE

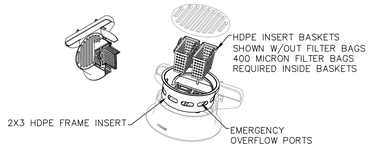
AS MANUFACTURED BY ROYAL ENVIRONMENTAL SYSTEMS



- MEETS MN/DOT SPECIFICATION 3891.F "STORM DRAIN INLET PROTECTION – FILTER BAG INSERT"
- DESIGNED FOR NEENAH R-3067 OR R-3290 SERIES

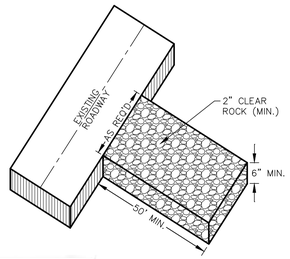
INFRASAFE – 27" DEBRIS COLLECTION DEVICE

AS MANUFACTURED BY ROYAL ENVIRONMENTAL SERVICES

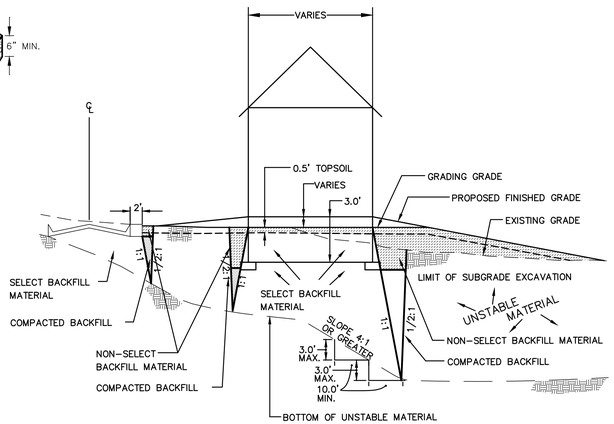


- MEETS MN/DOT SPECIFICATION 3891.F "STORM DRAIN INLET PROTECTION – FILTER BAG INSERT"
- DESIGNED FOR NEENAH R-3250-A OR R-3250-1 (MNDOT 801) FRAME CASTING

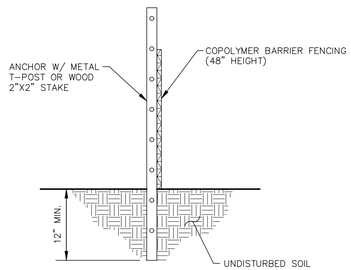
ROCK CONSTRUCTION ENTRANCE



SUBGRADE CORRECTION



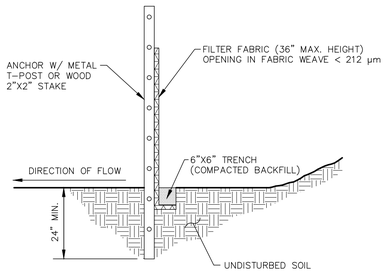
TREE FENCE



NOTES:

1. TREE FENCING SHALL BE PLACED A MINIMUM OF 1 FOOT PER CALIPER INCH OF TREE DIAMETER FROM TREE(S) THAT IS/ARE TO BE SAVED.
2. ANCHOR POST MAY BE SPACED UP TO 10 FEET APART.
3. SECURELY ATTACH TREE FENCE TO ANCHOR POSTS W/ MINIMUM OF TWO ATTACHMENTS PER POST.
4. SEE MNDOT SPECIFICATION 2572.

SILT FENCE



NOTES:

1. DIG A 6"X6" TRENCH ALONG THE INTENDED SILT FENCE LINE.
2. DRIVE ALL ANCHOR POSTS INTO THE GROUND AT THE DOWNHILL SIDE OF THE TRENCH.
3. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART.
4. LAY OUT SILT FENCE ALONG THE UPHILL SIDE OF THE ANCHOR POSTS AND BACK FILL 6"X6" TRENCH.
5. SECURELY ATTACH SILT FENCE TO ANCHOR POSTS W/ MINIMUM OF THREE ATTACHMENTS PER POST.
6. SEE MNDOT SPECIFICATIONS 2573 & 3886.

TABLE A
MODIFIED CLASS 5 SPECIFICATIONS

% PASSING

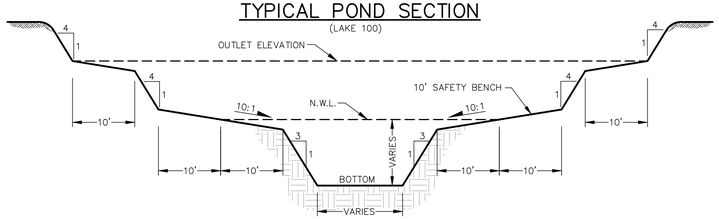
1"	100
3/4"	90 – 100
3/8"	50 – 80
No.4	35 – 70
No.10	20 – 60
No.40	10 – 35
No.200	5 – 10

NOTES:
1. THE AGGREGATE BASE CONSTRUCTION WILL BE ACCEPTED FOR PAYMENT IN ACCORDANCE WITH THE PROVISIONS IN TABLE A.
2. IF THE AGGREGATE BASE FAILS TO MEET THE REQUIREMENTS OF TABLE A THE MATERIAL CAN BE CORRECTED IN PLACE OR REMOVED AND REPLACED WITH MATERIAL THAT MEET THE REQUIREMENTS OF TABLE A.
3. IN THE EVENT THAT RECYCLED MATERIAL IS USE IT MUST MEET MNDOT REQUIREMENTS FOR RECYCLED BASE.

APPROVED: 2 - 2003
City of RAMSEY
STANDARD DETAILS: MODIFIED CLASS 5 SPECIFICATIONS
CITY PLATE No. STR-26

TYPICAL POND SECTION

(LAKE 100)



TURF ESTABLISHMENT

TURF ESTABLISHMENT SHALL APPLY TO ALL DISTURBED AREAS AND SHALL BE ACCORDING TO MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION (LATEST EDITION) EXCEPT AS MODIFIED BELOW.

TURF ESTABLISHMENT SHALL OCCUR AS SOON AS POSSIBLE BUT IN NO CASE MORE THAN 7 DAYS.

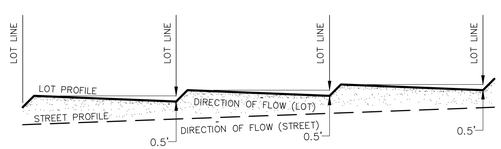
SEED: MnDOT MIXTURE 25-141 AT 60 POUNDS PER ACRE.

DORMANT SEED: SHALL BE APPLIED AT TWICE THE NORMAL RATE AFTER NOVEMBER 1ST.

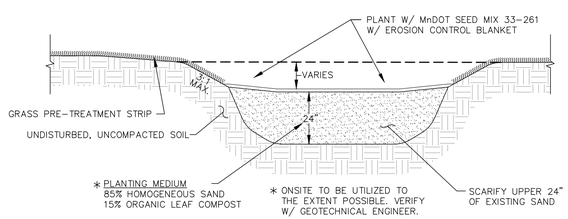
MULCH: TYPE 1 AT 2 TONS PER ACRE (DISK ANCHORED).

FERTILIZER: TYPE 1 10-10-10 AT 200 POUNDS PER ACRE.

LOT BENCHING DETAIL

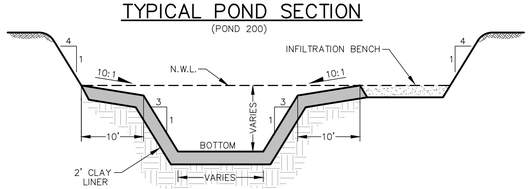


INFILTRATION BASIN



TYPICAL POND SECTION

(POND 200)



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RIVERSTONE SOUTH
Ramsey, MN

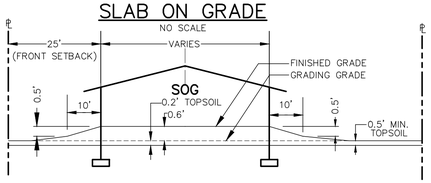
DETAILS

Save Date: 12/02/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_dtls.dwg

#8494

40 'LOTS
DETACHED TOWNHOME HOLDDOWNS

SLAB ON GRADE
NO SCALE



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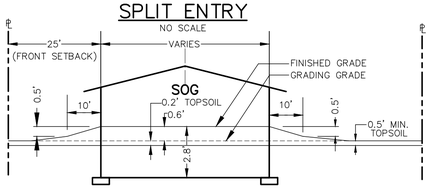
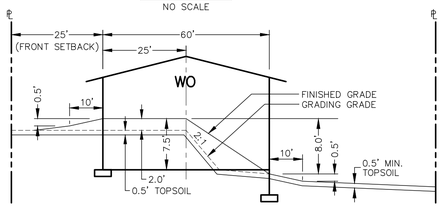


65' LOTS

WALKOUT
NO SCALE



LOOKOUT
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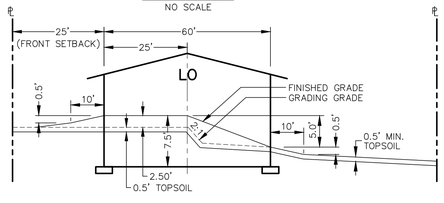

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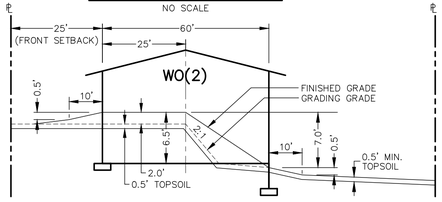

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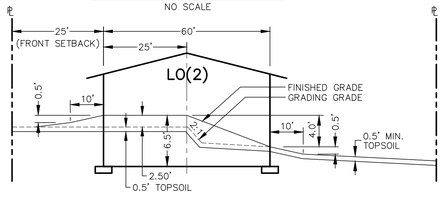

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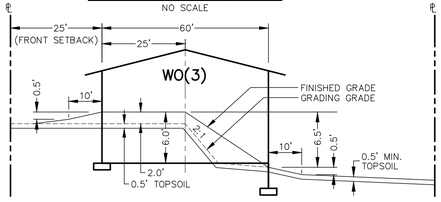

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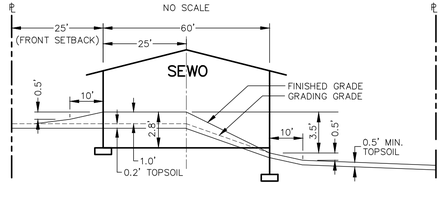

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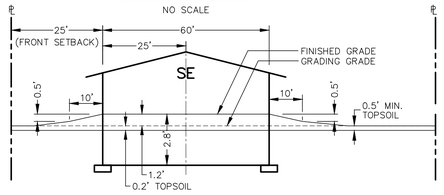
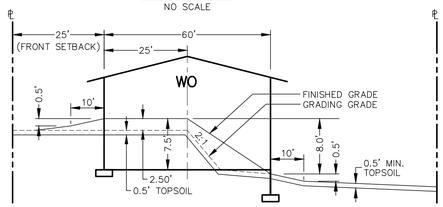


55' LOTS

WALKOUT
NO SCALE



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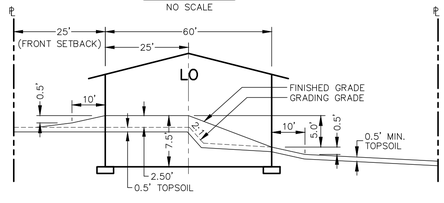

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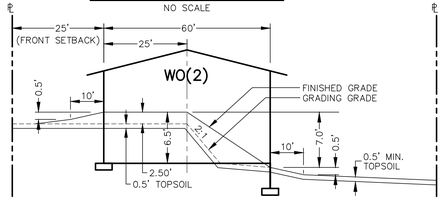

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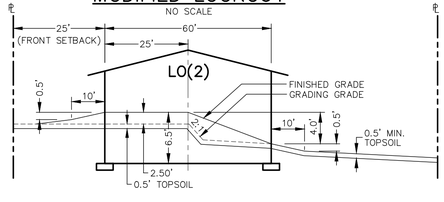

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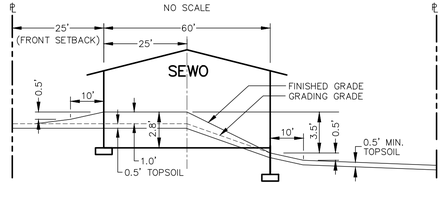

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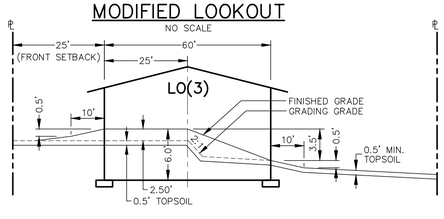

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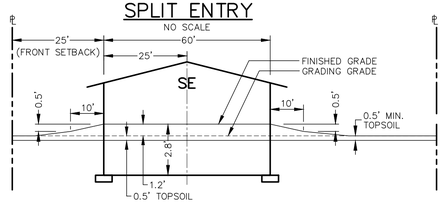

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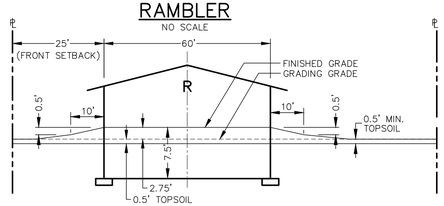
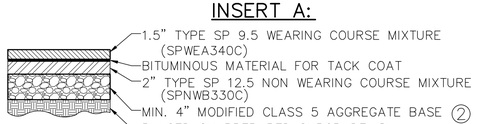


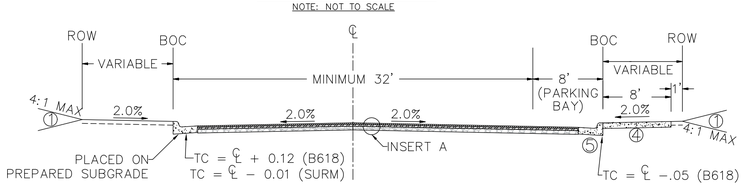
REFERENCE NOTES:

1. GRADE TO MATCH EXISTING SURFACE MINIMUM 4" COMMON TOPSOIL BORROW IN BOULEVARDS. SEE CITY PLATE No. ERO-6
2. CLASS 5 GRADATION IS MODIFIED PER CITY PLATE No. STR-26
3. CONTRACTOR SHALL SCARIFY AND COMPACT, ACCORDING TO THE SPECIFIED DENSITY METHOD, THE TOP 12 INCHES OF MATERIAL PRIOR TO PLACING ANY FILL MATERIALS OR CLASS 5 AGGREGATE BASE.
4. ALL SIDEWALKS SHALL BE 6" THICK, 6' WIDE, PLACED ON PREPARED SUBGRADE.
5. CONCRETE CURB AND GUTTER PER PLAN. SEE CITY PLATE No. STR-1.

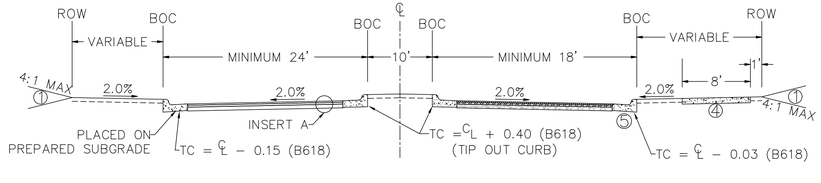
INSERT A:



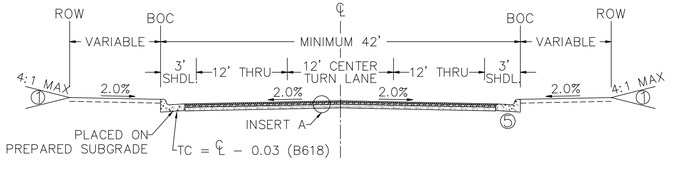
32' – URBAN STREET
W/ PARKING BAY
NOTE: NOT TO SCALE



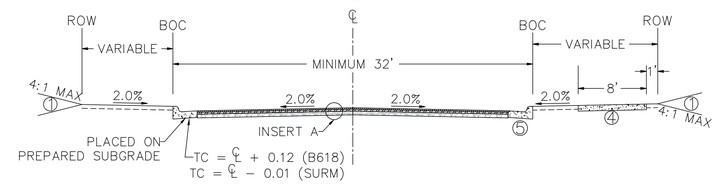
ENTRANCE W/CENTER MEDIAN
NOTE: NOT TO SCALE



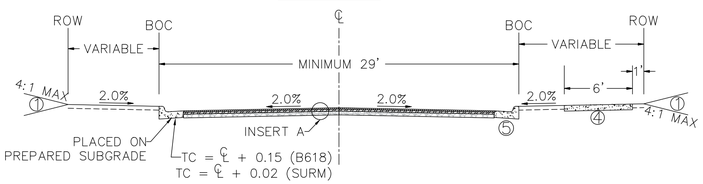
42' – URBAN STREET
NOTE: NOT TO SCALE



32' – URBAN STREET
NOTE: NOT TO SCALE



29' – URBAN STREET
NOTE: NOT TO SCALE



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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

DETAILS

Save Date: 12/02/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_dtls.dwg

#8494

Grading Lot Number	Addition	Block	Lot	Proposed				Split Entry Alternate (if applicable)				EOF	100 Year	Water Table	Controlling Elevation		Method
				House Type	Garage Floor Elevation	Lowest Floor Elevation	Lowest opening Elevation	House Type	Garage Floor Elevation	Lowest Floor Elevation	Lowest opening Elevation				LF	LO	
101	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
102	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
103	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
104	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
105	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
106	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
107	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
108	-	-	-	SOG	875.3	875.3	875.3	SE	875.3	872.5	875.3	873.5	-	855.0	-	874.5	EOF
109	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.5	-	855.0	-	874.5	EOF
110	-	-	-	SOG	875.8	875.8	875.8	SE	875.8	873.0	875.8	873.5	-	855.0	-	874.5	EOF
111	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.5	-	855.0	-	874.5	EOF
112	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.5	-	855.0	-	874.5	EOF
113	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.5	-	855.0	-	874.5	EOF
114	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.5	-	855.0	-	874.5	EOF
115	-	-	-	SOG	875.8	875.8	875.8	SE	875.8	873.0	875.8	873.5	-	855.0	-	874.5	EOF
116	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.5	-	855.0	-	874.5	EOF
117	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.5	-	855.0	-	874.5	EOF
118	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.5	-	855.0	-	874.5	EOF
119	-	-	-	SOG	875.3	875.3	875.3	SE	875.3	872.5	875.3	873.5	-	855.0	-	874.5	EOF
120	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
121	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
122	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.5	-	855.0	-	874.5	EOF
123	-	-	-	SOG	875.3	875.3	875.3	SE	875.3	872.5	875.3	873.5	-	855.0	-	874.5	EOF
124	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
125	-	-	-	SOG	875.8	875.8	875.8	SE	875.8	873.0	875.8	873.0	-	855.0	-	874.0	EOF
126	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
127	-	-	-	SOG	875.3	875.3	875.3	SE	875.3	872.5	875.3	873.0	-	855.0	-	874.0	EOF
128	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
129	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	871.0	-	855.0	-	872.0	EOF
130	-	-	-	SOG	874.0	874.0	874.0	SE	874.0	871.2	874.0	871.0	-	855.0	-	872.0	EOF
131	-	-	-	SOG	873.5	873.5	873.5	SE	873.5	870.5	873.5	871.0	-	855.0	-	872.0	EOF
132	-	-	-	SOG	873.0	873.0	873.0	SE	873.0	870.2	873.0		-	855.0	858.0	-	WATER
133	-	-	-	SOG	872.8	872.8	872.8	SE	872.8	870.0	872.8		-	855.0	858.0	-	WATER
134	-	-	-	SOG	872.3	872.3	872.3	SE	872.3	869.5	872.3		-	855.0	858.0	-	WATER
135	-	-	-	SOG	872.0	872.0	872.0	SE	872.0	869.2	872.0		-	855.0	858.0	-	WATER
136	-	-	-	SOG	871.5	871.5	871.5	SE	871.5	868.7	871.5		-	855.0	858.0	-	WATER
137	-	-	-	SOG	871.0	871.0	871.0	SE	871.0	868.2	871.0		-	855.0	858.0	-	WATER
138	-	-	-	SOG	871.0	871.0	871.0	SE	871.0	868.2	871.0		-	855.0	858.0	-	WATER
139	-	-	-	SOG	870.8	870.8	870.8	SE	870.8	868.0	870.8		-	855.0	858.0	-	WATER
140	-	-	-	SOG	870.5	870.5	870.5	SE	870.5	867.7	870.5		-	855.0	858.0	-	WATER
141	-	-	-	SOG	870.3	870.3	870.3	SE	870.3	867.5	870.3		-	855.0	858.0	-	WATER
142	-	-	-	SOG	870.0	870.0	870.0	SE	870.0	867.2	870.0		-	855.0	858.0	-	WATER
143	-	-	-	SOG	870.0	870.0	870.0	SE	870.0	867.2	870.0		-	855.0	858.0	-	WATER
144	-	-	-	SOG	870.0	870.0	870.0	SE	870.0	867.2	870.0		-	855.0	858.0	-	WATER
145	-	-	-	SOG	870.2	870.2	870.2	SE	870.2	867.4	870.2		-	855.0	858.0	-	WATER
146	-	-	-	SOG	870.5	870.5	870.5	SE	870.5	867.7	870.5		-	855.0	858.0	-	WATER
147	-	-	-	LO	870.5	863.0	865.5	SEWO	870.0	867.2	867.2	861.7	-	855.0	-	862.7	EOF
148	-	-	-	WO(2)	870.5	864.0	864.0	-	-	-	-	861.7	-	855.0	-	862.7	EOF
149	-	-	-	WO(2)	870.0	863.5	863.5	-	-	-	-	861.7	-	855.0	-	862.7	EOF
150	-	-	-	WO(2)	870.0	863.5	863.5	-	-	-	-	861.7	-	855.0	-	862.7	EOF
151	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	861.0	-	855.0	-	862.0	EOF
152	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	861.0	-	855.0	-	862.0	EOF
153	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	857.0	857.4	855.0	859.4	-	100 YR
154	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	857.0	857.4	855.0	859.4	-	100 YR
155	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	857.0	857.9	855.0	859.9	-	100 YR
156	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
157	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
158	-	-	-	WO	870.5	863.0	863.0	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
159	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
160	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
161	-	-	-	LO	871.0	863.5	866.0	SEWO	870.5	867.7	867.7	860.5	857.9	855.0	861.5	-	100 YR
162	-	-	-	WO	870.8	863.3	863.3	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
163	-	-	-	WO	870.5	863.0	863.0	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
164	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
165	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
166	-	-	-	WO(2)	869.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
167	-	-	-	WO(2)	869.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
168	-	-	-	WO(2)	869.0	862.5	862.5	-	-	-	-	860.5	857.9	855.0	861.5	-	100 YR
169	-	-	-	WO(3)	968.5	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
170	-	-	-	WO(2)	869.0	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
171	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
172	-	-	-	WO	870.5	863.0	863.0	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
173	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
174	-	-	-	LO(2)	871.0	864.5	867.0	SEWO	870.5	867.7	867.7	860.5	860.0	855.0	862.0	-	100 YR
175	-	-	-	WO	871.0	863.5	863.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
176	-	-	-	WO	870.5	863.0	863.0	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
177	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
178	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
179	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
180	-	-	-	WO	870.0	862.5	862.5	-	-	-	-	860.5	860.0	855.0	862.0	-	100 YR
181	-	-	-	WO	870.5	863.0	863.0	-	-	-	-	860.5	-	855.0	-	861.5	EOF

Grading Lot Number	Addition	Block	Lot	Proposed				Split Entry Alternate (if applicable)				EOF	100 Year	Water Table	Controlling Elevation		Method
				House Type	Garage Floor Elevation	Lowest Floor Elevation	Lowest opening Elevation	House Type	Garage Floor Elevation	Lowest Floor Elevation	Lowest opening Elevation				LF	LO	
182	-	-	-	WO	871.5	864.0	864.0	-	-	-	-	861.5	-	855.0	-	862.5	EOF
183	-	-	-	WO	872.0	864.5	864.5	-	-	-	-	861.5	-	855.0	-	862.5	EOF
184	-	-	-	WO	872.5	865.0	865.0	-	-	-	-	862.0	-	855.0	-	863.0	EOF
185	-	-	-	WO	873.0	865.5	865.5	-	-	-	-	862.0	-	855.0	-	863.0	EOF
186	-	-	-	WO	873.5	866.0	866.0	-	-	-	-	862.5	-	855.0	-	863.5	EOF
187	-	-	-	WO	874.0	866.5	866.5					862.5	-	855.0	-	863.5	EOF
188	-	-	-	WO	874.0	866.5	866.5	-	-	-	-	862.5	-	855.0	-	863.5	EOF
189	-	-	-	WO(2)	874.0	866.5	866.5	-	-	-	-	862.5	-	855.0	-	863.5	EOF
190	-	-	-	LO(?)	873.0	866.5	869.0	SEWO	872.5	869.7	869.7	866.5	-	855.0	-	867.5	FOF
191	-	-	-	LO	874.0	866.5	869.0	SEWO	873.5	870.7	870.7	866.5	-	855.0	-	867.5	EOF
192	-	-	-	LO	874.0	866.5	869.0	SEWO	873.5	870.7	870.7	866.5	-	855.0	-	867.5	EOF
193	-	-	-	LO	874.5	867.0	869.5	SEWO	874.0	871.2	871.2	866.5	-	855.0	-	867.5	EOF
194	-	-	-	LO	875.5	868.0	870.5	SEWO	875.0	872.2	872.2	866.5	-	855.0	-	867.5	EOF
195	-	-	-	WO(2)	876.0	869.5	869.5	-	-	-	-	866.5	-	855.0	-	867.5	EOF
196	-	-	-	LO(2)	877.0	870.5	873.0	SEWO	876.5	873.7	873.7	866.5	-	855.0	-	867.5	EOF
197	-	-	-	R	877.5	870.0	877.5	SE	877.0	874.2	877.0	866.5	-	855.0	-	867.5	EOF
198	-	-	-	R	880.0	872.5	880.0	SE	880.0	877.2	880.0	878.5	-	855.0	-	879.5	EOF
199	-	-	-	R	880.0	872.5	880.0	SE	880.0	877.2	880.0	878.5	-	855.0	-	879.5	EOF
200	-	-	-	R	880.5	873.0	880.5	SE	880.5	877.7	880.5	878.5	-	855.0	-	879.5	EOF
201	-	-	-	R	881.0	873.5	881.0	SE	881.0	878.2	881.0	878.5	-	855.0	-	879.5	EOF
202	-	-	-	R	880.5	873.0	880.5	SE	880.5	877.7	880.5	878.0	-	855.0	-	879.0	EOF
203	-	-	-	R	880.0	872.5	880.0	SE	880.0	877.2	880.0	878.0	-	855.0	-	879.0	EOF
204	-	-	-	R	880.0	872.5	880.0	SE	880.0	877.2	880.0	878.0	-	855.0	-	879.0	EOF
205	-	-	-	R	880.5	873.0	880.5	SE	880.5	877.7	880.5	878.0	-	855.0	-	879.0	EOF
206	-	-	-	R	880.5	873.0	880.5	SE	880.5	877.7	880.5	878.0	-	855.0	-	879.0	EOF
207	-	-	-	R	880.0	872.5	880.0	SE	880.5	877.7	880.5	878.0	-	855.0	-	879.0	EOF
208	-	-	-	R	879.5	872.0	879.5	SE	879.5	876.7	879.5	878.0	-	855.0	-	879.0	EOF
209	-	-	-	R	879.5	872.0	879.5	SE	879.5	876.7	879.5	877.5	-	855.0	-	878.5	EOF
210	-	-	-	R	879.0	871.5	879.0	SE	879.0	876.2	879.0	877.5	-	855.0	-	878.5	EOF
211	-	-	-	R	879.0	871.5	879.0	SE	879.0	876.2	879.0	877.5	-	855.0	-	878.5	FOF
212	-	-	-	LO	878.0	870.5	873.0	SEWO	877.5	875.2	875.2	870.0		855.0	-	871.0	EOF
213	-	-	-	WO(2)	879.0	872.5	872.5	-	-	-	-	870.0	-	855.0	-	871.0	EOF
214	-	-	-	WO(2)	879.0	872.5	872.5	-	-	-	-	870.0	-	855.0	-	871.0	EOF
215	-	-	-	WO	879.5	872.0	877.0	-	-	-	-	870.0	-	855.0	-	871.0	FOF
216	-	-	-	WO	880.0	872.5	872.5	-	-	-	-	870.0	-	855.0	-	871.0	EOF
217	-	-	-	WO	880.5	873.0	873.0	-	-	-	-	870.0	-	855.0	-	871.0	EOF
218	-	-	-	WO	880.0	872.5	872.5	-	-	-	-	870.0	-	855.0	-	871.0	EOF
219	-	-	-	WO	879.5	872.0	872.0	-	-	-	-	870.0	-	855.0	-	871.0	EOF
220	-	-	-	LO	877.5	870.0	872.5	SEWO	877.0	874.2	874.2	870.0	-	855.0	-	871.0	EOF
221	-	-	-	LO	876.5	869.0	871.5	SEWO	876.0	873.2	873.2	870.0	-	855.0	-	871.0	EOF
222	-	-	-	LO(2)	876.0	869.5	872.0	SEWO	875.5	872.7	872.7	870.0	-	855.0	-	871.0	EOF
223	-	-	-	LO(2)	875.5	869.0	871.5	SEWO	875.0	872.2	872.2	870.0	-	855.0	-	871.0	EOF
224	-	-	-	LO(2)	875.0	868.5	871.0	SEWO	874.5	871.7	871.7	868.0	-	855.0	-	869.0	EOF
225	-	-	-	LO(2)	874.5	868.0	870.5	SEWO	874.0	871.2	871.2	868.0	-	855.0	-	869.0	EOF
226	-	-	-	LO(2)	873.5	867.0	869.5	SEWO	873.0	870.2	870.2	868.0	-	855.0	-	869.0	EOF
227	-	-	-	LO(2)	873.5	867.0	869.5	SEWO	873.0	870.2	870.2	868.0	-	855.0	-	869.0	EOF
228	-	-	-	LO(2)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	868.0	-	855.0	-	869.0	EOF
229	-	-	-	LO(2)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	867.5	-	855.0	-	868.5	EOF
230	-	-	-	LO(2)	873.5	867.0	869.5	SEWO	873.0	870.2	870.2	867.5	-	855.0	-	868.5	EOF
231	-	-	-	LO(2)	873.0	866.5	869.0	SEWO	872.5	869.7	869.7	687.5	-	855.0	-	858.0	EOF
232	-	-	-	LO(3)	872.5	866.5	869.0	SEWO	872.0	869.2	869.2	867.5	-	855.0	-	868.5	EOF
233	-	-	-	R	871.5	864.0	871.5	SE	871.5	868.7	871.5	867.5	-	855.0	-	868.5	EOF
234	-	-	-	R	871.0	863.5	871.0	SE	871.0	868.2	871.0	867.5	-	855.0	-	868.5	EOF
235	-	-	-	R	872.0	864.5	872.0	SE	872.0	869.2	872.0	867.5	-	855.0	-	868.5	EOF
236	-	-	-	LO(?)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	867.5	-	855.0	-	868.5	FOF
237	-	-	-	LO(2)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	867.5	-	855.0	-	868.5	EOF
238	-	-	-	LO	875.0	867.5	870.0	SEWO	874.5	871.7	871.7	867.5	-	855.0	-	868.5	EOF
239	-	-	-	LO(2)	876.0	869.5	872.0	SEWO	875.5	872.7	872.7	868.0	-	855.0	-	869.0	EOF
240	-	-	-	LO	877.0	869.5	872.0	SEWO	876.5	873.7	873.7	868.0	-	855.0	-	869.0	EOF
241	-	-	-	LO	877.0	869.5	872.0	SEWO	876.5	873.7	873.7	868.0	-	855.0	-	869.0	EOF
242	-	-	-	LO	877.5	870.0	872.5	SEWO	877.0	874.2	874.2	870.0	-	855.0	-	871.0	EOF
243	-	-	-	LO	877.5	870.0	872.5	SEWO	877.0	874.2	874.2	870.0	-	855.0	-	871.0	EOF
244	-	-	-	LO	877.5	870.0	872.5	SEWO	877.0	874.2	874.2	870.0	-	855.0	-	871.0	EOF
245	-	-	-	LO	877.5	870.0	872.5	SEWO	877.0	874.2	874.2	870.0	-	855.0	-	871.0	EOF
246	-	-	-	LO	877.0	869.5	872.0	SEWO	876.5	873.7	873.7	870.0	-	855.0	-	871.0	EOF
247	-	-	-	LO	876.5	869.0	871.5	SEWO	876.0	873.2	873.2	870.0	-	855.0	-	871.0	EOF
248	-	-	-	LO(2)	875.5	869.0	871.5	SEWO	875.0	872.2	872.2	870.0	-	855.0	-	871.0	EOF
249	-	-	-	LO(2)	875.5	869.0	871.5	SEWO	875.0	872.2	872.2	870.0	-	855.0	-	871.0	EOF
250	-	-	-	LO(2)	875.5	869.0	871.5	SEWO	875.0	872.2	872.2	870.0	-	855.0	-	871.0	EOF
251	-	-	-	LO(2)	875.5	869.0	871.5	SEWO	875.0	872.2	872.2	870.0	-	855.0	-	871.0	EOF
252	-	-	-	LO(2)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	868.5	-	855.0	-	869.5	EOF
253	-	-	-	LO(2)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	868.5	-	855.0	-	869.5	EOF
254	-	-	-	LO(2)	874.5	868.0	870.5	SEWO	874.0	871.2	871.2	868.5	-	855.0	-	869.5	EOF
255	-	-	-	LO(2)	874.0	867.5	870.0	SEWO	873.5	870.7	870.7	868.5	-	855.0	-	869.5	EOF
256	-	-	-	R	871.5	864.0	871.5	SE	871.5	868.7	871.5	868.5	-	855.0	-	869.5	EOF
257	-	-	-	R	871.0	863.5	871.0	SE	871.0	868.2	871.0	868.5	-	855.0	-	869.5	EOF
258	-	-	-	R	871.0	863.5	871.0	SE	871.0	868.2	871.0	868.5	-	855.0	-	869.5	EOF
259	-	-	-	R	870.5	863.0	870.5	SE	870.5	867.7	870.5	868.5	-	855.0	-	869.5	EOF
260	-	-	-	R	870.0	862.5	870.0	SE	870.0	867.2	870.0	868.5	-	855.0	-	869.5	EOF
261	-	-	-	R	870.0	862.5	870.0	SE	870.0	867.2	870.0	868.5	-	855.0	-	869.5	EOF
262	-	-	-	R	870.2	862.7	870.2	SE	870.2	867.4	870.2	868.5	-	855.0	-	869.5	EOF

Grading Lot Number	Addition	Block	Lot	Proposed				Split Entry Alternate (if applicable)				EOF	100 Year	Water Table	Controlling Elevation		Method
				House Type	Garage Floor Elevation	Lowest Floor Elevation	Lowest opening Elevation	House Type	Garage Floor Elevation	Lowest Floor Elevation	Lowest opening Elevation				LF	LO	
263	-	-	-	R	870.5	863.0	870.5	SE	870.5	867.7	870.5	868.5	-	855.0	-	869.5	EOF
264	-	-	-	R	871.0	863.5	871.0	SE	871.0	868.2	871.0	868.5	-	855.0	-	869.5	EOF
265	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
266	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
267	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
268	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
269	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
270	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
271	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
272	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
273	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
274	-	-	-	SOG	875.3	875.3	875.3	SE	875.3	872.5	875.3	873.0	-	855.0	-	874.0	EOF
275	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
276	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.0	-	855.0	-	874.0	EOF
277	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.0	-	855.0	-	874.0	EOF
278	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.0	-	855.0	-	874.0	EOF
279	-	-	-	SOG	876.0	876.0	876.0	SE	876.0	873.2	876.0	873.0	-	855.0	-	874.0	EOF
280	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
281	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
282	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
283	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
284	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
285	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
286	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
287	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.2	875.0	873.0	-	855.0	-	874.0	EOF
288	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
289	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
290	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
291	-	-	-	SOG	874.5	874.5	874.5	SE	874.5	871.7	874.5	873.0	-	855.0	-	874.0	EOF
292	-	-	-	SOG	875.0	875.0	875.0	SE	875.0	872.7	875.0	873.0	-	855.0	-	874.0	FOF
293	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
294	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
295	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0	-	874.0	EOF
296	-	-	-	SOG	875.5	875.5	875.5	SE	875.5	872.7	875.5	873.0	-	855.0

CITY OF RAMSEY NOTES

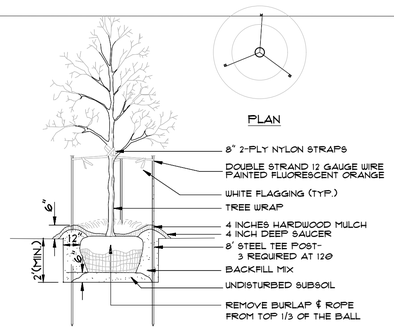
1. CONTRACTOR SHALL GUARANTEE ALL NEW PLANT MATERIAL FOR TWO (2) FULL GROWING SEASONS AFTER THE DATE OF WRITTEN FINAL ACCEPTANCE BY THE landscape architect. ANY PLANT MATERIAL THAT DIES, TURNS BROWN OR DEFOLIATES DURING THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED AT NO ADDITIONAL COST TO THE OWNER AND SHALL BE COVERED BY THE SAME GUARANTEE.
2. TREES SHALL NOT BE PLANTED WITHIN THE VISION TRIANGLE AS DEFINED IN CITY CODE 117-348
3. ALL TREES IN ISLANDS/CENTER MEDIAN SHALL BE PRIVATELY MAINTAINED PER THE PER THE HOME OWNERS ASSOCIATION DOCTRINE
4. TOPSOIL MEETING THE CITY'S SPECIFICATION SHALL BE REQUIRED PER EACH LOT. COPIES OF THE LOAD TICKET SHALL BE PROVIDED AND CITY INSPECTION IS REQUIRED PRIOR TO INSTALLATION OF SOD.
5. NO TOPSOIL (OR OTHER FILL) SHALL BE PLACED WITHIN ANY WETLAND OR WETLAND SETBACK AREA.
6. IRRIGATION SYSTEM SHALL BE DESIGN BUILT BY THE CONTRACTOR AND SHALL UTILIZE MATCH PRECIPITATION HEADS, HEAD TO HEAD COVERAGE AND WEATHER COMPENSATING SMART CONTROLLER.

1 L1 OVERALL LANDSCAPE PLAN

0 75 150 300 (IN FEET)

LANDSCAPE PLAN NOTES

1. EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING AND CONSTRUCTION START. ANY DISCREPANCIES FOUND THAT AFFECT THE WORK SHALL BE REPORTED TO THE OWNER/LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING OR APPROVING ANY ADDITIONAL WORK REQUIRED.
2. UTILITY LOCATES. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL PUBLIC AND PRIVATE UTILITIES, INCLUDING IRRIGATION LINES, AT LEAST 48 HOURS BEFORE EXCAVATING OR IN ACCORDANCE WITH STATE LAW. IN MINNESOTA, CALL GOPHER STATE ONE-CALL AT 651-454-0002 FOR FIELD LOCATION OF PUBLIC UNDERGROUND UTILITY LINES. ALL LOCATES AND ITEMS NOTED AS 'FIELD VERIFY' ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR AT THEIR EXPENSE.
3. PERMITS. CONTRACTOR SHALL VERIFY WITH THE OWNER/LANDSCAPE ARCHITECT THAT THE REQUIRED PERMITS HAVE BEEN OBTAINED PRIOR TO CONSTRUCTION START. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CODES, REGULATIONS, AND PERMITS GOVERNING THE WORK.
4. EXISTING ITEMS TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING PAVEMENT, STRUCTURES, UTILITIES, TREES, SITE AMENITIES, ETC. THAT ARE TO REMAIN FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGE (AT CONTRACTOR'S EXPENSE) TO EXISTING ITEMS TO REMAIN.
5. CONSTRUCTION STAGING AND ACCESS. CONTRACTOR SHALL VERIFY THE LOCATION FOR CONSTRUCTION STAGING AND SITE ACCESS WITH THE OWNER/LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION START. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PEDESTRIAN AND VEHICLE ACCESS WITHIN AND ADJACENT TO THE SITE THROUGHOUT THE CONSTRUCTION PERIOD UNLESS OTHERWISE NOTED. LONG-TERM STORAGE OF MATERIALS OR SUPPLIES ON-SITE WILL NOT BE PERMITTED. ALL WASTE AND/OR UNUSED MATERIAL SHALL BE PROMPTLY REMOVED FROM THE SITE.
6. SITE REMOVALS. REFER TO CIVIL PLANS FOR GENERAL SITE REMOVALS. ALL ITEMS NOTED TO BE REMOVED SHALL BE COMPLETED BY THE CONTRACTOR AND IMMEDIATELY DISPOSED OF OFF-SITE, IN ACCORDANCE WITH LOCAL REGULATIONS, UNLESS OTHERWISE NOTED. COORDINATE WITH OWNER/LANDSCAPE ARCHITECT FOR ANY ITEMS NOTED AS 'REMOVED BY OTHERS' OR 'REMOVE AND SALVAGE.'
7. UTILITY COORDINATION. REFER TO CIVIL PLAN SHEETS FOR INFORMATION RELATED TO PROPOSED UTILITIES. COORDINATE WITH ELECTRICAL CONTRACTORS FOR SITE ELECTRICAL WORK AND SITE LIGHTING.
8. CONSTRUCTION STAKING. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING CONTROL POINTS AND ALL CONSTRUCTION FIELD STAKING DURING THE COURSE OF THE PROJECT.
9. DIMENSIONS. DIMENSIONS TAKE PRECEDENCE OVER SCALE. DIMENSIONS ARE TO FACE OF CURB, EDGE OF PAVEMENT/WALKWAY, OR OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
10. PLAN QUANTITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MATERIAL QUANTITIES PER PLAN. MATERIAL SCHEDULES ARE PROVIDED SOLELY FOR CONTRACTOR'S CONVENIENCE.
11. REFERENCE SPECIFICATIONS. THE FOLLOWING SPECIFICATIONS SHALL GOVERN THIS PROJECT ACCORDING TO THE FOLLOWING ORDER:
    1. ADDENDA, WITH THOSE OF A LATER DATE HAVING PRECEDENCE OVER THOSE OF AN EARLIER DATE
    2. LANDSCAPE SPECIFICATIONS.
    3. PLAN DRAWINGS.
    4. PLANT / MATERIAL SCHEDULES.
    5. CITY STANDARD SPECIFICATIONS AND DETAILS.
    6. MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, LATEST EDITION.



NOTE: SEE PLANTING NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.

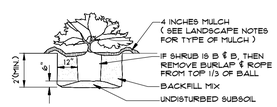
A DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

1. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING
2. TRIM OUT DEAD WOOD AND WEAK AND/OR DEFORMED TWIGS. DO NOT CUT A LEADER. DO NOT PAINT CUTS.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED BACKFILL SOIL. INSTALL PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
4. PLACE PLANT IN PLANTING HOLE WITH BURLAP AND WIRE BASKET (IF USED), INTACT. BACKFILL WITH APPROXIMATELY 12" OF THE TOP OF ROOTBALL. WATER PLANT. REMOVE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS, WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM TOP 1/3 OF THE BALL. REMOVE ALL TWINE
5. PLUMB AND BACKFILL WITH BACKFILL SOIL
6. WATER TO SETTLE PLANTS AND FILL VOIDS.
7. WATER WITHIN TWO HOURS OF INSTALLATION. WATERING MUST BE SUFFICIENT TO THOROUGHLY SATURATE ROOT BALL AND PLANTING HOLE.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

NOTE: GUY ASSEMBLY OPTIONAL BUT CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR MAINTAINING TREE IN A PLUMB POSITION FOR THE DURATION OF THE GUARANTEE PERIOD

GUY ASSEMBLY- 16" POLYPROPYLENE OR POLYETHYLENE (40 MIL) 1-1/2" WIDE STRAP (TYP.) DOUBLE STRAND 10 GA. WIRE, 2-T" ROLLED STEEL POSTS (MNDOT 3401) @ 180° O.C. (SEE STAKING DIAGRAM)

B CONIFEROUS TREE PLANTING DETAIL
NOT TO SCALE



C SHRUB & CONTAINER PLANTING DETAIL
NOT TO SCALE

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota

Print Name: Ryan J. Ruttger, RLA
Signature:
Date: 11/25/20 License #: 56346

Drawn: RJR
Designed: RJR
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY LANDSCAPE PLAN

L1 of 4

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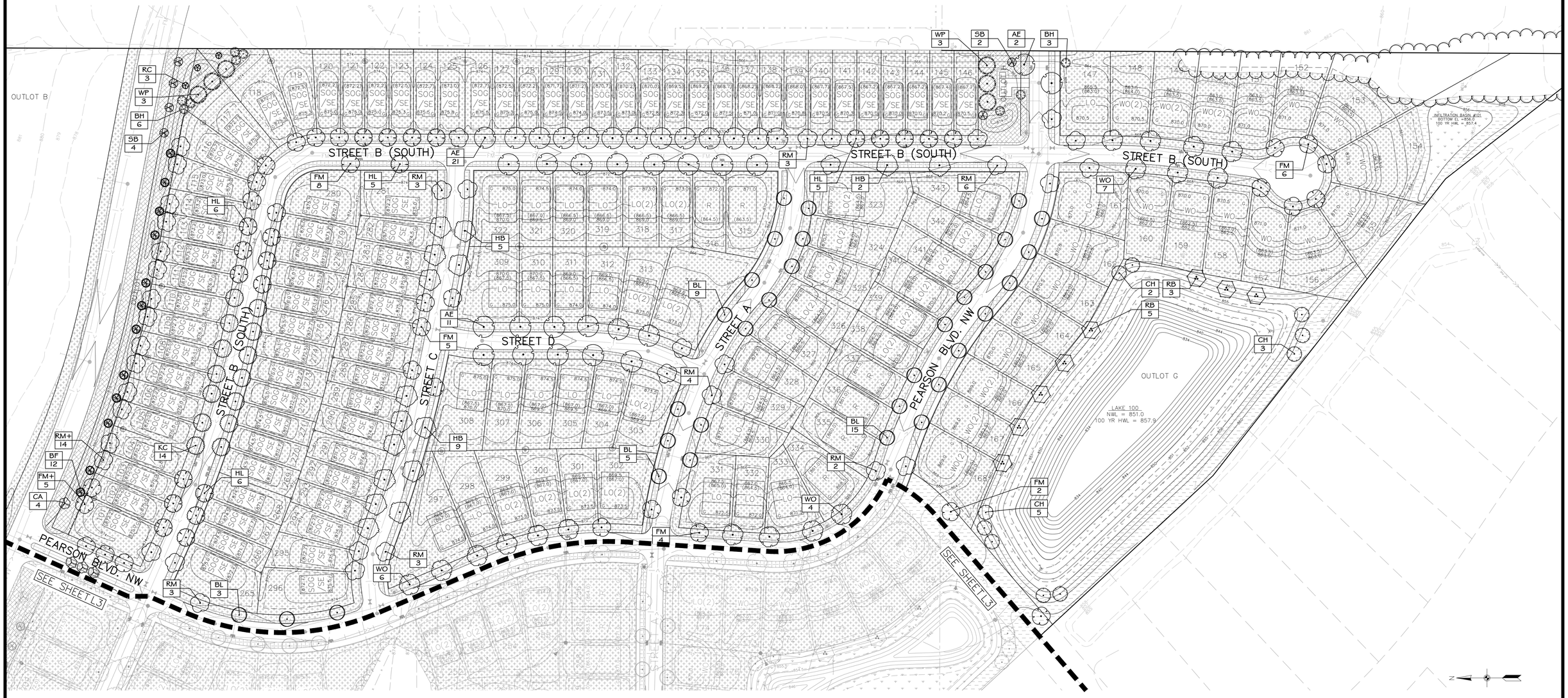

1/L2 LANDSCAPE PLAN ENLARGEMENT

0 40 80 160
(IN FEET)

CARLSON McCAIN
ENGINEERING
SURVEYING
ENVIRONMENTAL

3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota

Print Name: Ryan J. Ruttger, RLA
Signature:
Date: 11/25/20 License #: 56346

Drawn: RJR
Designed: RJR
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY LANDSCAPE PLAN

L2 of 4

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#8494

1/L3 LANDSCAPE PLAN ENLARGEMENT

N

0 40 80 160
(IN FEET)

CARLSON McCAIN
ENGINEERING
SURVEYING
ENVIRONMENTAL

3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
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Signature:
Date: 11/25/20 License #: 56346

Drawn: RJR
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Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY LANDSCAPE PLAN

L3 of 4

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LANDSCAPE SPECIFICATIONS

1. TREE PROTECTION. ALL TREES NOT SPECIFICALLY NOTED OR MARKED ON SITE FOR REMOVAL SHALL REMAIN PROTECTED AND UNDISTURBED DURING CONSTRUCTION. TREE PROTECTION SHALL EXTEND TO THE DRIP LINE, WITHIN WHICH NO CONSTRUCTION ACTIVITY, MATERIAL STORAGE, OR VEHICLE PARKING SHALL BE PERMITTED. TREE PROTECTION FENCING SHALL BE ERECTED PRIOR TO CONSTRUCTION START PER PLANS OR AS DIRECTED BY OWNER/LANDSCAPE ARCHITECT AND SHALL CONSIST OF 4' TALL HEAVY DUTY ORANGE CONSTRUCTION FENCING WITH 6' STEEL FENCE POSTS SPACED 6' O.C. MAX.

2. EROSION CONTROL. REFER TO CIVIL PLAN SHEETS FOR STORMWATER POLLUTION PREVENTION PLAN (SWPPP), AND TEMPORARY AND PERMANENT STORMWATER BMPS, INCLUDING SILT FENCE, BIO-ROLLS, INLET PROTECTION, EROSION CONTROL BLANKETING, DUST CONTROL, SWEEPING AND ROCK CONSTRUCTION ENTRANCE. ALL DISTURBED AREAS SHALL RECEIVE PERMANENT STABILIZATION IN ACCORDANCE WITH THE LANDSCAPE PLAN WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED. IN THE EVENT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS, TEMPORARY STABILIZATION BMPS MUST BE IMPLEMENTED WITHIN 7 DAYS USING.

3. CLEARING AND GRUBBING. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING AND GRUBBING ALL AREAS INDICATED AS BEING DISTURBED OR OTHERWISE SHOWN ON PLANS. CLEARING AND GRUBBING SHALL INCLUDE REMOVAL AND DISPOSAL OF ALL TREES, STUMPS, BRUSH, GRASS, ROOTS AND OTHER ORGANIC MATERIAL AT AN APPROVED OFF-SITE DISPOSAL LOCATION.

4. SOIL PREPARATION. REFER TO GEOTECHNICAL REPORT FOR ANY REQUIRED SOIL CORRECTIONS, AMENDMENTS OR ADDITIONAL INFORMATION (IF APPLICABLE). EXISTING TOPSOIL SHALL BE STRIPPED FROM ALL DISTURBED AREAS AND STOCKPILED IN AN APPROVED LOCATION FOR RE-SPREAD. ALL AREAS WHERE SOIL HAS BEEN COMPACTED BY CONSTRUCTION ACTIVITY AND THAT ARE INDICATED TO BE SODDED, SEEDED OR PLANTING BED SHALL BE DE-COMPACTED TO A MINIMUM DEPTH OF 12 INCHES BY SOIL RIPPING, TILLING OR OTHER APPROVED SOIL LOOSENING METHOD.

5. TOPSOIL MATERIAL. ALL EXISTING, AMENDED OR IMPORTED TOPSOIL SHALL MEET THE REQUIREMENTS OF WDOT TOPSOIL TYPE A. A MINIMUM 4 INCH DEPTH OF TOPSOIL SHALL BE PLACED ON ALL AREAS TO BE SODDED OR SEEDED. A MINIMUM 12 INCH DEPTH OF TOPSOIL SHALL BE PLACED WITHIN ALL PLANTING BED AREAS. ALL TOPSOIL SHALL BE FINE GRADED, RAKED AND DRAGGED TO PROVIDE A SMOOTH, UNIFORM SURFACE. TOPSOIL GRADES SHALL BE WITHIN .1 FEET OF INDICATED FINISHED GRADE AND SHALL BE TRUE TO GRADIENTS SHOWN ON PLANS. REFER TO CIVIL PLAN SHEETS FOR FILTRATION BASIN SOIL REQUIREMENTS.

6. SEEDING AND TURF ESTABLISHMENT. CONTRACTOR SHALL OBTAIN OWNER/LANDSCAPE ARCHITECT'S APPROVAL OF FINAL GRADES AND TOPSOIL PREP PRIOR TO SEEDING. APPLY 12-12-12 GRANULAR STARTER FERTILIZER AT A RATE OF 250 LBS PER ACRE PRIOR TO SEEDING.. SEEDS SHALL BE SOWED IN 2 PERPENDICULAR PASSES, EACH PASS AT ONE-HALF THE INDICATED RATE, VIA BROADCAST SPREADER, DROP SEEDER OR DRILL SEEDER. FOLLOWING SEED APPLICATION, INSTALL TYPE 3N EROSION CONTROL BLANKET ON ALL SLOPES GREATER THAN 4:1. IN ALL OTHER AREAS, APPLY HYDROMULCH COVER (MUST BE A SEPARATE OPERATION FROM SEEDING) AT A TARGETED DRY WEIGHT RATE OF 3500 LBS PER ACRE. SOIL SHALL BE KEPT MOIST DURING ESTABLISHMENT WITH ADDITIONAL RE-SEEDING AS NECESSARY TO ACHIEVE A HEALTHY, UNIFORM STAND OF GRASS, FREE OF WEEDS AND WITH COVERAGE EXCEEDING 75% IN ANY 10'x10' AREA PRIOR TO FINAL ACCEPTANCE.

7. SODDING. CONTRACTOR SHALL OBTAIN OWNER/LANDSCAPE ARCHITECT'S APPROVAL OF FINAL GRADES AND TOPSOIL PREP PRIOR TO SODDING. APPLY 12-12-12 GRANULAR STARTER FERTILIZER AT A RATE OF 250 LBS PER ACRE PRIOR TO SODDING AND ROLL TOPSOIL TO CREATE A UNIFORM SURFACE FOR LAYING SOD. SOD SHALL NOT BE CUT MORE THAN 24-HOURS IN ADVANCE OF INSTALLATION. CONTRACTOR SHALL KEEP SOD MOIST FOR A MINIMUM OF 30 DAYS AND SHALL BE RESPONSIBLE FOR MAINTAINING THE SOD UNTIL FINAL ACCEPTANCE.

8. PLANT MATERIAL. ALL PLANTING STOCK SHALL CONFORM TO THE "AMERICAN STANDARD FOR NURSERY STOCK," ANSI-Z60, LATEST EDITION, OF THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS. OWNER/LANDSCAPE ARCHITECT RESERVE THE RIGHT TO REJECT ANY PLANTS WHICH ARE DEEMED UNSATISFACTORY BEFORE, DURING, OR AFTER INSTALLATION. NO SUBSTITUTION OF PLANT MATERIAL SHALL BE ACCEPTED UNLESS APPROVED IN WRITING BY THE OWNER/LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

9. PLANT MATERIAL SUBSTITUTIONS. ALL REQUESTS FOR PLANT SUBSTITUTIONS SHALL BE MADE IN WRITING TO THE OWNER/LANDSCAPE ARCHITECT AND MUST BE APPROVED BY THE CITY.

10. PLANT INSTALLATION AND ESTABLISHMENT. REFER TO STANDARD PLANTING DETAILS. CONTRACTOR SHALL STAKE TREE LOCATIONS FOR APPROVAL BY OWNER/LANDSCAPE ARCHITECT PRIOR TO PLANTING. ANY PLANT MATERIAL WHICH DIES, TURNS BROWN, OR DEFOLIATES (PRIOR TO TOTAL ACCEPTANCE OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE.

11. MULCH MATERIAL. DOUBLE SHREDDED HARDWOOD MULCH OR ROCK MULCH AS INDICATED ON PLANS. ALL MULCH SHALL BE CLEAN AND FREE OF NOXIOUS WEEDS, SOIL, OR OTHER DELETERIOUS MATERIAL, AND SHALL BE INSTALLED OVER A NON-WOVEN GEOTEXTILE FABRIC (INCIDENTAL) OR OTHER APPROVED WEED BARRIER TO A MINIMUM SETTLED DEPTH OF 4". MULCH SHALL BE HELD BACK FROM PLANT STEMS/TRUNKS A MINIMUM OF 3". WOOD MULCH SHALL BE PLACED AROUND INDIVIDUAL TREES TO A 4' MINIMUM DIAMETER. MULCH SHALL BE INSTALLED WITHIN 48-HOURS OF PLANT INSTALLATION.

12. LANDSCAPE EDGING. INSTALL LANDSCAPE EDGING BETWEEN ALL MULCH AREAS AND TURF. EDGING SHALL BE COMMERCIAL GRADE BLACK POLYETHYLENE OR VINYL EDGING, 0.1 INCH THICK BY 5 INCHES DEEP, V-LIPPED BOTTOM, HORIZONTALLY GROOVED, 1-INCH ROUND TOP, EXTRUDED IN STANDARD LENGTHS, WITH 9-INCH STEEL ANGLE STAKES.

13. IRRIGATION. DESIGN, FURNISH AND INSTALL A COMPLETE UNDERGROUND IRRIGATION SYSTEM FROM APPROVED POINT(S)-OF-CONNECTION WITHIN THE SITE COVERING ALL TURF AND PLANTING AREAS AS SHOWN ON THE LANDSCAPE PLAN. INCLUDES FLOW/PRESSURE TESTING, PLANS WITH DESIGN CALCULATIONS, AS-BUILT DRAWINGS, LABOR, MATERIALS, EQUIPMENT, AND SERVICES FOR THE TESTING, ADJUSTING, RETESTING AND READJUSTING AS REQUIRED TO PLACE THE SYSTEM IN AN APPROVED OPERATING CONDITION. THE IRRIGATION SYSTEM SHALL INCLUDE THE DESIGN AND INSTALLATION OF THE FOLLOWING: PIPING, METER AND BACKFLOW ASSEMBLIES, SPRINKLER HEADS, CABINETS, VALVES AND VALVE BOXES, CONTROLLERS, CONTROL WIRING, FITTINGS, ELECTRICAL CONNECTIONS, QUICK-COUPLERS, ALL OTHER NECESSARY ACCESSORIES, SYSTEM MANUALS, 1-YEAR MAINTENANCE PERIOD INCLUDING 1 FALL WINTERIZATION AND 1 SPRING START-UP. IRRIGATION PLANS TO BE PREPARED BY A QUALIFIED IRRIGATION DESIGNER AND SUBMITTED TO OWNER/LANDSCAPE ARCHITECT FOR APPROVAL.

14. MAINTENANCE. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PORTION OF THE WORK IS IN PLACE. PLANT MATERIAL SHALL BE PROTECTED AND MAINTAINED UNTIL THE INSTALLATION OF THE PLANTS IS COMPLETE, INSPECTION HAS BEEN MADE, AND PLANTINGS ARE ACCEPTED EXCLUSIVE OF THE GUARANTEE. MAINTENANCE SHALL INCLUDE MOWING, TRIMMING, WATERING, FERTILIZING, WEED AND PESTICIDE CONTROL, MULCHING, REMOVAL OF DEAD MATERIALS, RE-SETTING PLANTS TO PROPER GRADE AND KEEPING PLANTS IN A PLUMB POSITION. AFTER ACCEPTANCE, THE OWNER SHALL ASSUME MAINTENANCE RESPONSIBILITIES, HOWEVER, THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR ALL PLANT MATERIAL THROUGH THE COMPLETION OF THE WARRANTY PERIOD.

15. WATERING. UPON ESTABLISHMENT OF SEED AND INSTALLATION OF PLANTS, CONTRACTOR SHALL MAINTAIN A WATERING SCHEDULE WHICH WILL THOROUGHLY WATER ALL PLANTS AND TURF AREAS A MINIMUM OF ONCE A WEEK. MORE FREQUENT WATERING MAY BE REQUIRED DURING PERIODS OF HOT, DRY WEATHER. CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR WATER. IN THE ABSENCE OF PERMANENT IRRIGATION, TEMPORARY IRRIGATION, TREE WATERING BAGS, OR HAND-WATERING ARE ACCEPTABLE.

16. FINAL ACCEPTANCE. UPON SUBSTANTIAL COMPLETION OF THE WORK, CONTRACTOR SHALL REQUEST FINAL ACCEPTANCE OF THE WORK IN WRITING BY THE OWNER/LANDSCAPE ARCHITECT. IF ANY WORK IS FOUND TO BE INCOMPLETE OR UNSATISFACTORY IN THE OPINION OF THE OWNER/LANDSCAPE ARCHITECT, A WRITTEN PUNCH LIST WILL BE PREPARED LISTING ALL ITEMS THAT REQUIRE COMPLETING OR CORRECTING BEFORE FINAL ACCEPTANCE.

17. WARRANTY. ALL PLANTS, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR THREE (3) YEARS FROM THE DATE OF FINAL ACCEPTANCE, UNLESS OTHERWISE SPECIFIED. THE GUARANTEE SHALL COVER THE FULL COST OF REPLACEMENT INCLUDING LABOR AND MATERIAL.

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	RM	37	Acer rubrum `Northwood`	Northwoods Red Maple	2" Cal.	B&B
	RM+	21	Acer rubrum `Northwood`	Northwoods Red Maple	3" Cal.	B&B
	FM	45	Acer x freemanii `Sienna`	Sienna Glen Maple	2" Cal.	B&B
	FM+	10	Acer x freemanii `Sienna`	Sienna Glen Maple	2.5" Cal.	B&B
	RB	14	Betula nigra Clump Form, 2" Cal Equivalent	River Birch Multi-Trunk	8` Ht.	B&B
	HB	25	Celtis occidentalis	Common Hackberry	2" Cal.	B&B
	HL	22	Gleditsia triacanthos inermis `Harve`	Northern Acclaim Thornless Honey Locust	2" Cal.	B&B
	KC	14	Gymnocladus dioica `Espresso`	Kentucky Coffeetree	2" Cal.	B&B
	WO	35	Quercus bicolor	Swamp White Oak	2" Cal.	B&B
	BL	59	Tilia americana `Boulevard`	Boulevard Linden	2" Cal.	B&B
	AE	60	Ulmus americana `Princeton`	American Elm	2" Cal.	B&B
CONIFEROUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	BF	22	Abies balsamea	Balsam Fir	6` Ht.	B&B
	RC	3	Juniperus virginiana	Eastern Red Cedar	5 gal.	Cont.
	BH	9	Picea glauca densata	Black Hills Spruce	6` Ht.	B&B
	WP	6	Pinus strobus	White Pine	6` Ht.	B&B
	CH	17	Tsuga canadensis	Canadian Hemlock	6` Ht.	B&B
ORNAMENTAL TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	SB	6	Amelanchier x grandiflora `Autumn Brilliance` Clump Form, 1.5" Cal Equivalent	Autumn Brilliance Serviceberry	7` Ht.	B&B
	CA	7	Malus x `Prairifire` Red Flowers	Prairifire Crabapple	1.5" Cal.	B&B
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	SOD	135,011 sf	Turf Sod Bluegrass	Kentucky Bluegrass	sod	
	TI	2,202,069 sf	Type I - Low Maint. Turf Seed Refer to notes for acceptable seeding methods Seeding Rate 330 lb/ac	MnDOT Seed Mix 25-131	seed	
	TII	85,297 sf	Type II - High Maint. Turf Seed Refer to notes for acceptable seeding methods Seeding Rate 180 lb/ac	MnDOT Seed Mix 25-151	seed	
	TIII	174,580 sf	Type III - Stormwater Pond Pollinator Seed Mix Refer to notes for acceptable seeding methods. Seeding Rate 47.5 lb/ac	BWSR Stormwater Pond Pollinator NE	seed	
	TIV	95,767 sf	Type IV - Native Seed Mix Refer to notes for acceptable seeding methods. Seeding Rate 50.0 lb/ac	MnDOT Seed Mix 35-241	seed	

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota

Print Name: Ryan J. Ruttger, RLA
Signature:
Date: 11/25/20 License #: 56346

Drawn: RJR
Designed: RJR
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY LANDSCAPE PLAN

L4 of 4

CAPSTONE
HOMES

FLOOR PLANS

TWO STORY

RAMBLER

MULTI LEVEL

RAISED RANCH

LIBERTY SERIES

CAPSTONE
— HOMES —

TWO STORY

PATTERSON

FOSTER II

CREEK VIEW III

MULBERRY III - 2 CAR

MULBERRY III

BROOK VIEW II

WATER STONE II

— PATTERSON —

TWO STORY

3 BED | 3 BATH | 2 STALL GARAGE | 2,173 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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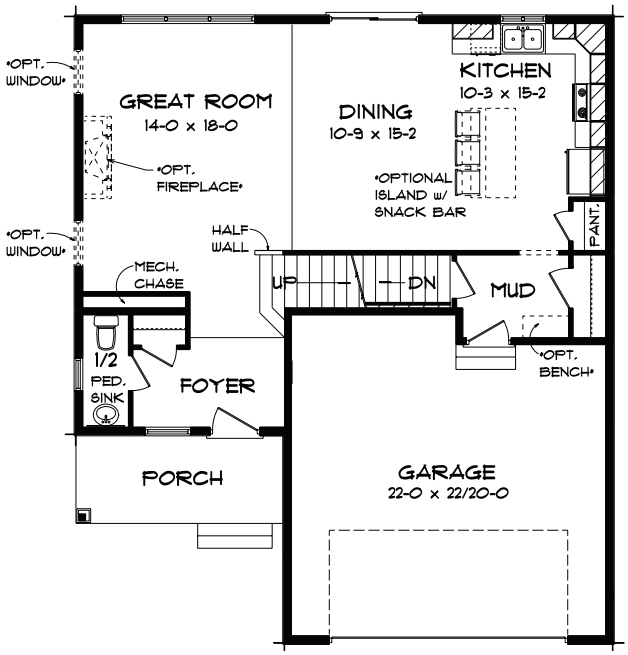
Floor plans, materials, products and options are subject to change without notice. Floor plans are renderings and may very slight from actual homes. Landscaping packages will depend on community. MN Bldr Lic BC637318

EQUAL HOUSING OPPORTUNITY

— PATTERSON —

FLOOR PLANS

3 BED | 3 BATH | 2 STALL GARAGE | 2,173 SQ FT LIVING SPACE



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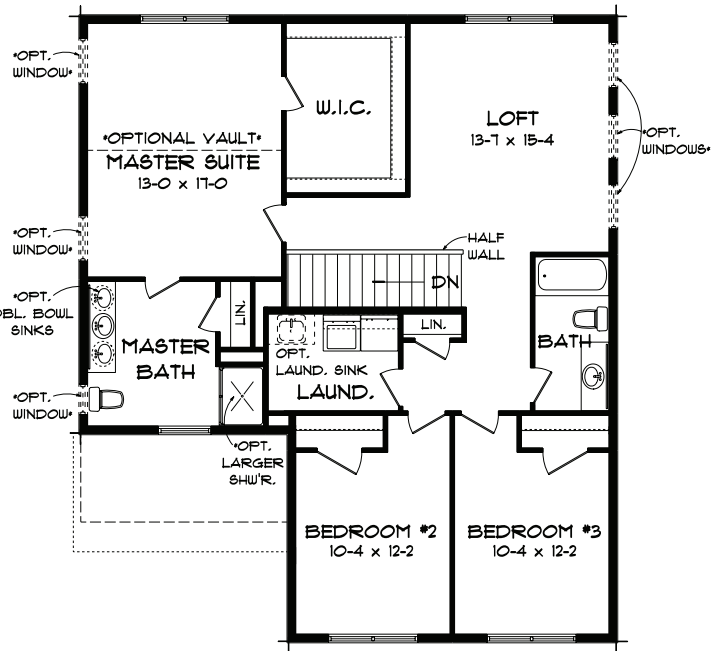

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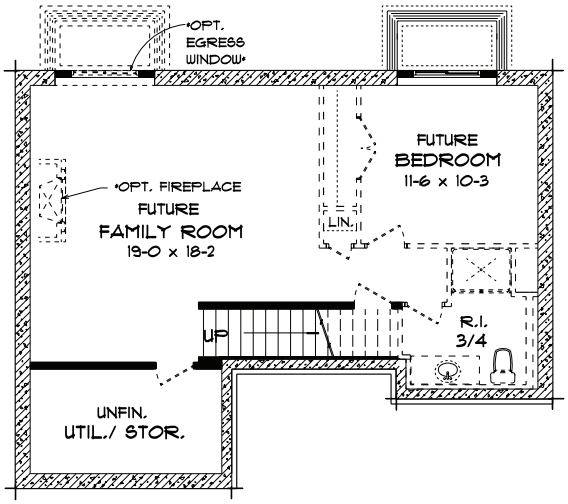

LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— FOSTER II —

TWO STORY
3 BED | 3 BATH | 3 STALL GARAGE | 2,266 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

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— HOMES —

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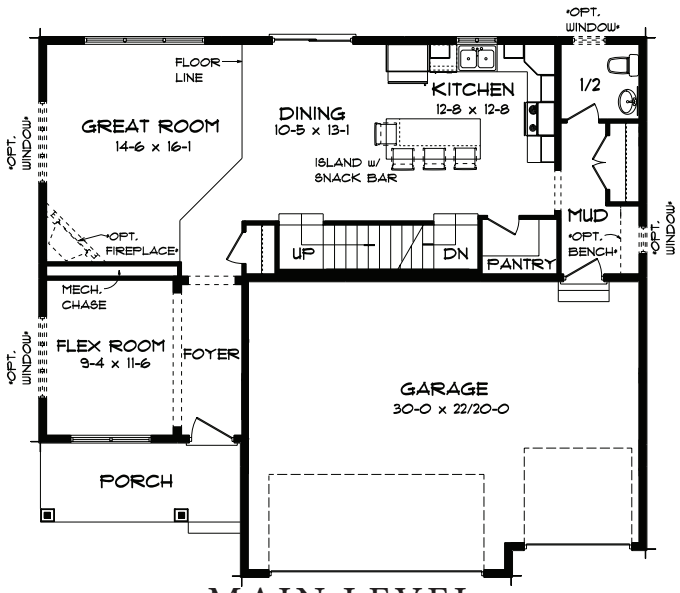

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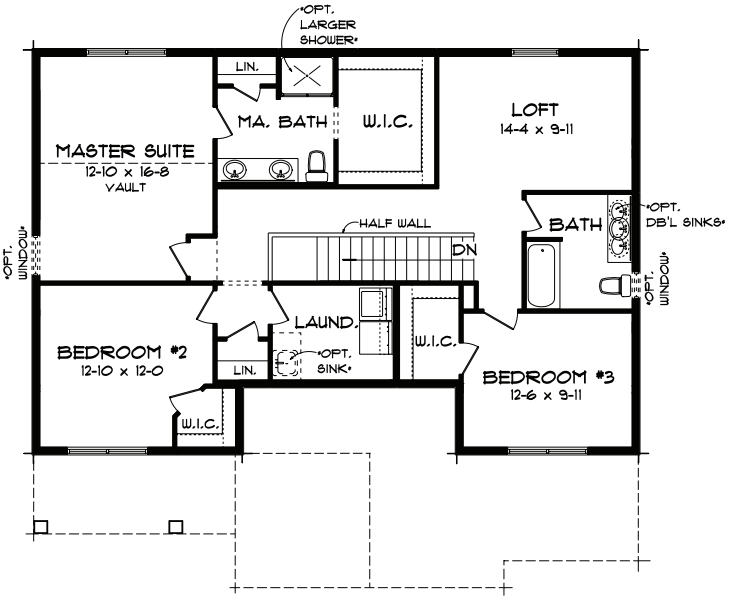

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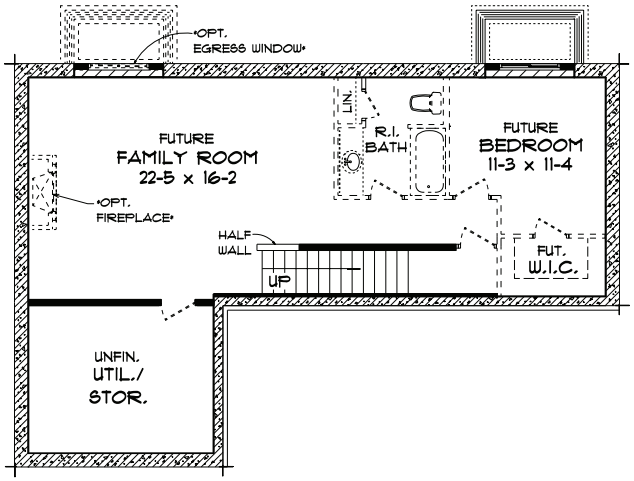

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EQUAL HOUSING OPPORTUNITY

— CREEK VIEW III —

TWO STORY
3 BED | 3 BATH | 3 STALL GARAGE | 2,471 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE
— HOMES —

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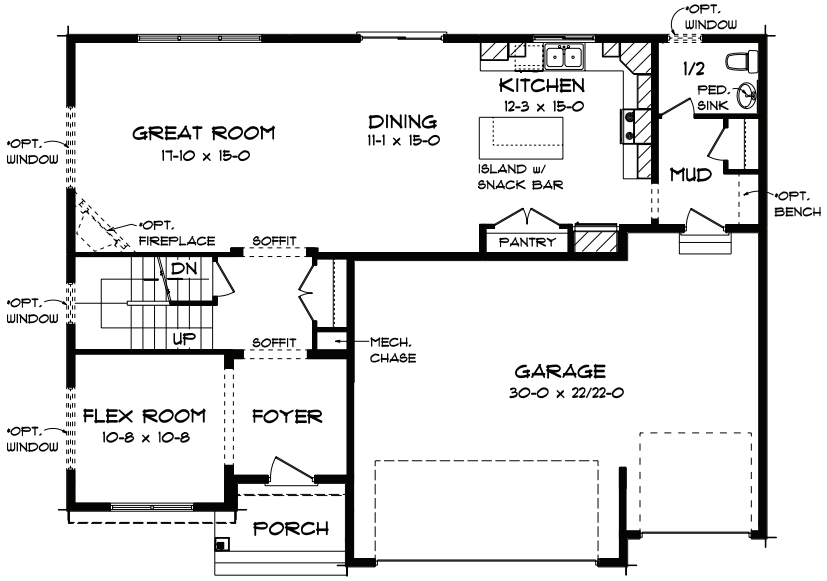
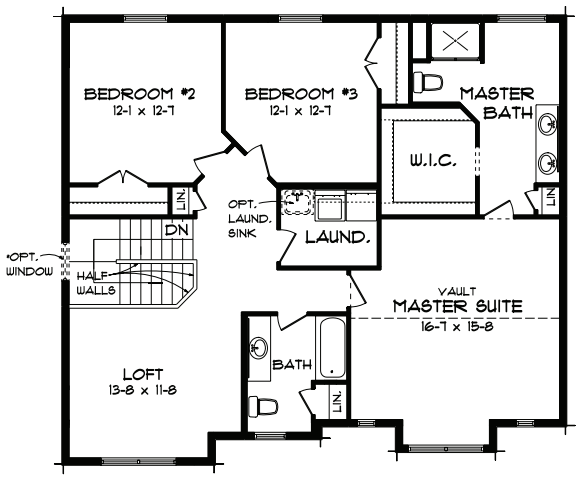
EQUAL HOUSING OPPORTUNITY

— CREEK VIEW III —

FLOOR PLANS

3 BED | 3 BATH | 3 STALL GARAGE | 2,471 SQ FT LIVING SPACE





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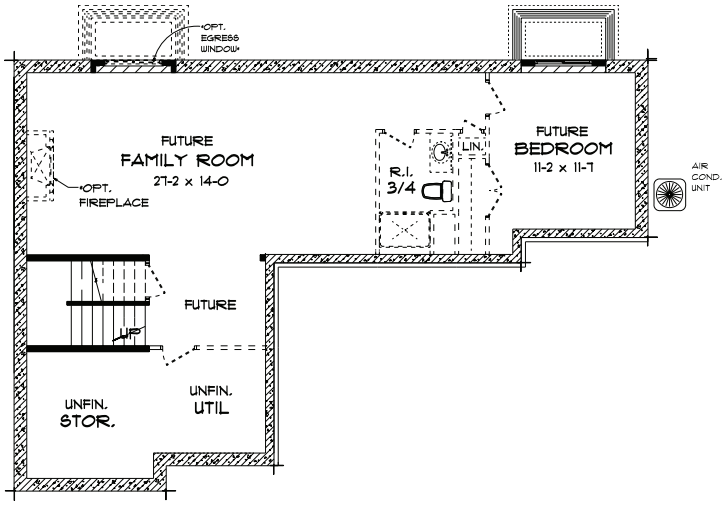

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EQUAL HOUSING OPPORTUNITY

— MULBERRY III —

TWO STORY
4 BED | 3 BATH | 2 STALL GARAGE | 2,607 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

ELEVATION D

CAPSTONE
— HOMES —

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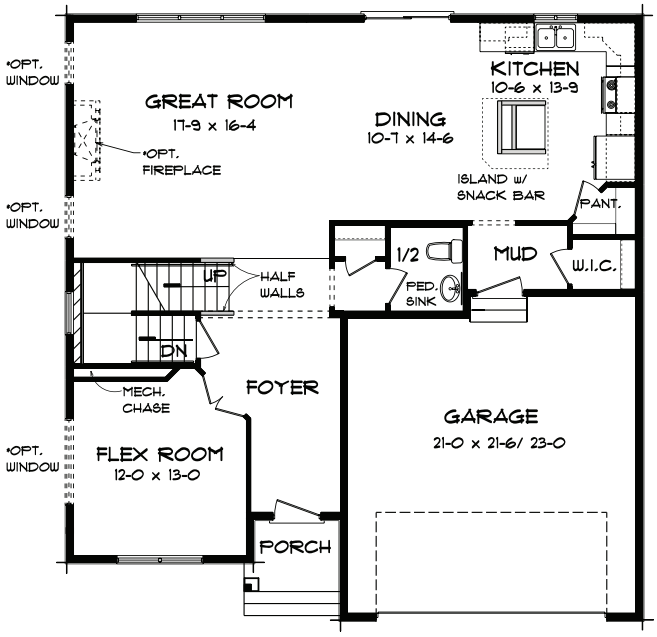

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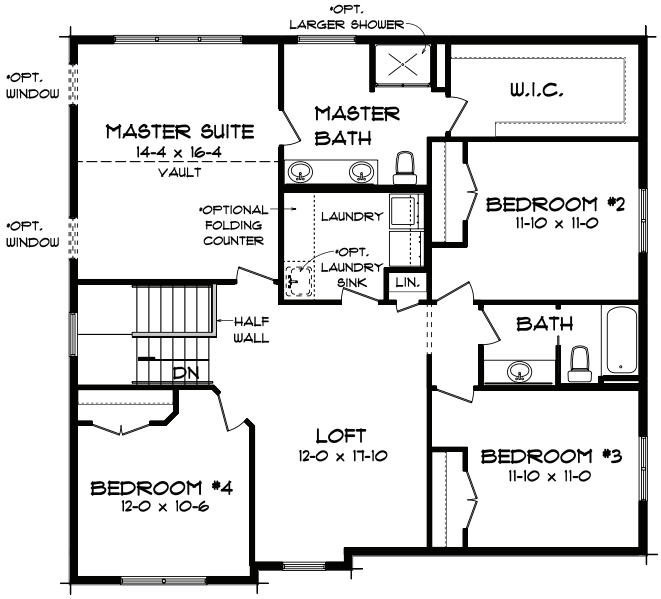

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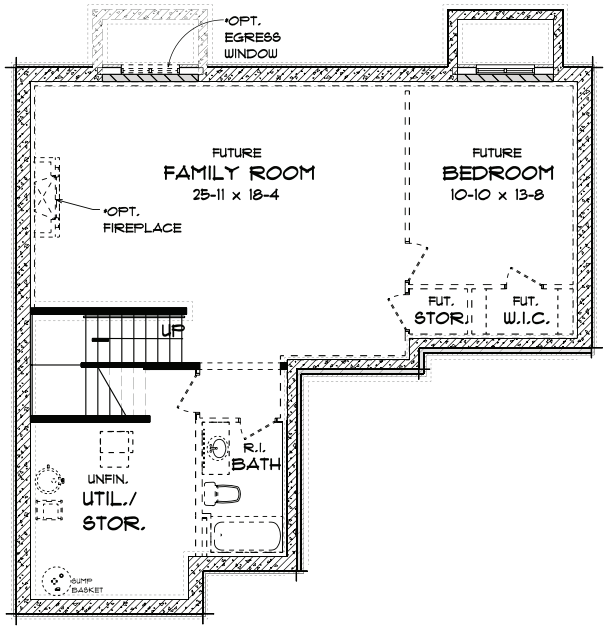

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— MULBERRY III —

TWO STORY
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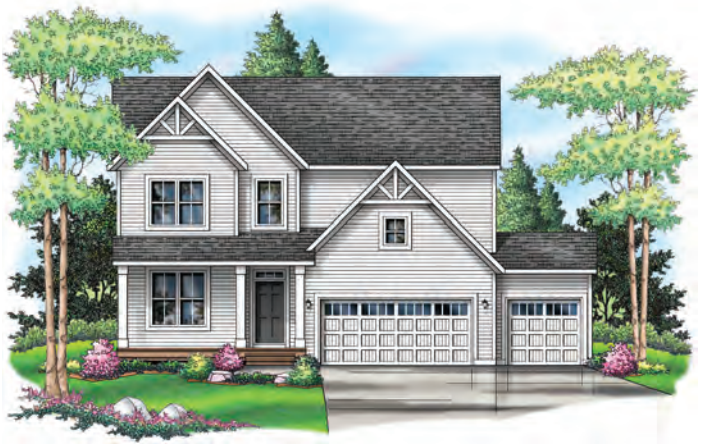
ELEVATION A

ELEVATION B



ELEVATION C

ELEVATION D

CAPSTONE
— HOMES —

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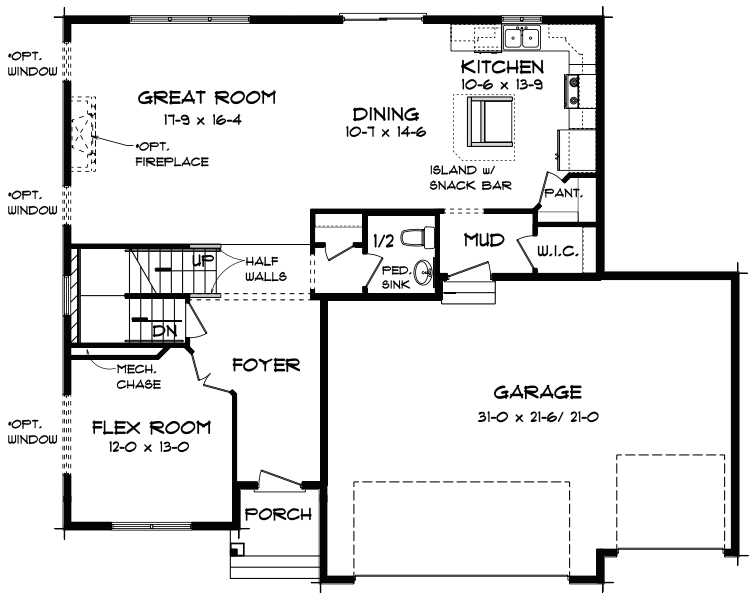
EQUAL HOUSING OPPORTUNITY

— MULBERRY III —

FLOOR PLANS

4 BED | 3 BATH | 3 STALL GARAGE | 2,607 SQ FT LIVING SPACE



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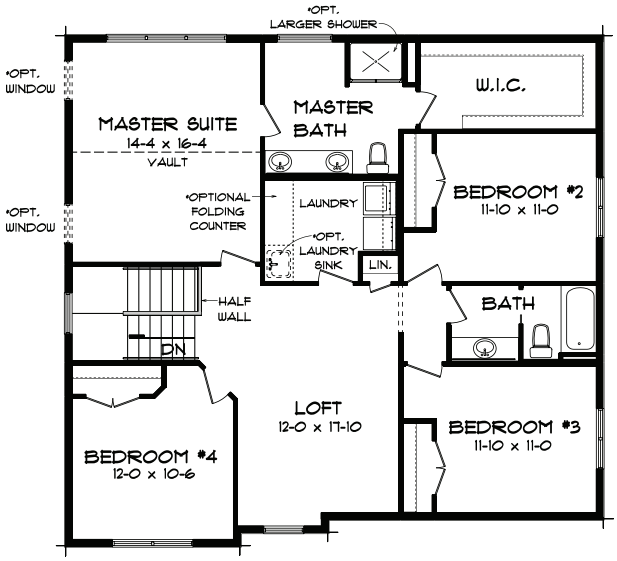

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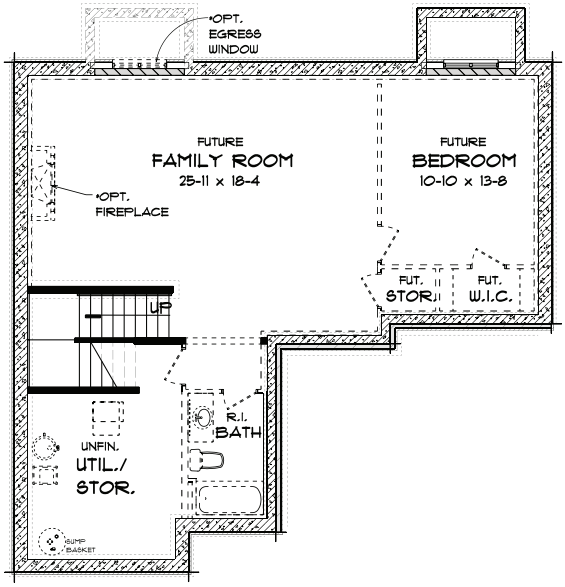

LOWER LEVEL

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— HOMES —

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EQUAL HOUSING OPPORTUNITY

— BROOK VIEW II —

TWO STORY

4 BED | 3 BATH | 3 STALL GARAGE | 2,788 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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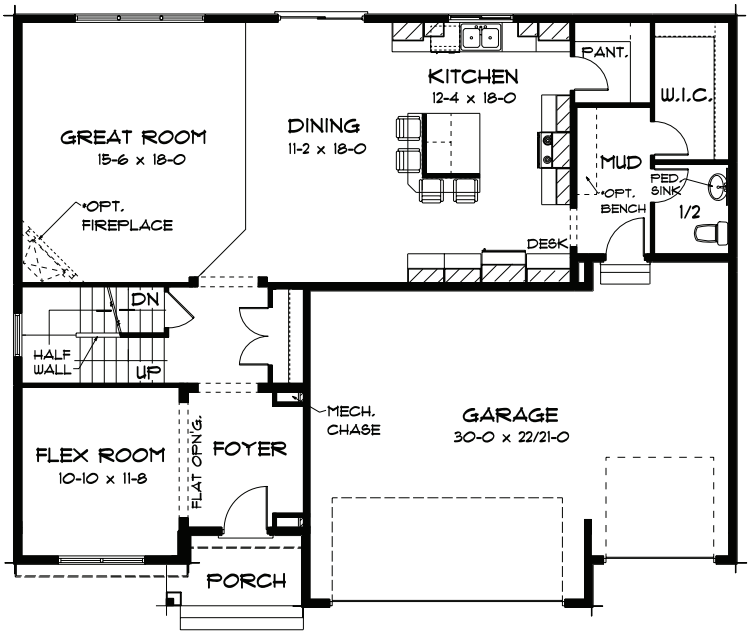
EQUAL HOUSING OPPORTUNITY

— BROOK VIEW II —

FLOOR PLANS

4 BED | 3 BATH | 3 STALL GARAGE | 2,788 SQ FT LIVING SPACE



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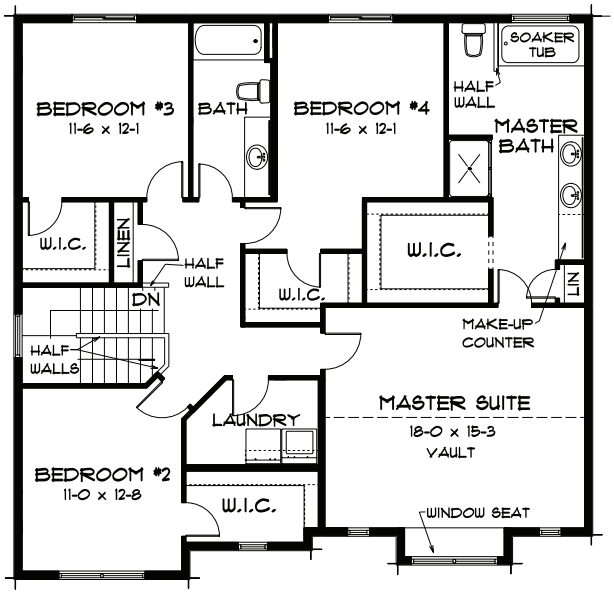

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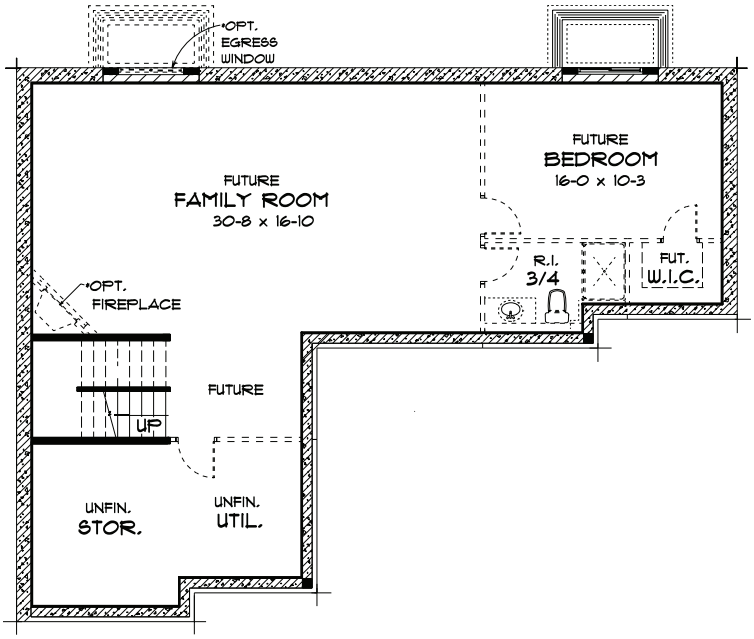

LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— WATER STONE II —

TWO STORY
5 BED | 3 BATH | 3 STALL GARAGE | 3,401 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

ELEVATION D

CAPSTONE
— HOMES —

763-427-3090 | CAPSTONEHOMES-MN.COM

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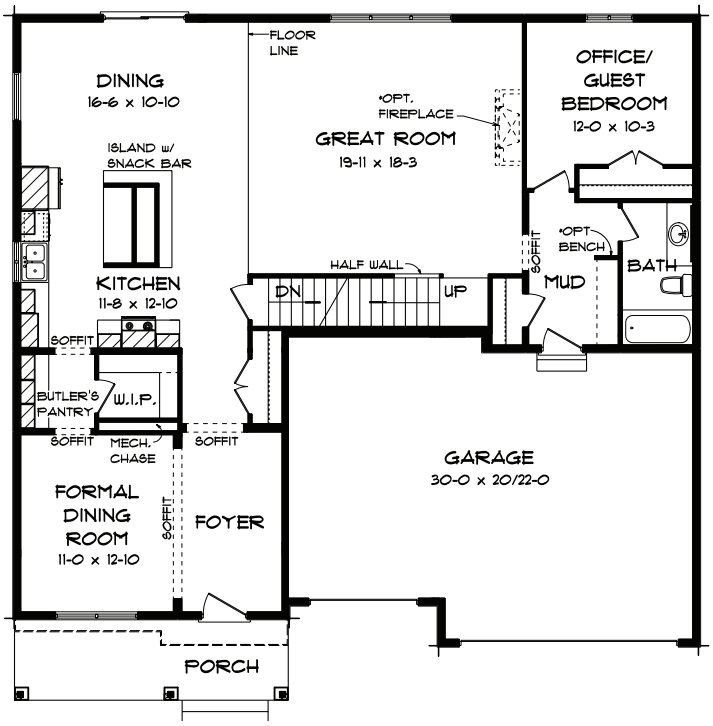
EQUAL HOUSING OPPORTUNITY

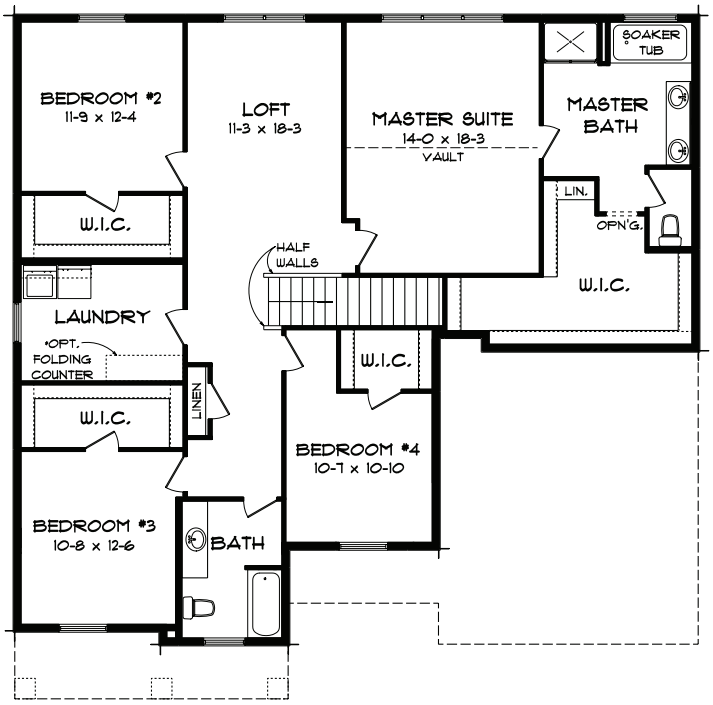
— WATER STONE II —

FLOOR PLANS

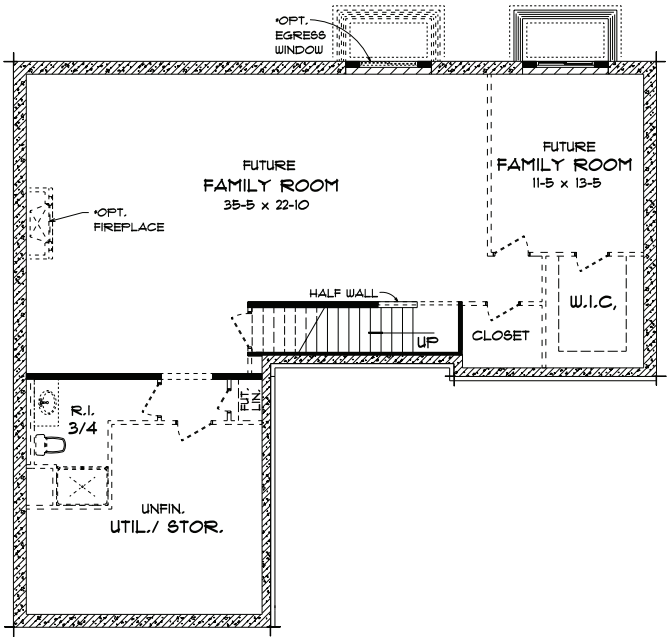
5 BED | 3 BATH | 3 STALL GARAGE | 3,401 SQ FT LIVING SPACE



MAIN LEVEL



SECOND LEVEL



LOWER LEVEL

CAPSTONE HOMES

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EQUAL HOUSING OPPORTUNITY

CAPSTONE
HOMES

RAMBLER

BIRCHWOOD II - 2 CAR

BIRCHWOOD

CEDAR II

HEMLOCK III - 2 CAR

HEMLOCK III

— BIRCHWOOD II —

RAMBLER

3 BED | 2 BATH | 2 STALL GARAGE | 1,559 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

ELEVATION D

CAPSTONE
— HOMES —

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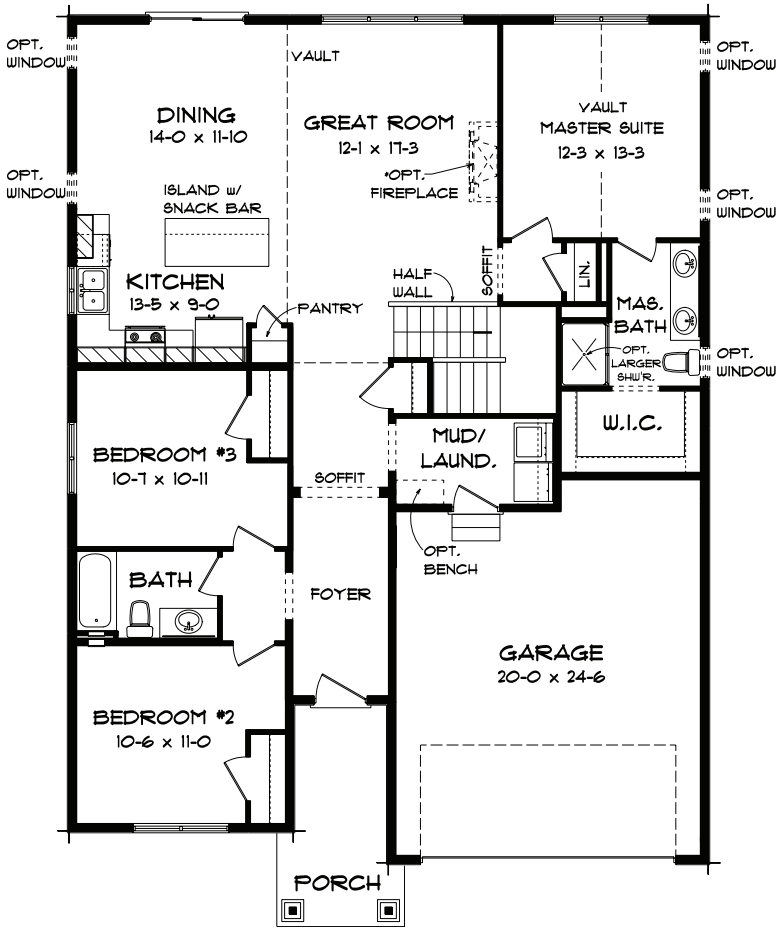
EQUAL HOUSING OPPORTUNITY

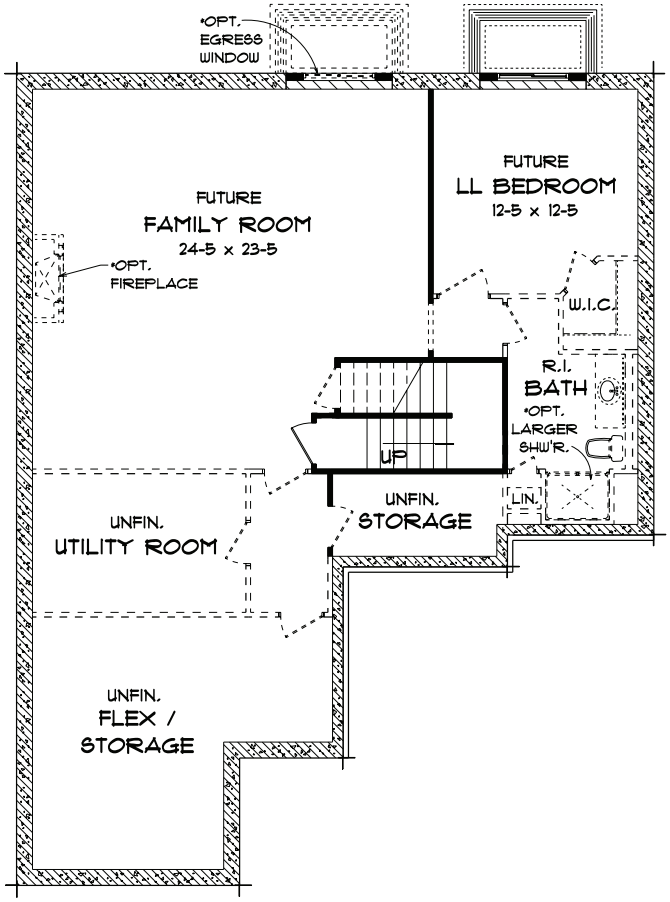
— BIRCHWOOD II —

FLOOR PLANS

3 BED | 2 BATH | 2 STALL GARAGE | 1,559 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— BIRCHWOOD II —

RAMBLER

3 BED | 2 BATH | 3 STALL GARAGE | 1,559 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

ELEVATION D

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— HOMES —

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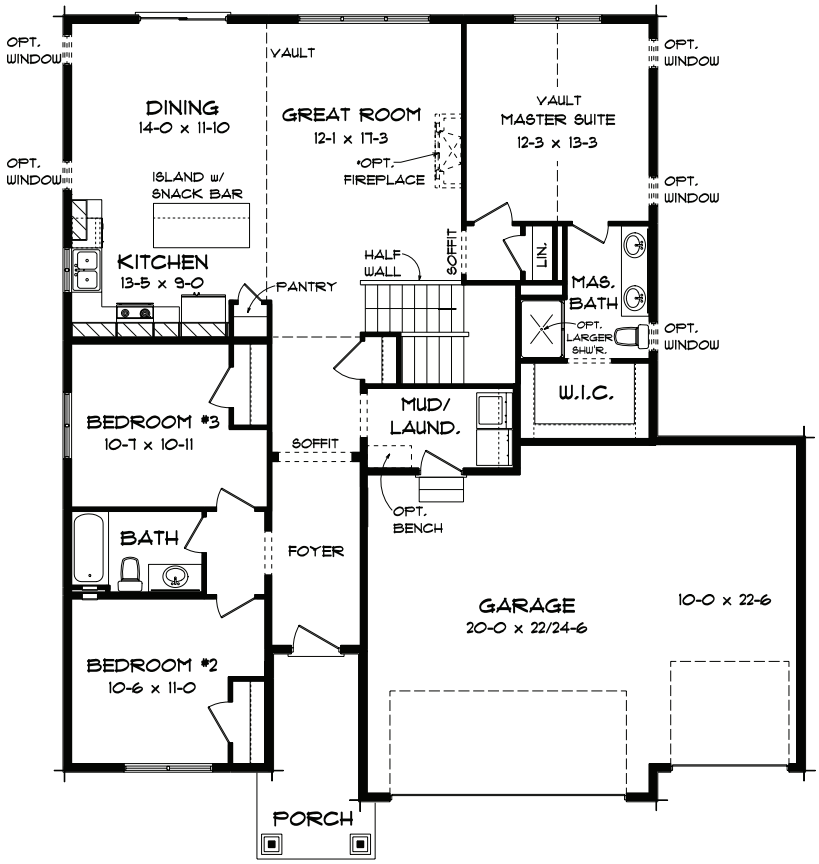
EQUAL HOUSING OPPORTUNITY

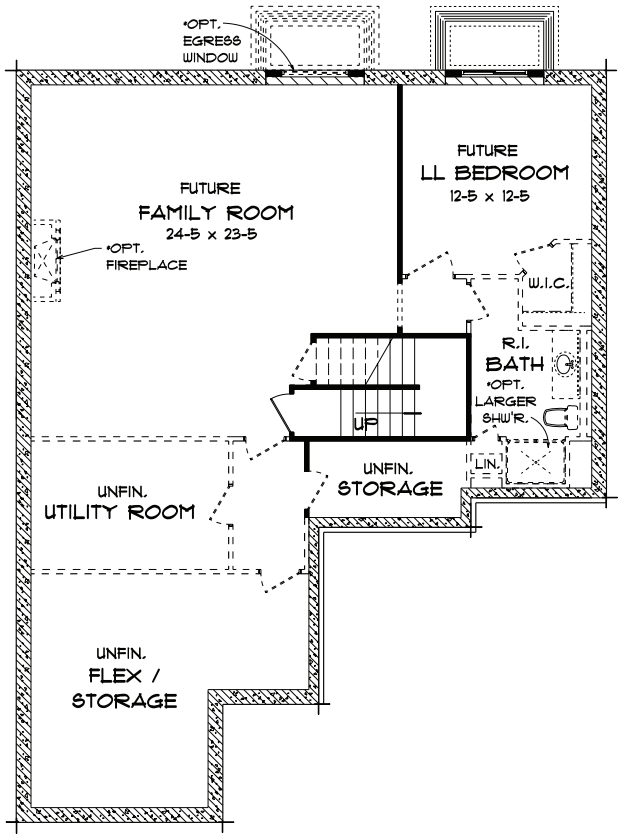
— BIRCHWOOD II —

FLOOR PLANS

3 BED | 2 BATH | 3 STALL GARAGE | 1,559 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— CEDAR II —

RAMBLER

2 BED | 2 BATH | 3 STALL GARAGE | 1,630 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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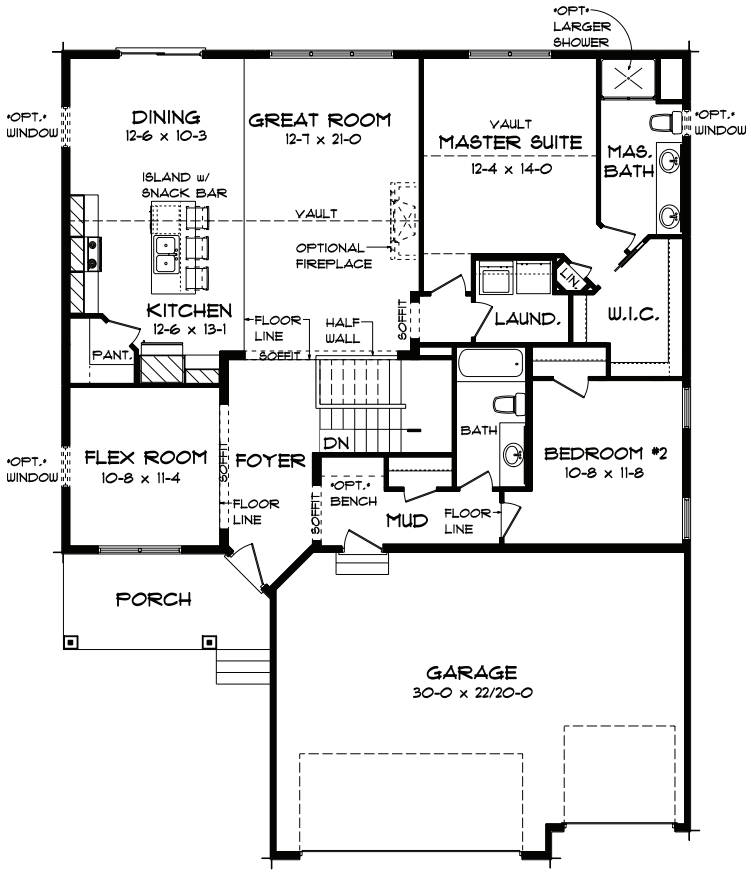
EQUAL HOUSING OPPORTUNITY

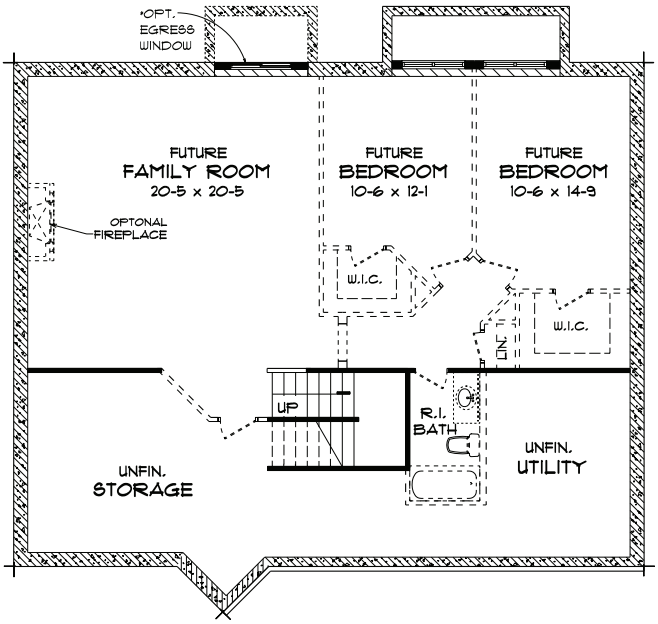
— CEDAR II —

FLOOR PLANS

2 BED | 2 BATH | 3 STALL GARAGE | 1,630 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— HEMLOCK III —

RAMBLER

3 BED | 2 BATH | 2 STALL GARAGE | 1,786 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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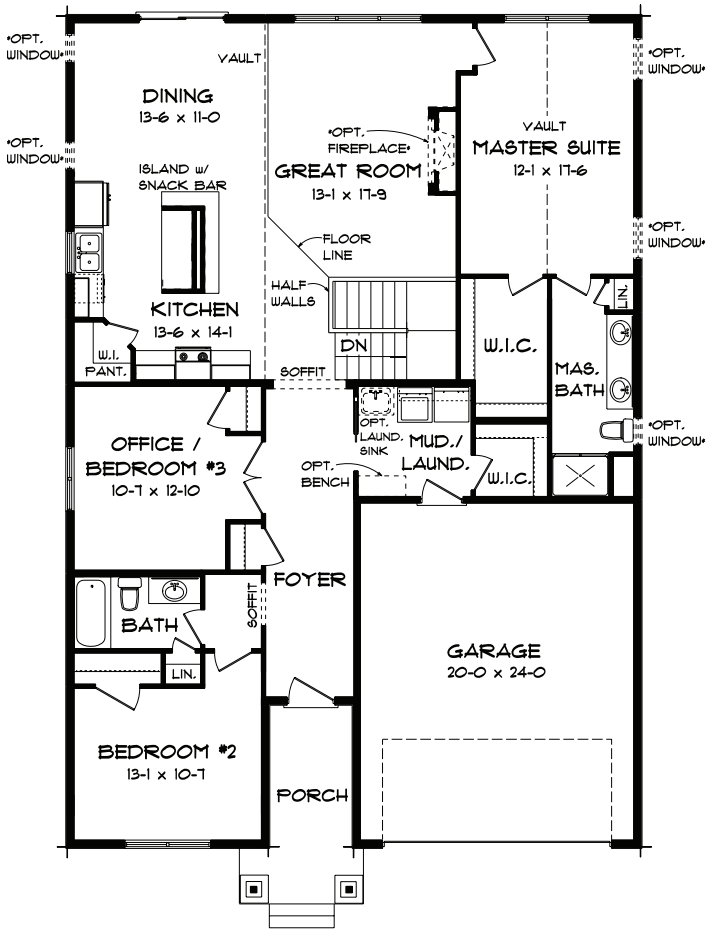
EQUAL HOUSING OPPORTUNITY

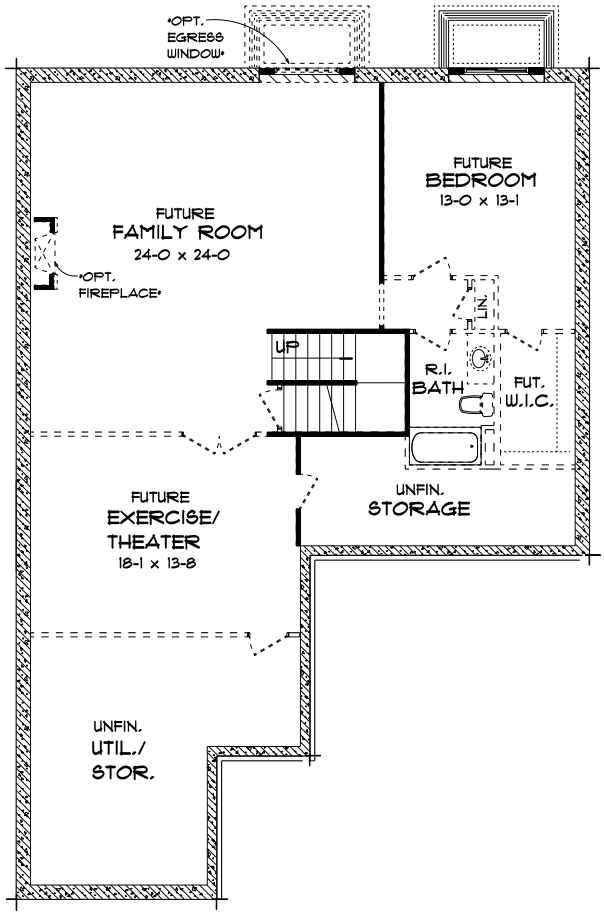
— HEMLOCK III —

FLOOR PLANS

3 BED | 2 BATH | 2 STALL GARAGE | 1,786 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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— HEMLOCK III —

RAMBLER

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ELEVATION A

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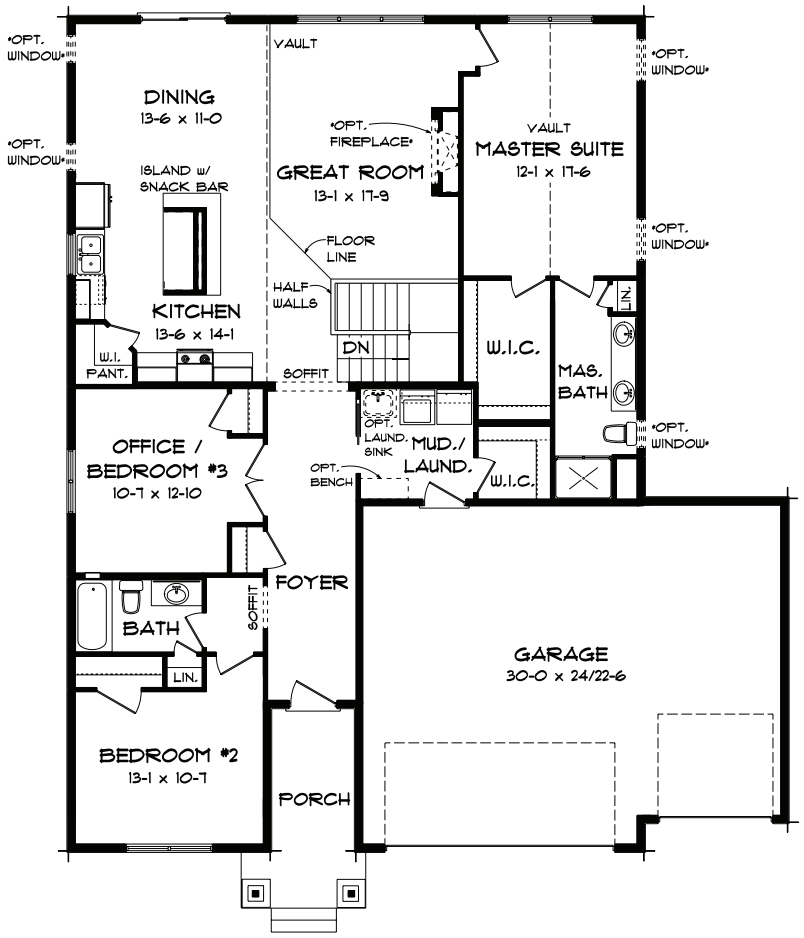
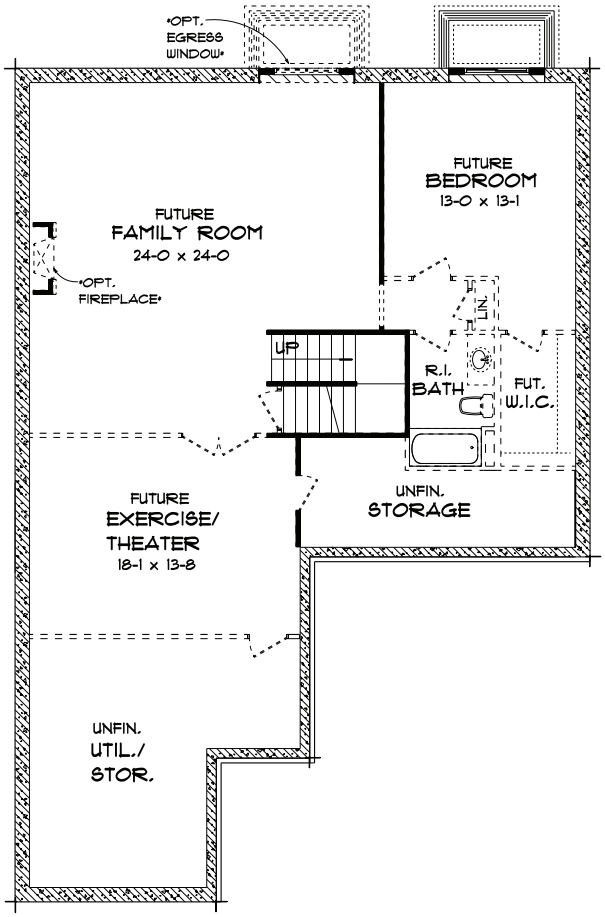


MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

CAPSTONE
HOMES

MULTI LEVEL

LINWOOD II

PRIMROSE III - 2 CAR

PRIMROSE III

WESLEY

— LINWOOD II —

TRI LEVEL

3 BED | 2 BATH | 3 STALL GARAGE | 1,540 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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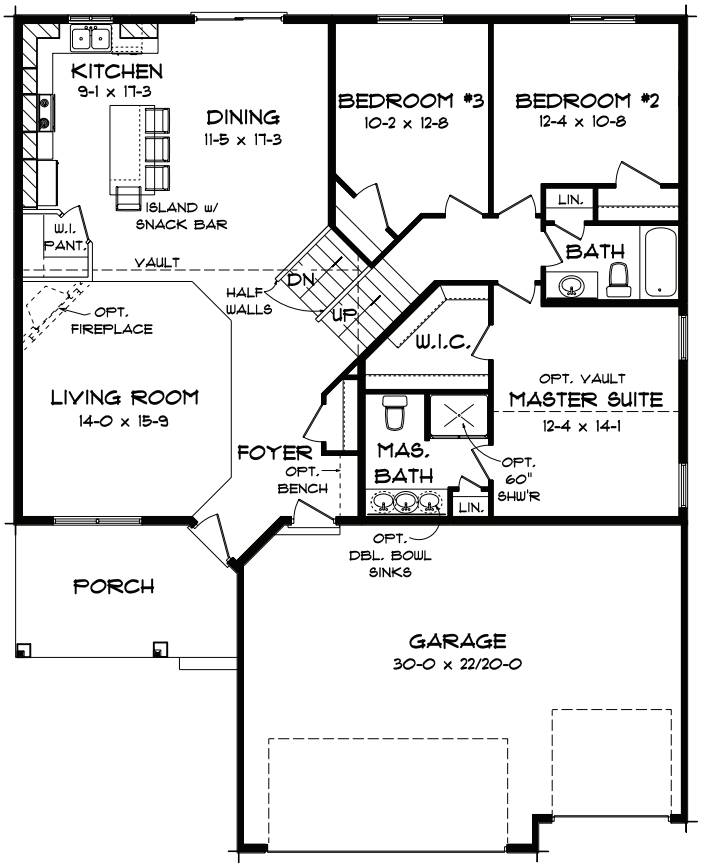
EQUAL HOUSING OPPORTUNITY

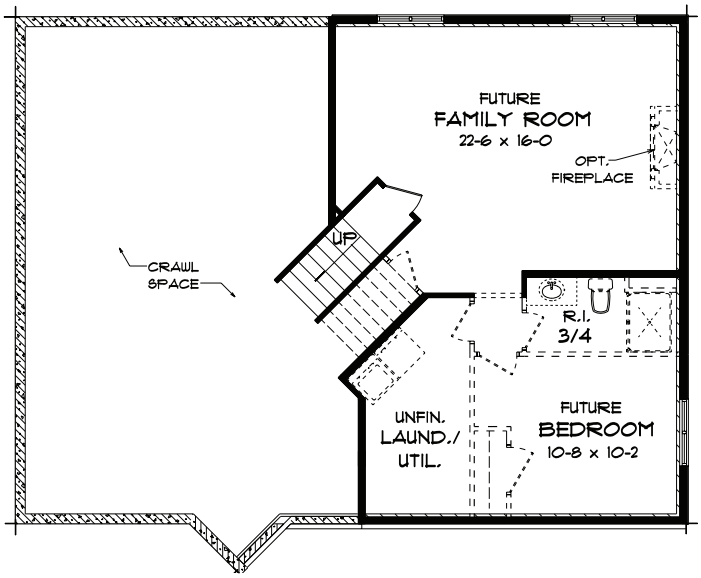
— LINWOOD II —

FLOOR PLANS

3 BED | 2 BATH | 3 STALL GARAGE | 1,540 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

CAPSTONE
— HOMES —

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EQUAL HOUSING OPPORTUNITY

— PRIMROSE III —

MULTI LEVEL

3 BED | 2 BATH | 2 STALL GARAGE | 1,609 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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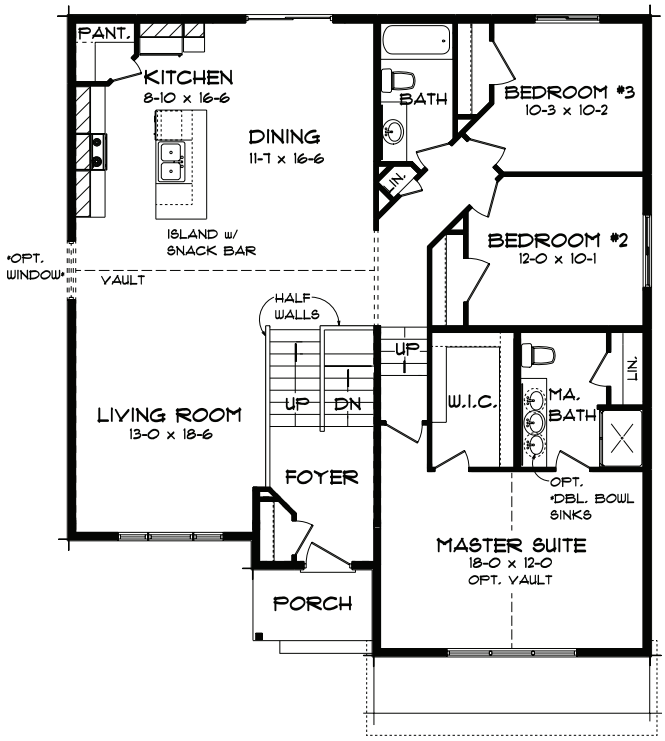
EQUAL HOUSING OPPORTUNITY

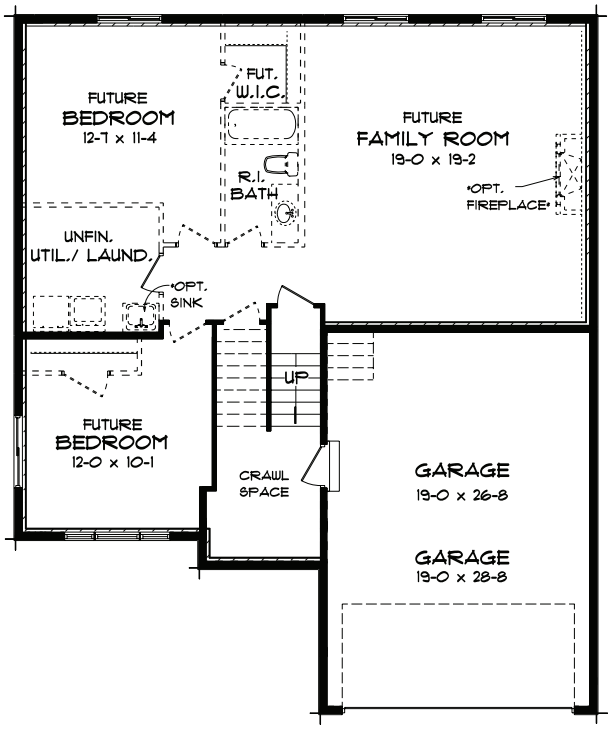
— PRIMROSE III —

FLOOR PLANS

3 BED | 2 BATH | 2 STALL GARAGE | 1,609 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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— HOMES —

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MULTI LEVEL
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ELEVATION A

ELEVATION B

ELEVATION C

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— HOMES —

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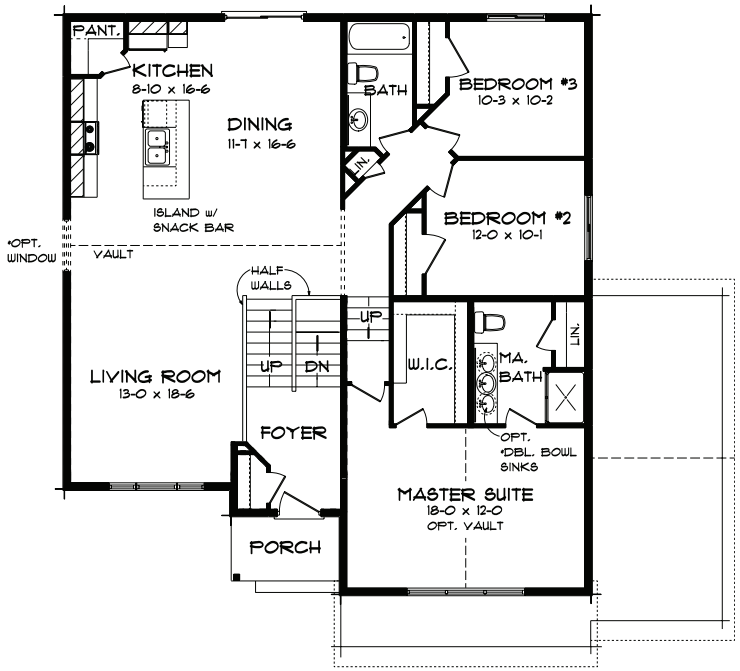
EQUAL HOUSING OPPORTUNITY

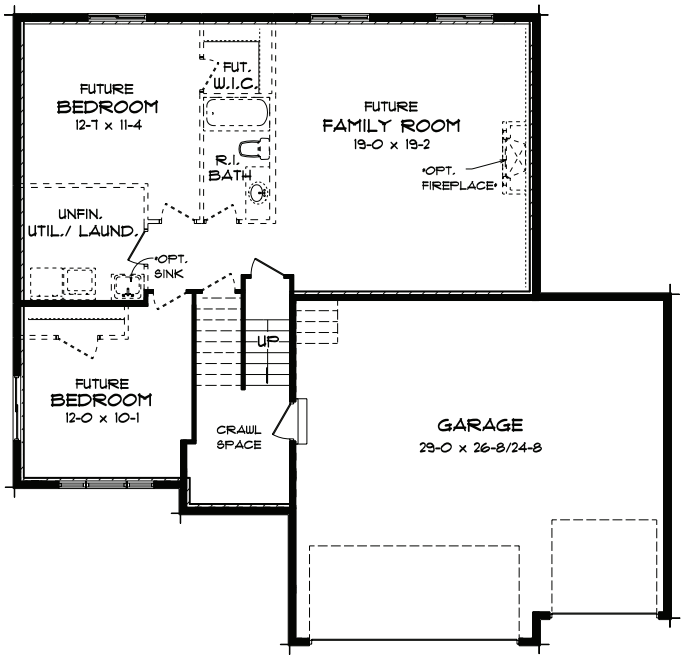
— PRIMROSE III —

FLOOR PLANS

3 BED | 2 BATH | 3 STALL GARAGE | 1,609 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— WESLEY —

MULTI LEVEL

3 BED | 2 BATH | 3 STALL GARAGE | 1,842 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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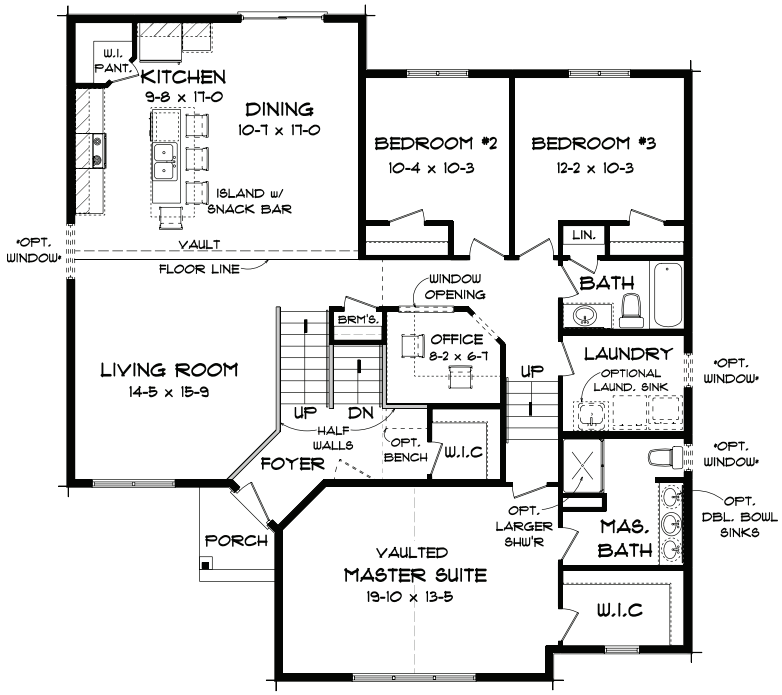
EQUAL HOUSING OPPORTUNITY

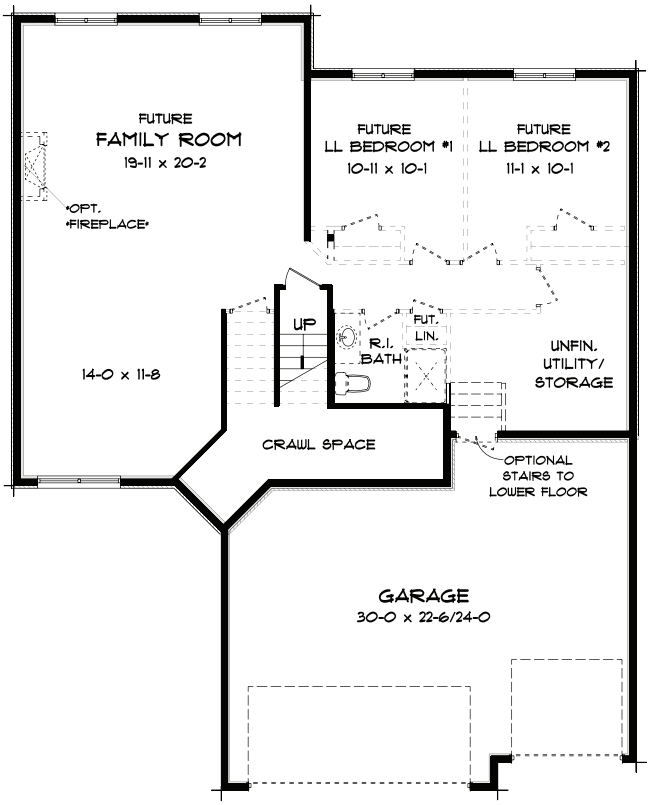
— WESLEY —

FLOOR PLANS

3 BED | 2 BATH | 3 STALL GARAGE | 1,842 SQ FT LIVING SPACE



MAIN LEVEL



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EQUAL HOUSING OPPORTUNITY

CAPSTONE
HOMES

RAISED RANCH

SPURGEON II

ROCKPORT III - 2 CAR

ROCKPORT III

CHEYENNE IV

— SPURGEON II —

RAISED RANCH
2 BED | 1 BATH | 2 STALL GARAGE | 966 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

ELEVATION D

CAPSTONE
— HOMES —

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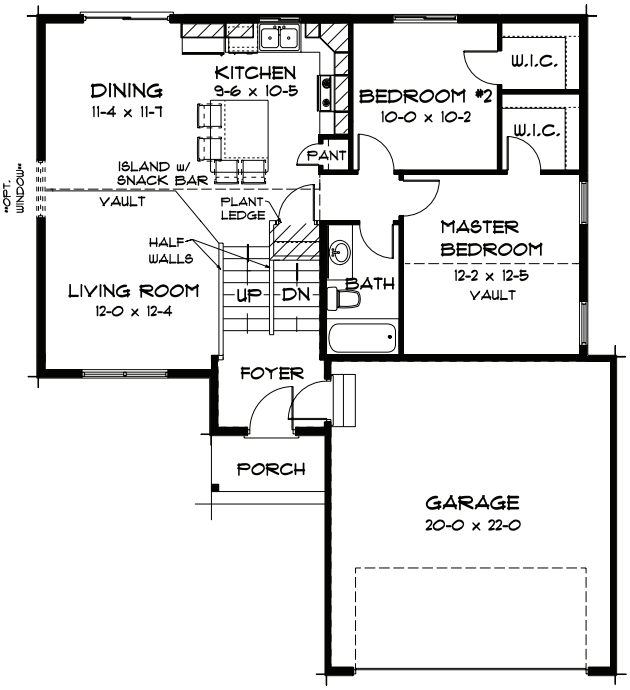
EQUAL HOUSING OPPORTUNITY

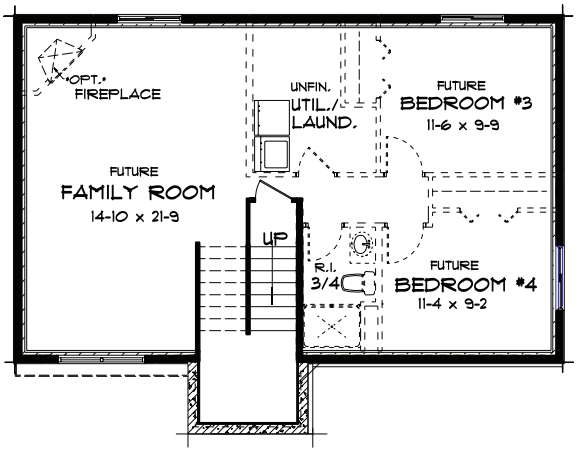
— SPURGEON II —

FLOOR PLANS

2 BED | 1 BATH | 2 STALL GARAGE | 966 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— ROCKPORT III —

RAISED RANCH

3 BED | 2 BATH | 2 STALL GARAGE | 1,283 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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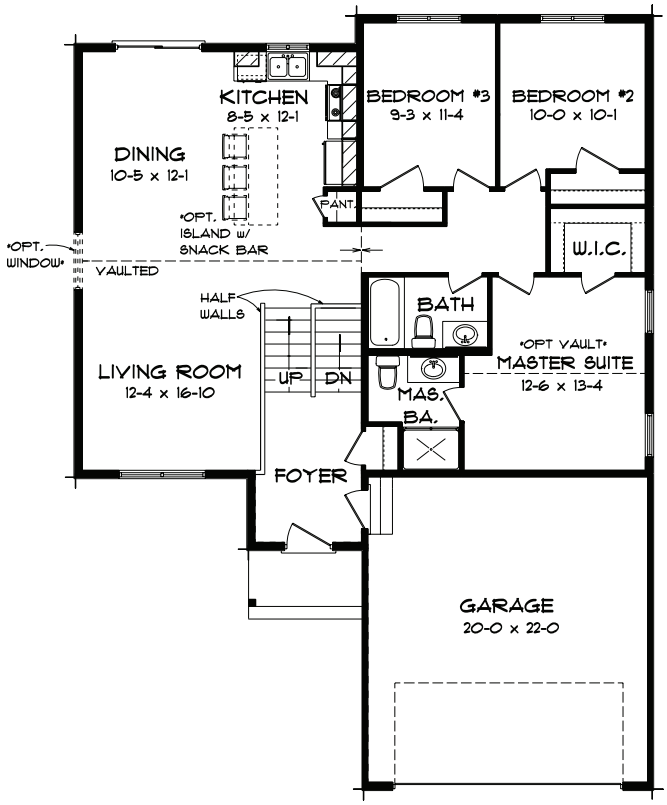
EQUAL HOUSING OPPORTUNITY

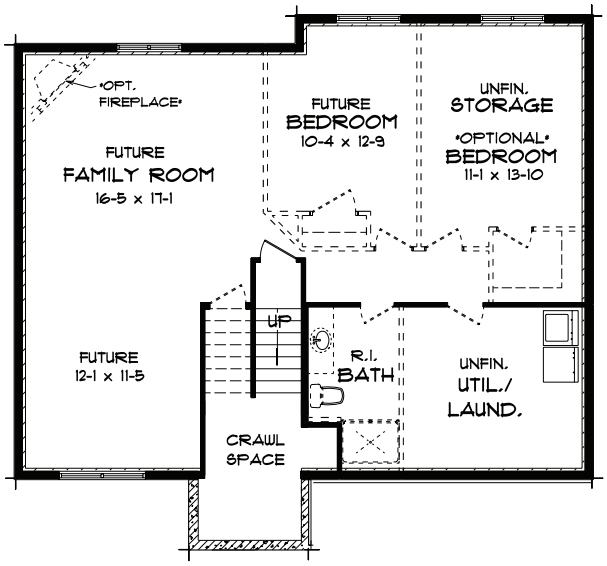
— ROCKPORT III —

FLOOR PLANS

3 BED | 2 BATH | 2 STALL GARAGE | 1,283 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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— HOMES —

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— ROCKPORT III —

RAISED RANCH

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ELEVATION A

ELEVATION B

ELEVATION C

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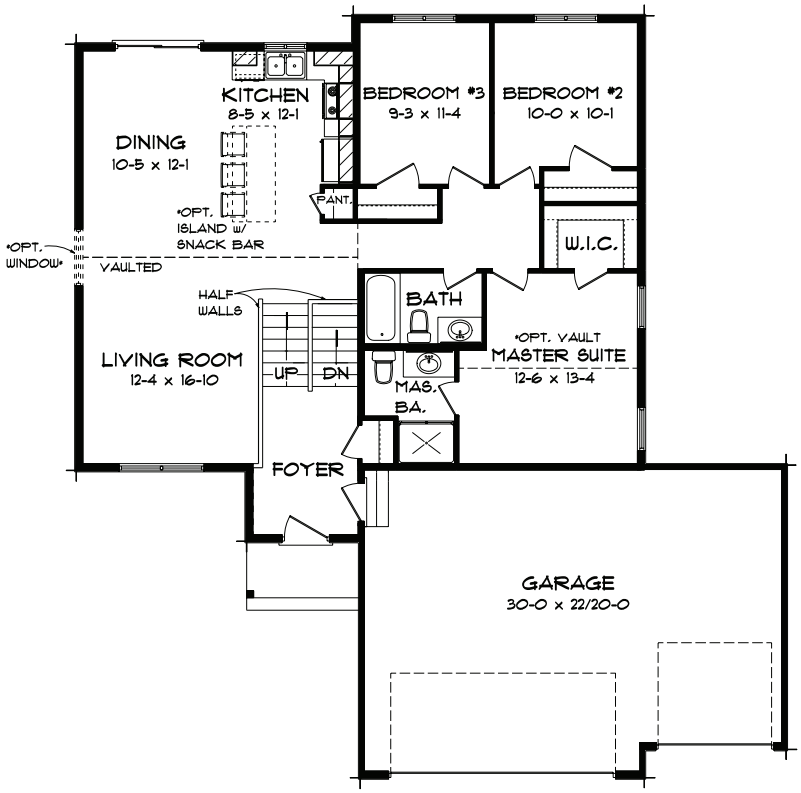
EQUAL HOUSING OPPORTUNITY

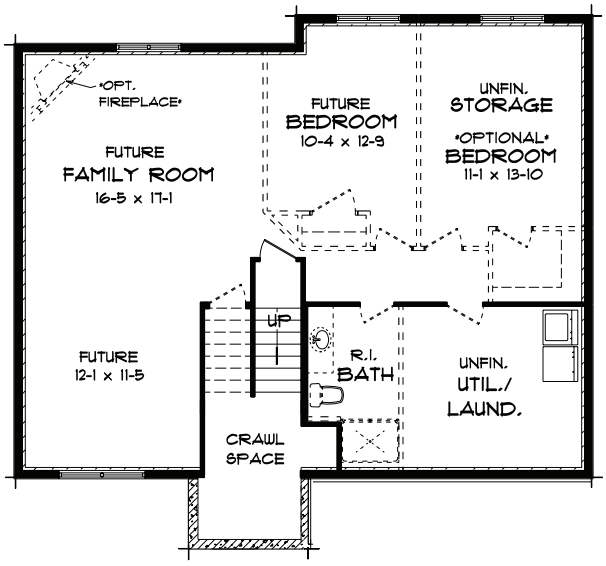
— ROCKPORT III —

FLOOR PLANS

3 BED | 2 BATH | 3 STALL GARAGE | 1,283 SQ FT LIVING SPACE



MAIN LEVEL



LOWER LEVEL

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EQUAL HOUSING OPPORTUNITY

— CHEYENNE IV —

RAISED RANCH

3 BED | 2 BATH | 3 STALL GARAGE | 1,589 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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— CHEYENNE IV —

FLOOR PLANS

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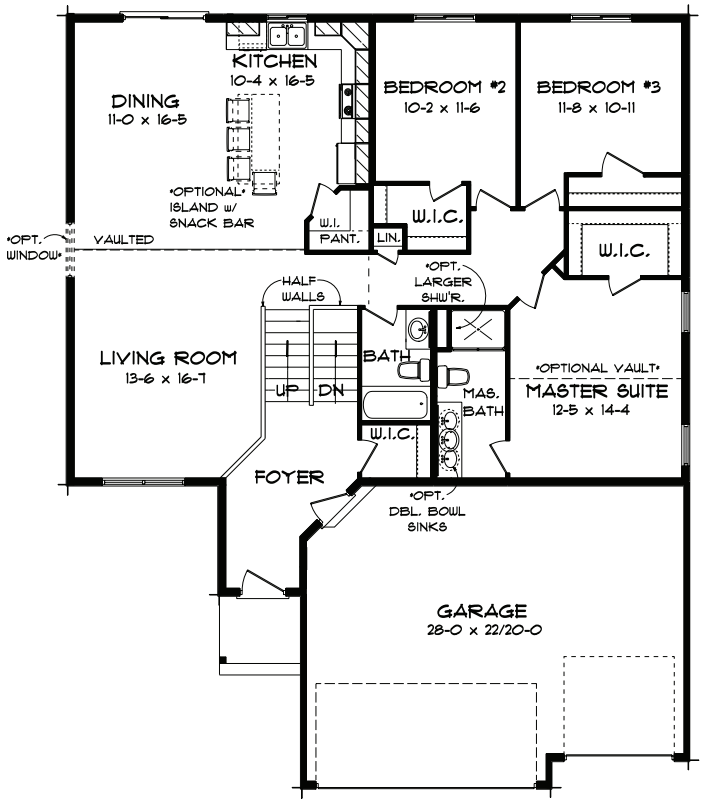
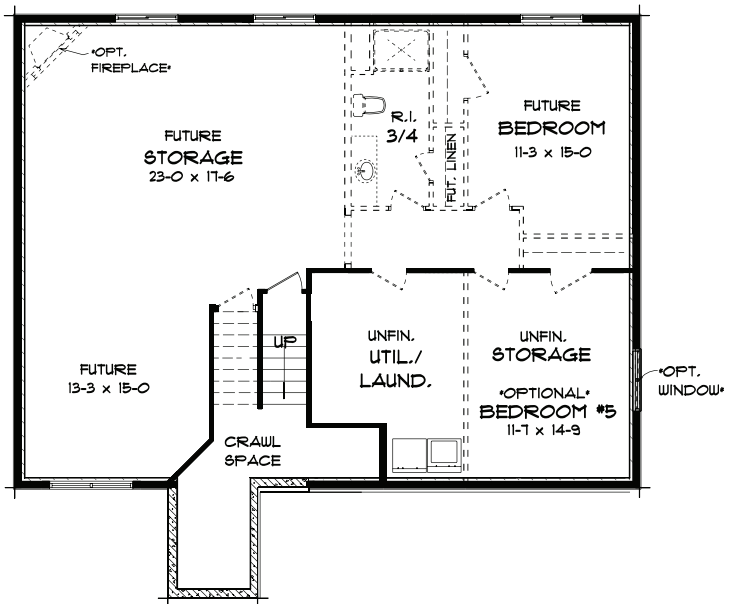


MAIN LEVEL



LOWER LEVEL

CAPSTONE HOMES

763-427-3090 | CAPSTONEHOMES-MN.COM

Floor plans, materials, products and options are subject to change without notice. Floor plans are renderings and may very slight from actual homes. Landscaping packages will depend on community. MN Bldr Lic BC637318

EQUAL HOUSING OPPORTUNITY

CAPSTONE
HOMES

LIBERTY SERIES

CAMDEN I

CAMDEN II

ITASCA

ADLEY

BALDWIN

BECKER

— CAMDEN I —

LIBERTY SERIES

2 BED | 2 BATH | 2 STALL GARAGE | 1,080 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

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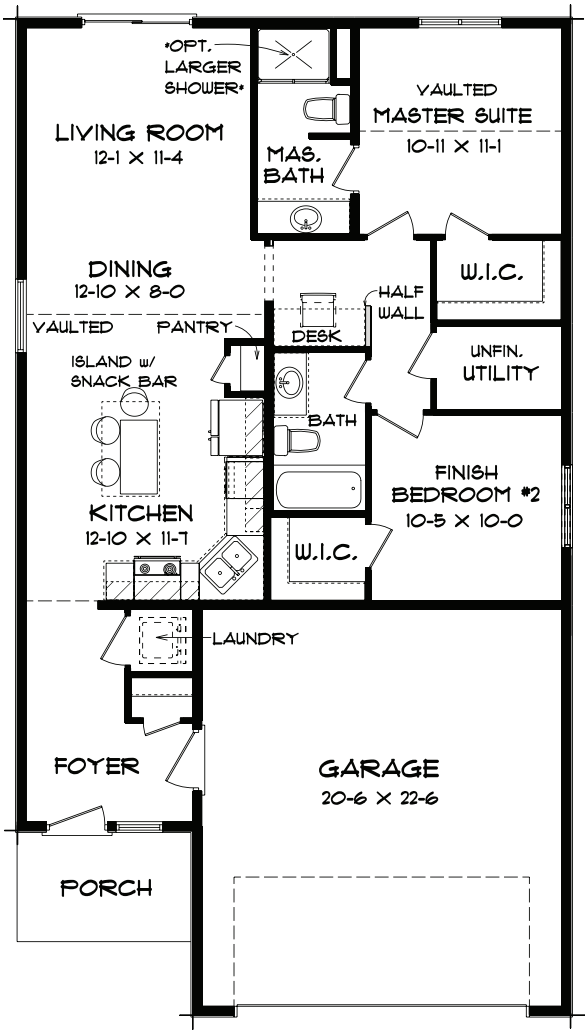
EQUAL HOUSING OPPORTUNITY

— CAMDEN I —

LIBERTY SERIES

2 BED | 2 BATH | 2 STALL GARAGE | 1,080 SQ FT LIVING SPACE



MAIN LEVEL

CAPSTONE HOMES

763-427-3090 | CAPSTONEHOMES-MN.COM

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EQUAL HOUSING OPPORTUNITY

— CAMDEN II —

LIBERTY SERIES

3 BED | 2 BATH | 2 STALL GARAGE | 1,280 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE
— HOMES —

763-427-3090 | CAPSTONEHOMES-MN.COM

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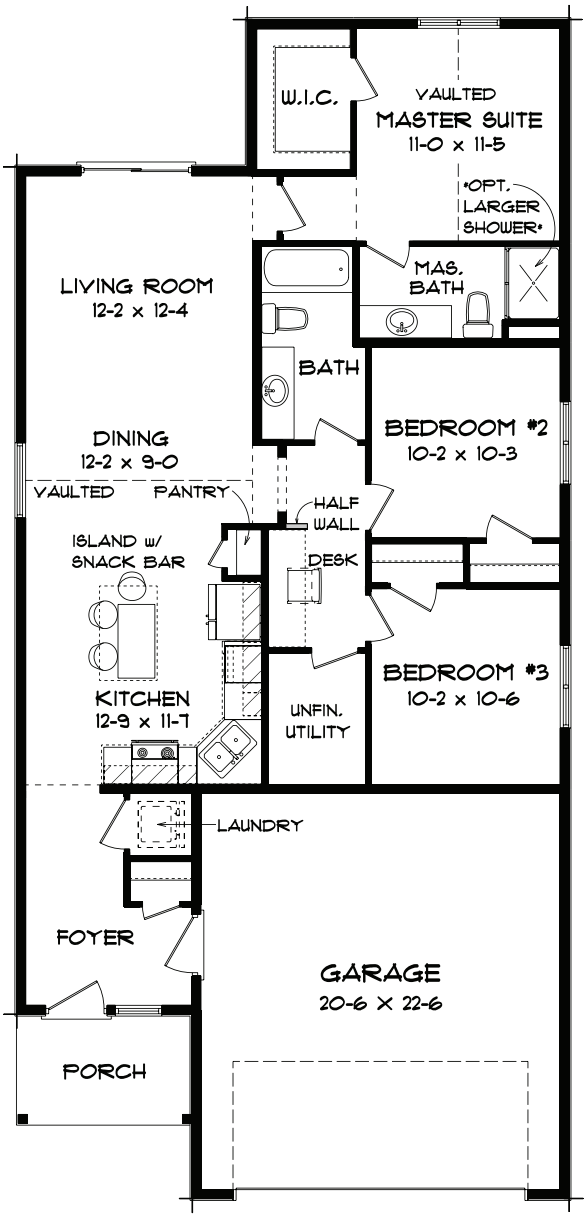
EQUAL HOUSING OPPORTUNITY

— CAMDEN II —

LIBERTY SERIES

3 BED | 2 BATH | 2 STALL GARAGE | 1,280 SQ FT LIVING SPACE



MAIN LEVEL

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EQUAL HOUSING OPPORTUNITY

— ITASCA —

LIBERTY SERIES
2 BED | 2 BATH | 2 STALL GARAGE | 1,393 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

ELEVATION D

CAPSTONE
— HOMES —

763-427-3090 | CAPSTONEHOMES-MN.COM

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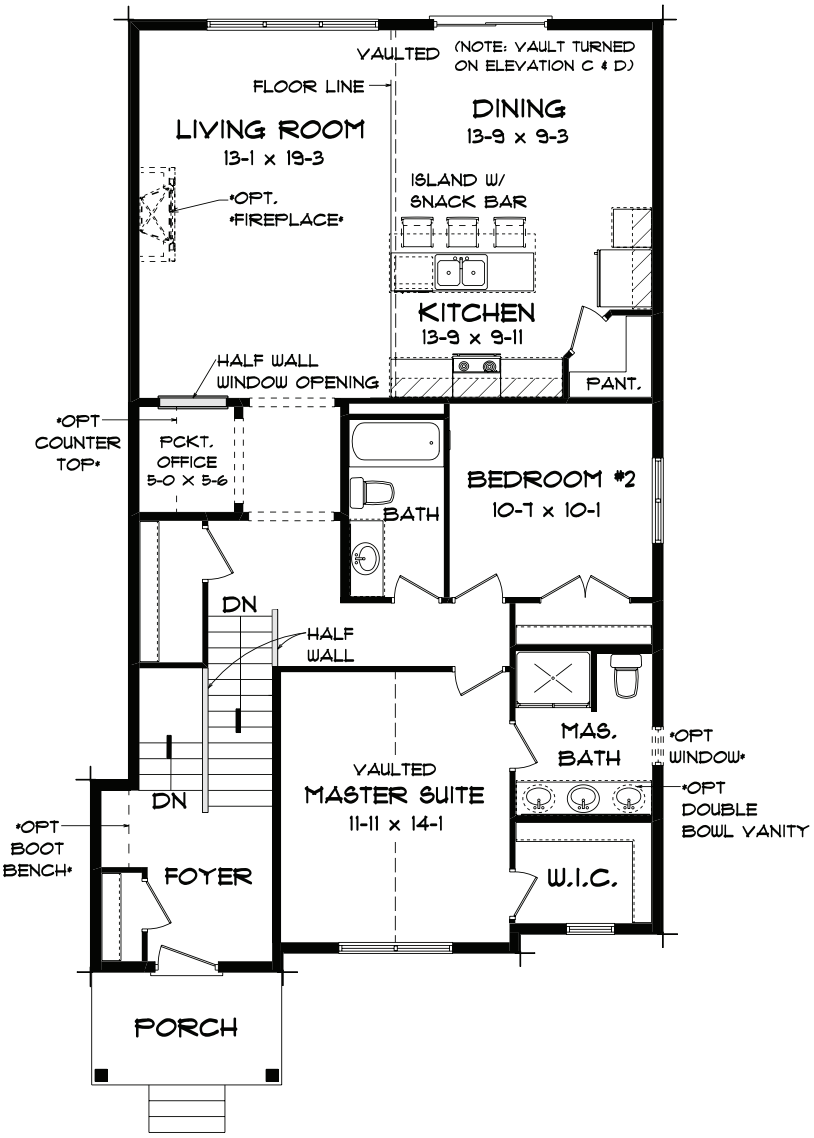
EQUAL HOUSING OPPORTUNITY

— ITASCA —

FLOOR PLANS

2 BED | 2 BATH | 2 STALL GARAGE | 1,393 SQ FT LIVING SPACE



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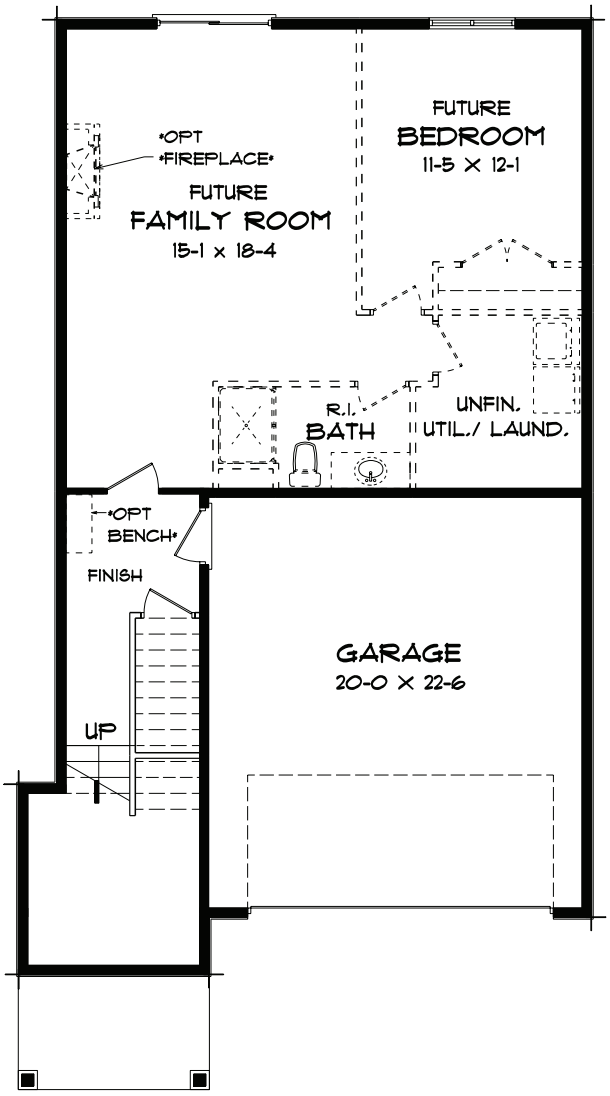

LOWER LEVEL

CAPSTONE HOMES

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EQUAL HOUSING OPPORTUNITY

— ADLEY —

LIBERTY SERIES

3 BED | 2 BATH | 2 STALL GARAGE | 1,617 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

763-427-3090 | CAPSTONEHOMES-MN.COM

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— ADLEY —

FLOOR PLANS

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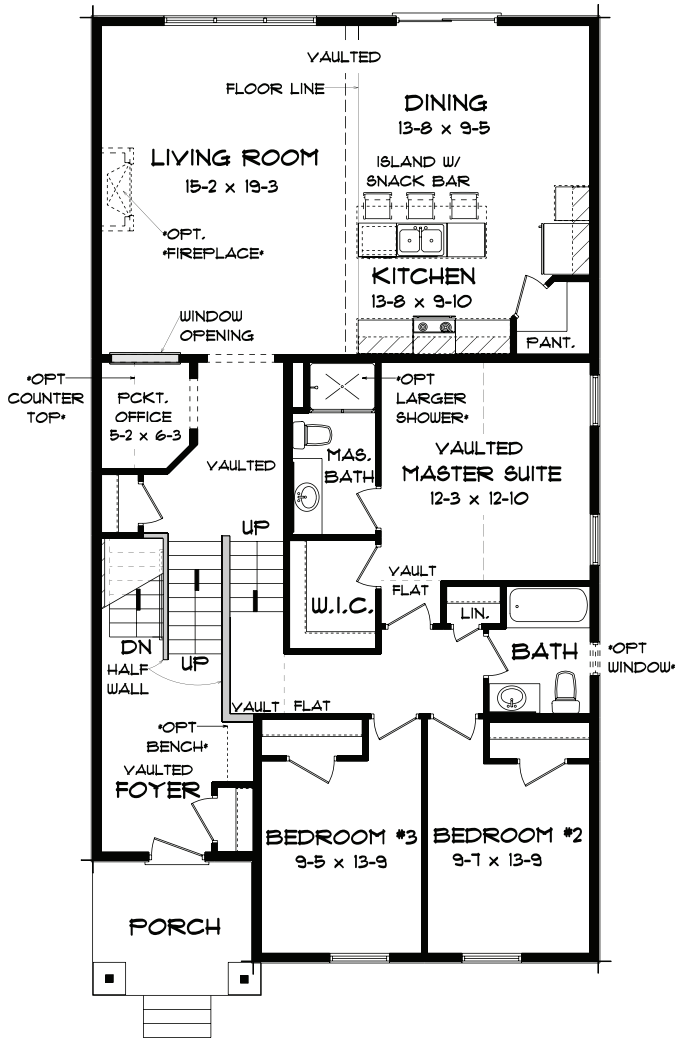

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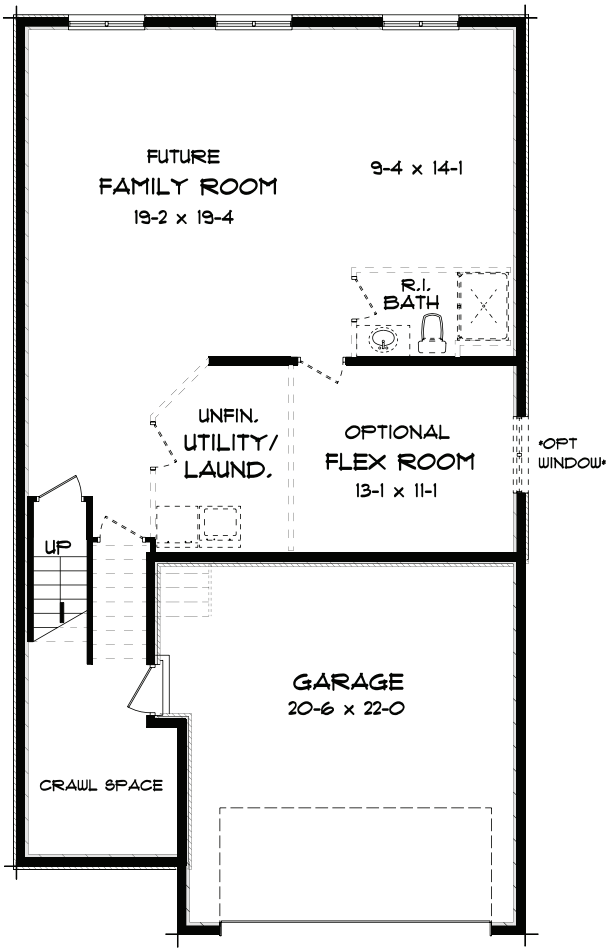

LOWER LEVEL

CAPSTONE
— HOMES —

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EQUAL HOUSING OPPORTUNITY

— BALDWIN —

LIBERTY SERIES

3 BED | 2 BATH | 2 STALL GARAGE | 1,690 SQ FT LIVING SPACE

ELEVATION A

ELEVATION B

ELEVATION C

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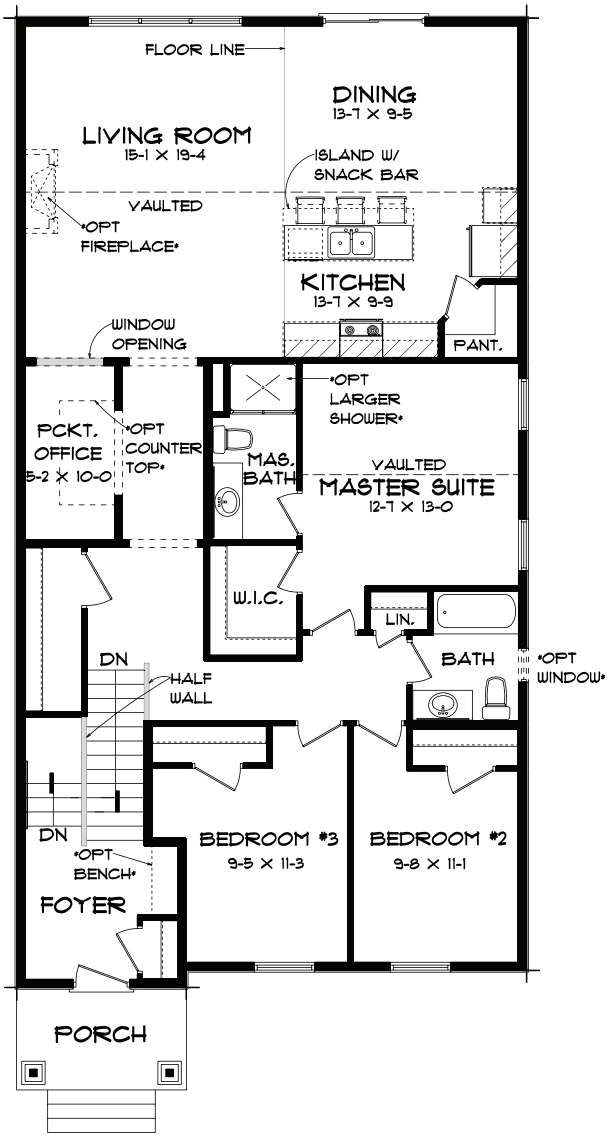
EQUAL HOUSING OPPORTUNITY

— BALDWIN —

FLOOR PLANS

3 BED | 2 BATH | 2 STALL GARAGE | 1,690 SQ FT LIVING SPACE



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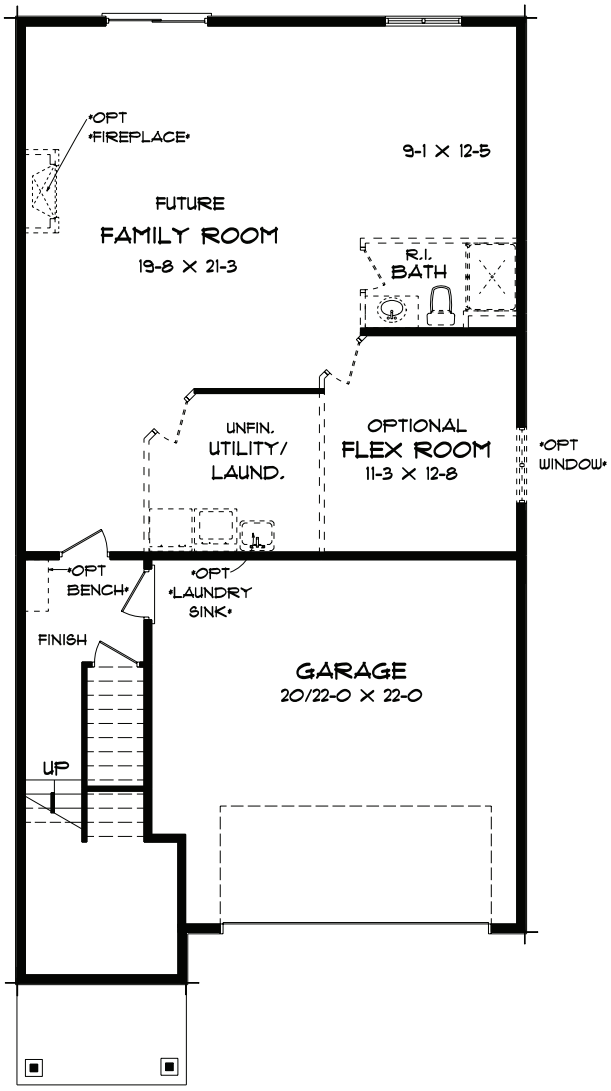

LOWER LEVEL

CAPSTONE
— HOMES —

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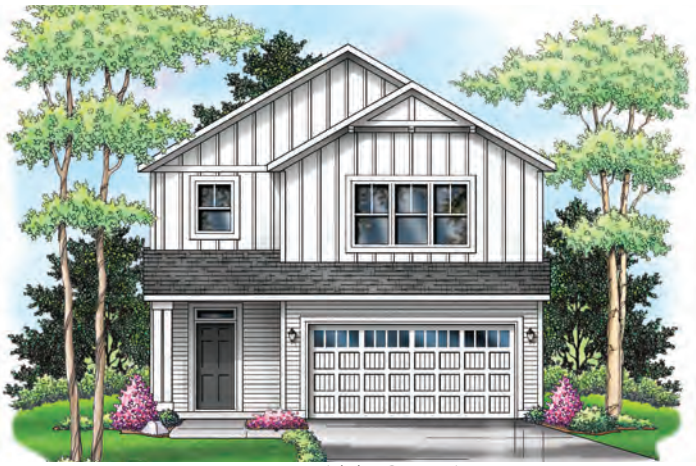
EQUAL HOUSING OPPORTUNITY

— BECKER —

LIBERTY SERIES

3 BED | 3 BATH | 2 STALL GARAGE | 2,040 SQ FT LIVING SPACE



ELEVATION A

ELEVATION B

ELEVATION C

CAPSTONE HOMES

763-427-3090 | CAPSTONEHOMES-MN.COM

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FLOOR PLANS

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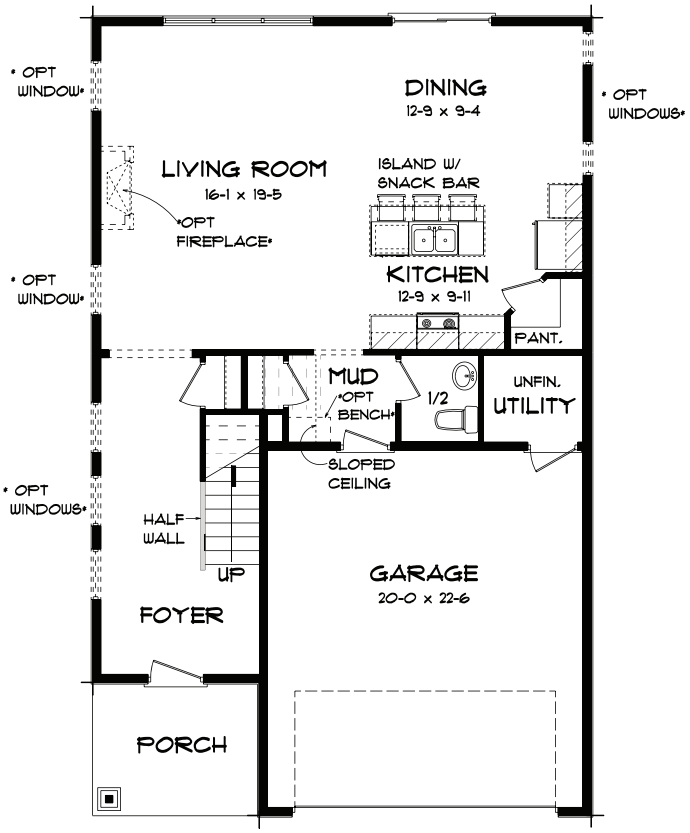
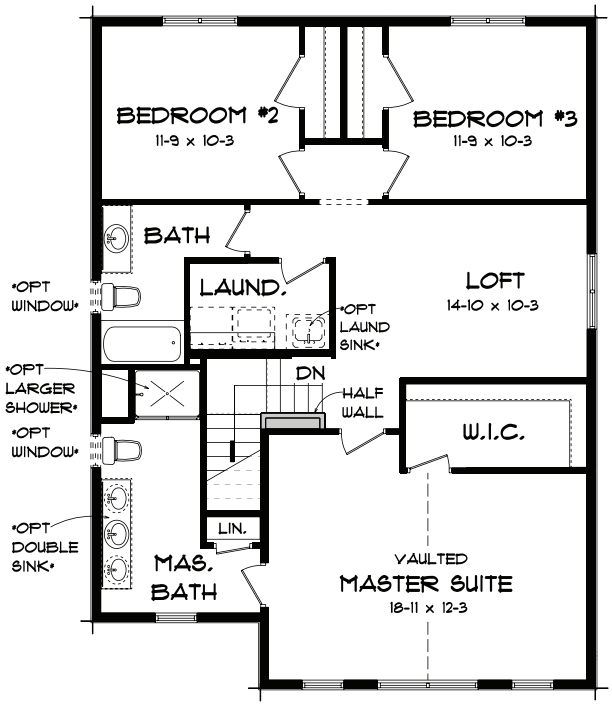


MAIN LEVEL



UPPER LEVEL

CAPSTONE HOMES

763-427-3090 | CAPSTONEHOMES-MN.COM

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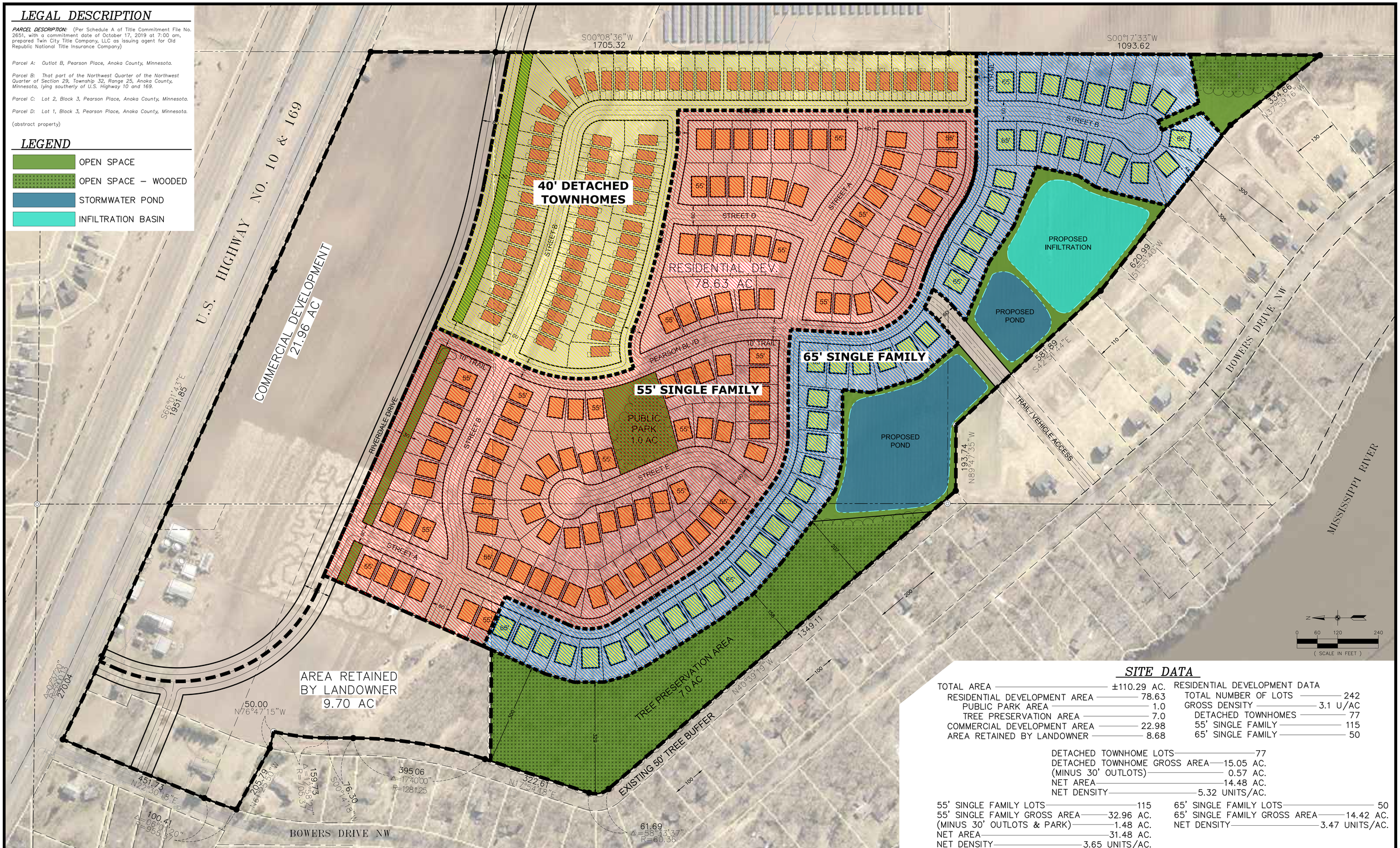
EQUAL HOUSING OPPORTUNITY



LEGAL DESCRIPTION

PARCEL DESCRIPTION: (Per Schedule A of Title Commitment File No. 2651, with a commitment date of October 17, 2019 at 7:00 am, prepared Twin City Title Company, LLC as issuing agent for Old Republic National Title Insurance Company)

Parcel A: Outlot B, Pearson Place, Anoka County, Minnesota.

Parcel B: That part of the Northwest Quarter of the Northwest Quarter of Section 29, Township 32, Range 25, Anoka County, Minnesota, lying southerly of U.S. Highway 10 and 169.

Parcel C: Lot 2, Block 3, Pearson Place, Anoka County, Minnesota.

Parcel D: Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

LEGEND

- OPEN SPACE
- OPEN SPACE – WOODED
- STORMWATER POND
- INFILTRATION BASIN

SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
PUBLIC PARK AREA	1.0
TREE PRESERVATION AREA	7.0
COMMERCIAL DEVELOPMENT AREA	22.98
AREA RETAINED BY LANDOWNER	8.68

RESIDENTIAL DEVELOPMENT DATA

TOTAL NUMBER OF LOTS	242
GROSS DENSITY	3.1 U/AC
DETACHED TOWNHOMES	77
55' SINGLE FAMILY	115
65' SINGLE FAMILY	50

DETACHED TOWNHOME LOTS	77
DETACHED TOWNHOME GROSS AREA	15.05 AC.
(MINUS 30' OUTLOTS)	0.57 AC.
NET AREA	14.48 AC.
NET DENSITY	5.32 UNITS/AC.

55' SINGLE FAMILY LOTS	115
55' SINGLE FAMILY GROSS AREA	32.96 AC.
(MINUS 30' OUTLOTS & PARK)	1.48 AC.
NET AREA	31.48 AC.
NET DENSITY	3.65 UNITS/AC.

65' SINGLE FAMILY LOTS	50
65' SINGLE FAMILY GROSS AREA	14.42 AC.
NET DENSITY	3.47 UNITS/AC.

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

DRAWN BY: C#
ISSUE DATE: 08/05/2020
Revisions:

CAPSTONE HOMES, INC.
14015 Sunfish Lake Blvd. NW, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

PRODUCT DENSITY EXHIBIT

Save Date: 08/05/20 f:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\layouts\8494_layout 4 product areas.dwg

LEGAL DESCRIPTION

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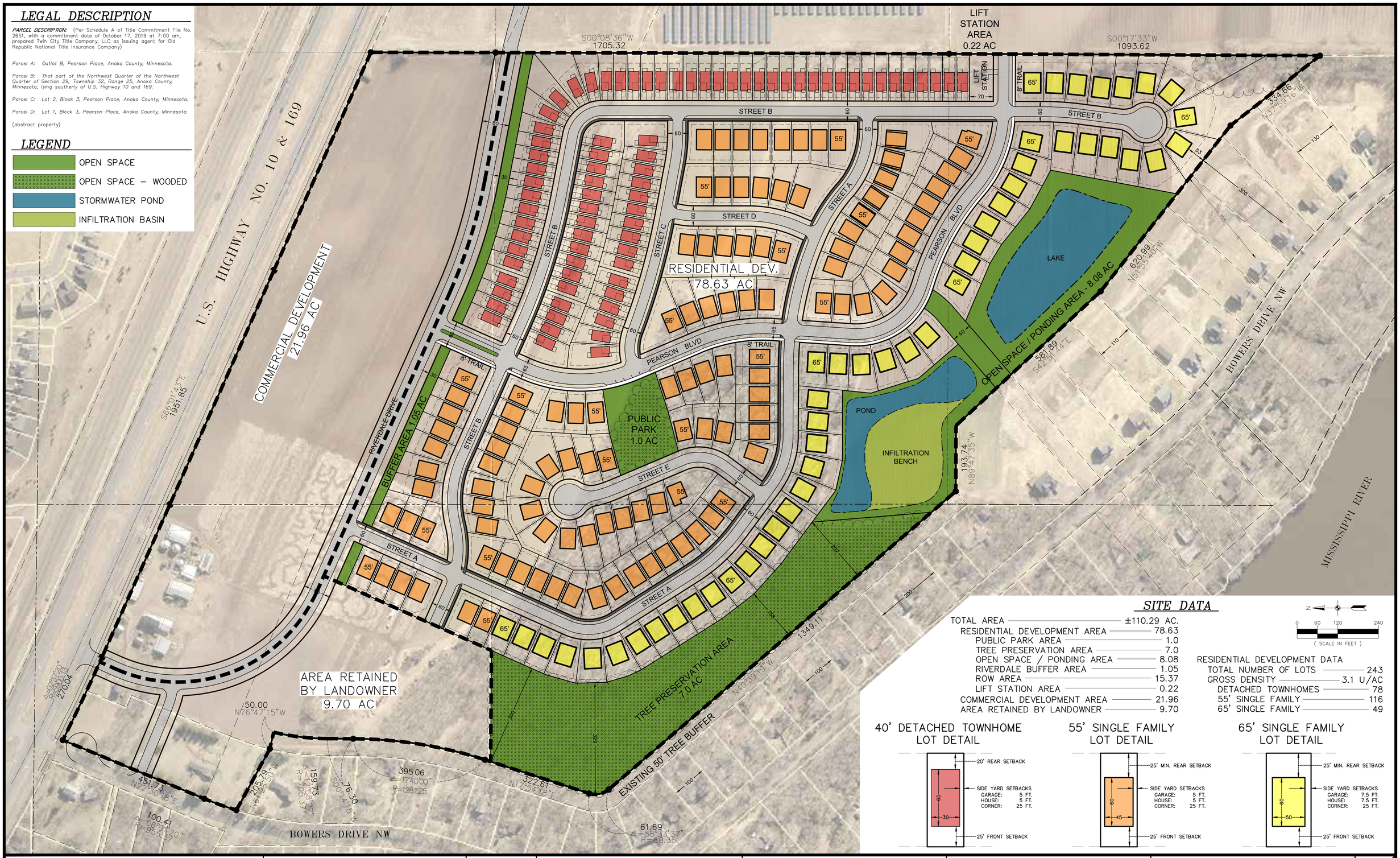
(abstract property)

LEGEND

- OPEN SPACE
- OPEN SPACE – WOODED
- STORMWATER POND
- INFILTRATION BASIN



SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
PUBLIC PARK AREA	1.0
TREE PRESERVATION AREA	7.0
OPEN SPACE / PONDING AREA	8.08
RIVERDALE BUFFER AREA	1.05
ROW AREA	15.37
LIFT STATION AREA	0.22
COMMERCIAL DEVELOPMENT AREA	21.96
AREA RETAINED BY LANDOWNER	9.70

N

0 60 120 240

(SCALE IN FEET)

RESIDENTIAL DEVELOPMENT DATA

TOTAL NUMBER OF LOTS	243
GROSS DENSITY	3.1 U/AC
DETACHED TOWNHOMES	78
55' SINGLE FAMILY	116
65' SINGLE FAMILY	49

40' DETACHED TOWNHOME LOT DETAIL

55' SINGLE FAMILY LOT DETAIL

65' SINGLE FAMILY LOT DETAIL

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

DRAWN BY: C#/RR
ISSUE DATE: 12/3/20
Revisions:

CAPSTONE HOMES, INC.
14015 Sunfish Lake Blvd. NW, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

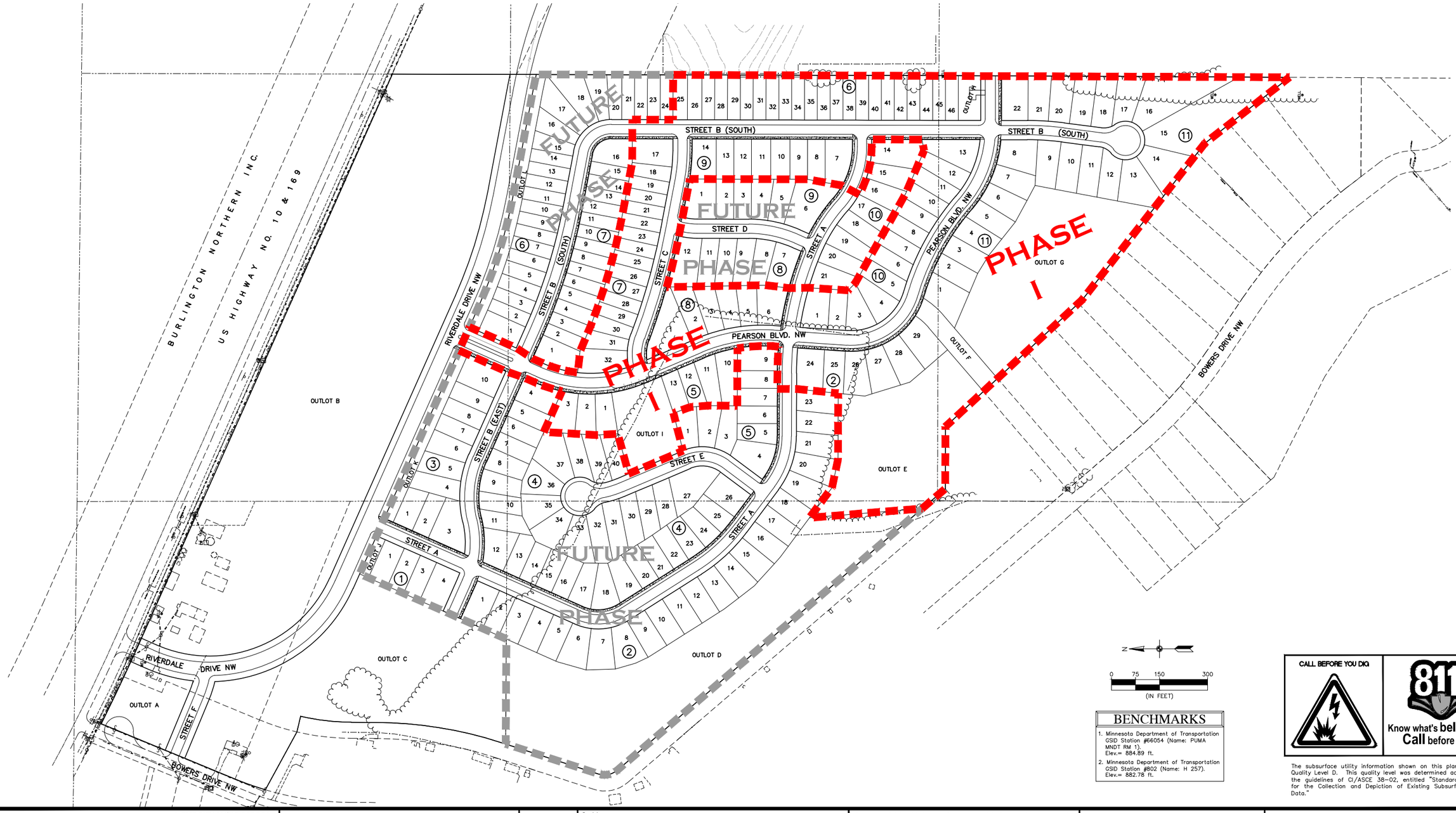
SKETCH PLAN W/AERIAL

1 of 1

[Save Date: 10/21/20] F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\layouts\8494_sketch plan.dwg

Phasing Exhibit - Development

Riverstone South



BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
2. Minnesota Department of Transportation GSID Station #802 (Name: H 257). Elev.= 882.78 ft.

CALL BEFORE YOU DIG

811

Know what's **below.** **Call** before you dig.

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL

3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PHASING EXHIBIT
DEVELOPMENT

Save Date: 12/02/20 F:\Jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\c8494_ex_phasing.dwg

#8494

Redline Copy for Updates

DETAIL:

SECTION 29, TOWNSHIP 32, RANGE 25

RIVERSTONE

BURLINGTON NORTHERN INC.

MINNESOTA DEPARTMENT OF TRANSPORTATION MONUMENTATION PLAT 02-M3

MNDOT MONUMENTATION PLAT 02-M2

RIVER CROSSING ADDITION

PEARSON PLACE

OUTLOT A

OUTLOT B

PARCEL A

PARCEL B

PARCEL C

PARCEL D

LOT 2 BLOCK 3 PEARSON PLACE

BOWERS MISSISSIPPI ACRES

BOWERS DRIVE NW

East line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32 Range 25 S00°08'36"W

OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0005

OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0006

OWNER: COUNTY OF ANOKA PID: 29-32-25-24-0007

OWNER: DAVID R NATHE PID: 29-32-25-31-0001

S00°08'36"W 1705.32

S00°17'33"W 1093.62

RLS 12291 1/2 inch pipe

RLS 40062 1/2 inch pipe

1/2 inch iron pipe

6 ft. chain link fence

4 ft. barb wire fence

Tree Line

Southerly Right of Way line of MNDOT MONUMENTATION PLAT 02-M3

East line of the Northwest 1/4 of Section 29, Township 32, Range 25

South line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32, Range 25, also the North line of Outlot B, Pearson Place

West line of the Northwest 1/4 of the Northwest 1/4 of Section 29, Township 32, Range 25, also the East line of Lot 2, Block 3, Pearson Place

Southwest corner of the Northwest Quarter of Section 29, Township 32, Range 25 (cast iron monument)

Northwest corner of Section 29, Township 32, Range 25 (cast iron monument)

703.08

S66°01'33"E 1951.65

756.19

125 75 65 66

Approximate location of access easement per Doc. No. 2090228.006

See Detail

Approx. access easement per Doc. No. 2090228.006

Various height chain link fence

Garage

Existing House

Existing Building

Existing Shed

Existing Garage

Existing Pool

Existing Tennis Court

Existing Sport Court

Existing Gazebo

Existing Pergola

Existing Fire Pit

Existing Landing Pad (8'x8.5')

Existing Shed (8'x10')

Existing Shed (8'x12')

Existing Shed (8'x14')

Existing Shed (8'x16')

Existing Shed (8'x18')

Existing Shed (8'x20')

Existing Shed (8'x22')

Existing Shed (8'x24')

Existing Shed (8'x26')

Existing Shed (8'x28')

Existing Shed (8'x30')

Existing Shed (8'x32')

Existing Shed (8'x34')

Existing Shed

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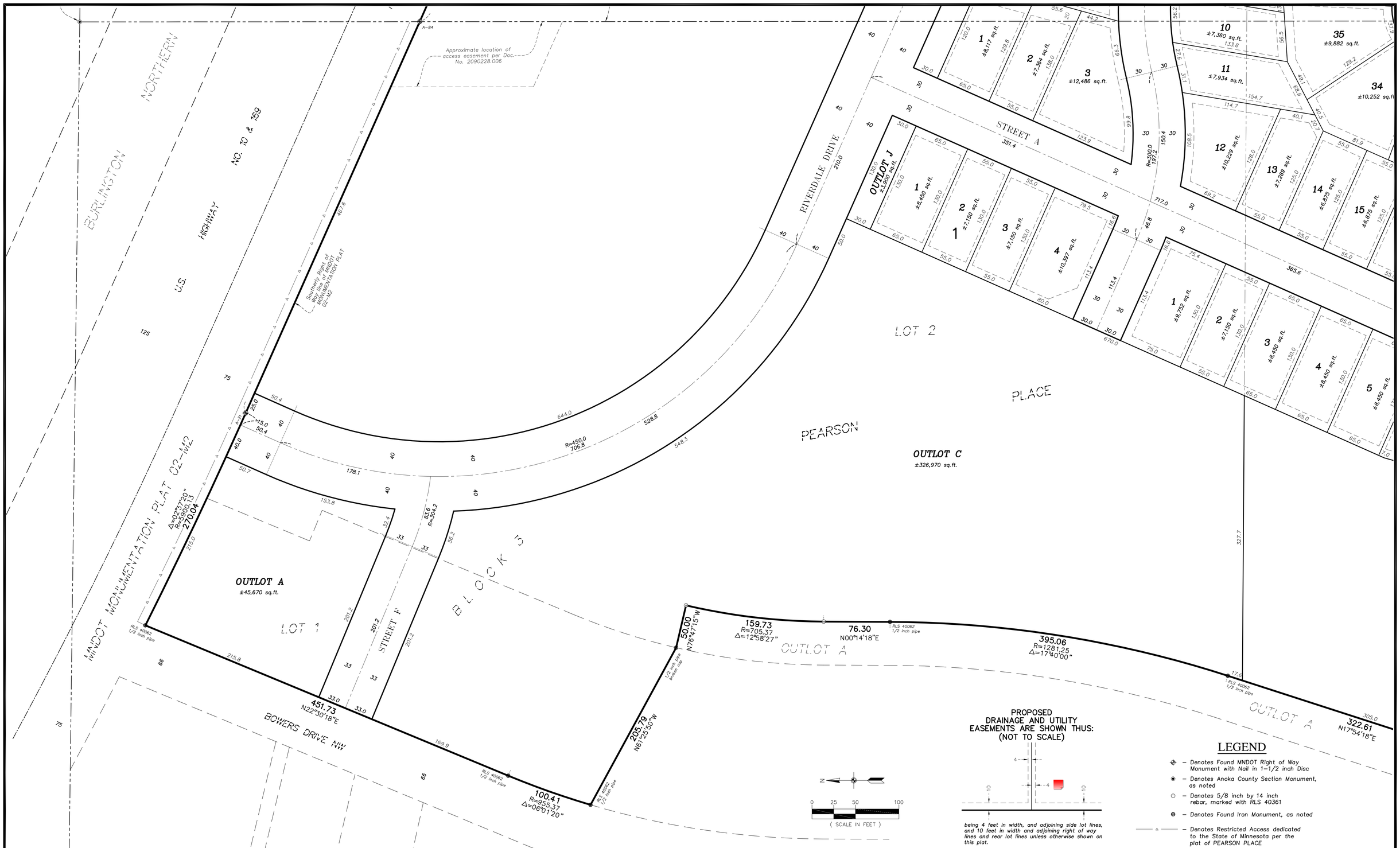

PROPOSED DRAINAGE AND UTILITY EASEMENTS ARE SHOWN THUS: (NOT TO SCALE)

being 4 feet in width, and adjoining side lot lines, and 10 feet in width and adjoining right of way lines and rear lot lines unless otherwise shown on this plat.

LEGEND

- – Denotes Found MNDOT Right of Way Monument with Nail in 1–1/2 inch Disc
- – Denotes Anoka County Section Monument, as noted
- – Denotes 5/8 inch by 14 inch rebar, marked with RLS 40361
- – Denotes Found Iron Monument, as noted
- – Denotes Restricted Access dedicated to the State of Minnesota per the plat of PEARSON PLACE

CARLSON McCAIN
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3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota

Print Name: Thomas R. Balluff, L.S.
Signature: Thomas R. Balluff
Date: 11/25/20 License #: 40361

DRAWN BY: KCM
ISSUE DATE: 11/25/20
FILE NO: 2086

Revisions:

RIVERSTONE DEVELOPMENT LLC
14015 Sunfish Lake Boulevard NW
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

PRELIMINARY PLAT

Save Date: 12/02/20 f:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\preliminary\8494_prp.dwg

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3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY SITE & UTILITY PLAN

12 of 25

Save Date: 12/02/20 | F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_site.dwg

#8494

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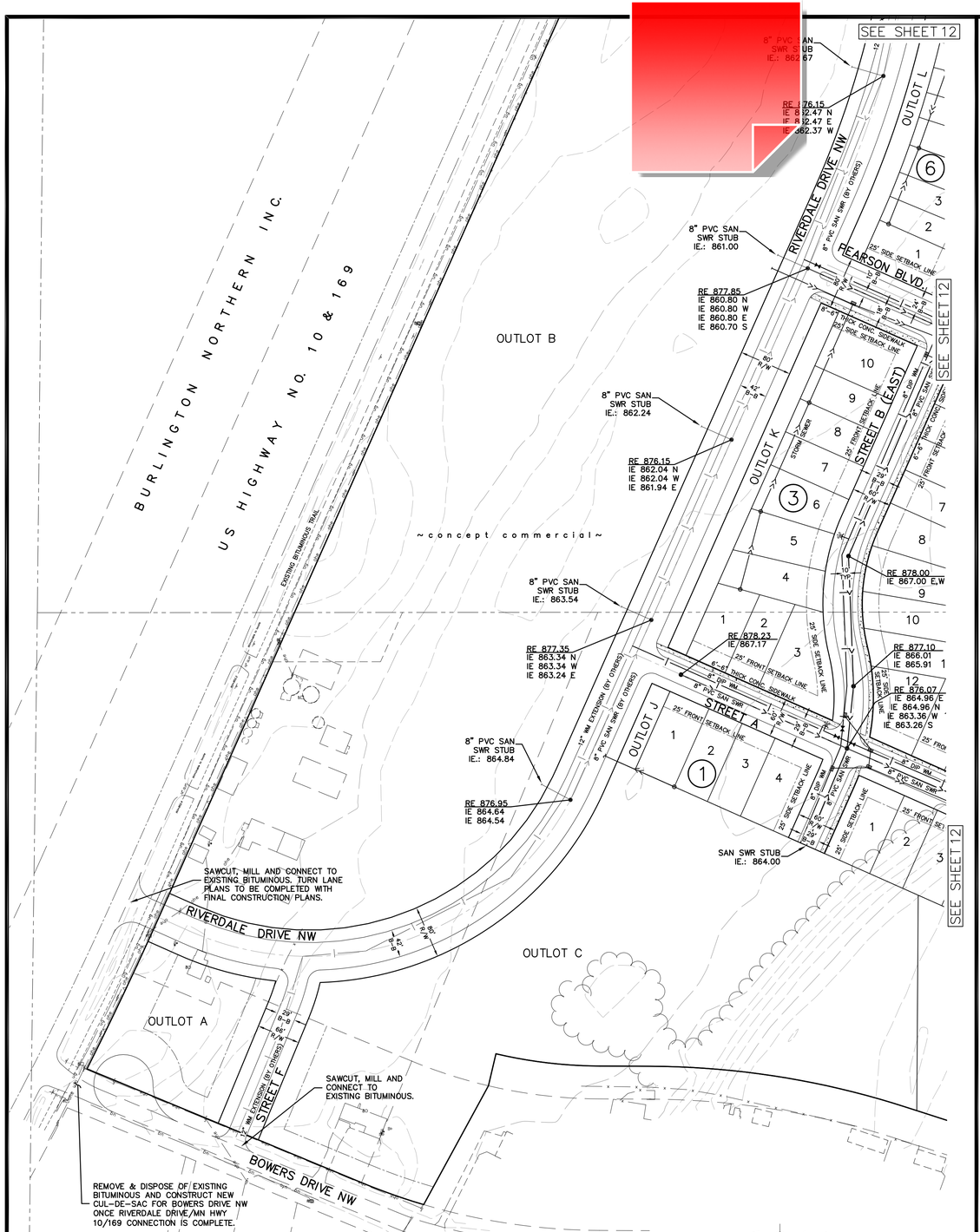

SITE PLAN LEGEND

	EXISTING	PROPOSED
LIGHT POLE		
SANITARY MANHOLE	SAN	
MISCELLANEOUS SIGN		
EXISTING SPOT ELEVATION	0000.0	
EXISTING TREE		
TELEVISION BOX	TV	
FIRE HYDRANT	FH	
FLUSHING HYDRANT		
GATE VALVE	GV	
CLEANOUT	CO	
ELECTRIC BOX	EB	
GAS METER	GM	
CATCH BASIN	or	or
RAIN GUARDIAN		RG
ELECTRIC METER	EM	
TELEPHONE BOX	TB	
UTILITY POLE	UP	
FLARED END SECTION	FES HW	
STORM MANHOLE	STMH	
SERVICE	SS W G	
SOIL BORING/TEST HOLE		

	MODULAR	ROCK
RETAINING WALL		
WATERMAIN		
SANITARY SEWER		
FORCEMAIN	FM	FM
STORM SEWER		
PROPERTY LINE		
SETBACK LINE		
CURB		
WETLAND		
DITCH		
UNDERGROUND TELEPHONE	ut	ut
UNDERGROUND ELECTRIC	ue	ue
UNDERGROUND GAS	ug	ug
UNDERGROUND FIBEROPTIC	ufo	ufo
FENCE	x	x
OVERHEAD ELECTRIC	ohe	ohe

CONCRETE SURFACE		
BITUMINOUS SURFACE		

N

0 50 100 200

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
2. Minnesota Department of Transportation GSID Station #802 (Name: H 257). Elev.= 882.78 ft.

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
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SUITE 100
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FAX 763.489.7959
CARLSONMCCAIN.COM

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Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
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RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY SITE & UTILITY PLAN

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#8494

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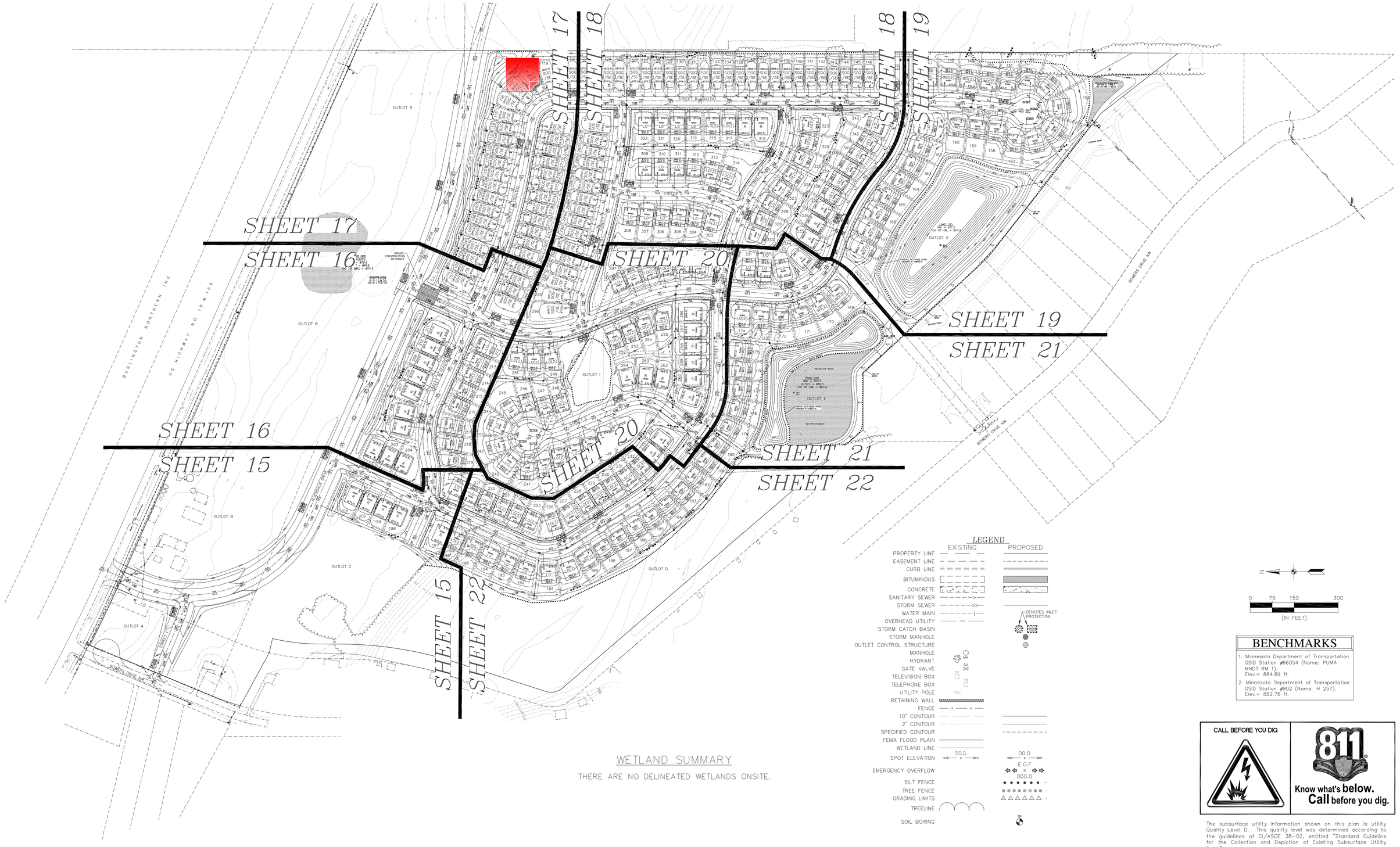

WETLAND SUMMARY

THERE ARE NO DELINEATED WETLANDS ONSITE.

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
EASEMENT LINE		
CURB LINE		
BITUMINOUS		
CONCRETE		
SANITARY SEWER		
STORM SEWER		
WATER MAIN		
OVERHEAD UTILITY	ohe	
STORM CATCH BASIN		DENOTES INLET PROTECTION
STORM MANHOLE		
OUTLET CONTROL STRUCTURE		
MANHOLE		
HYDRANT	HYD	
GATE VALVE	GV	
TELEVISION BOX	TV	
TELEPHONE BOX	TB	
UTILITY POLE		
RETAINING WALL		
FENCE	x x	
10' CONTOUR		
2' CONTOUR		
SPECIFIED CONTOUR		
FEMA FLOOD PLAIN		
WETLAND LINE		
SPOT ELEVATION	00.0	00.0
EMERGENCY OVERFLOW		E.O.F. 000.0
SILT FENCE		
TREE FENCE		
GRADING LIMITS		
TREELINE		
SOIL BORING		TP

N

0 75 150 300
(IN FEET)

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CALL BEFORE YOU DIG

811 Know what's below. Call before you dig.

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

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RIVERSTONE SOUTH
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GRADING INDEX

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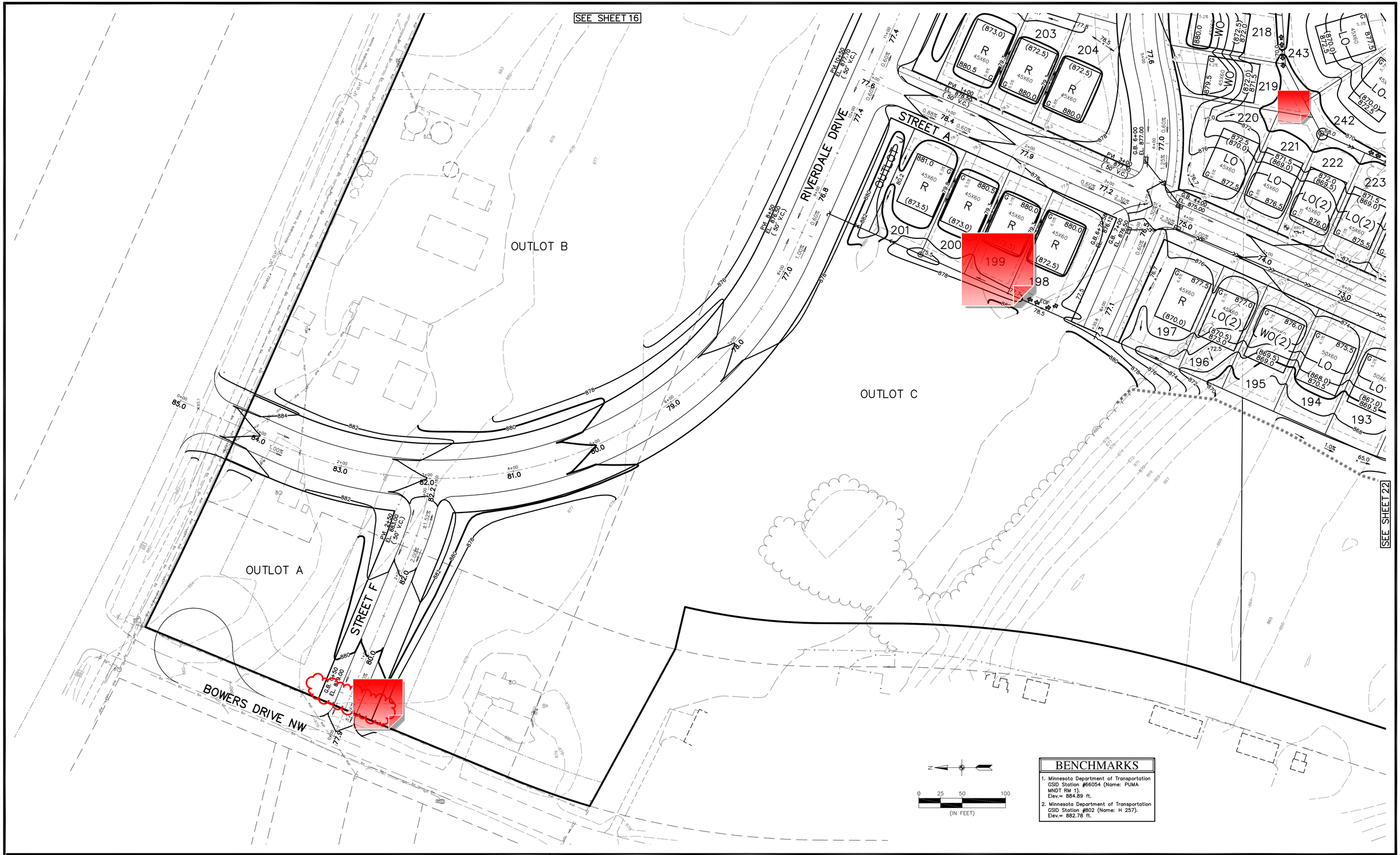

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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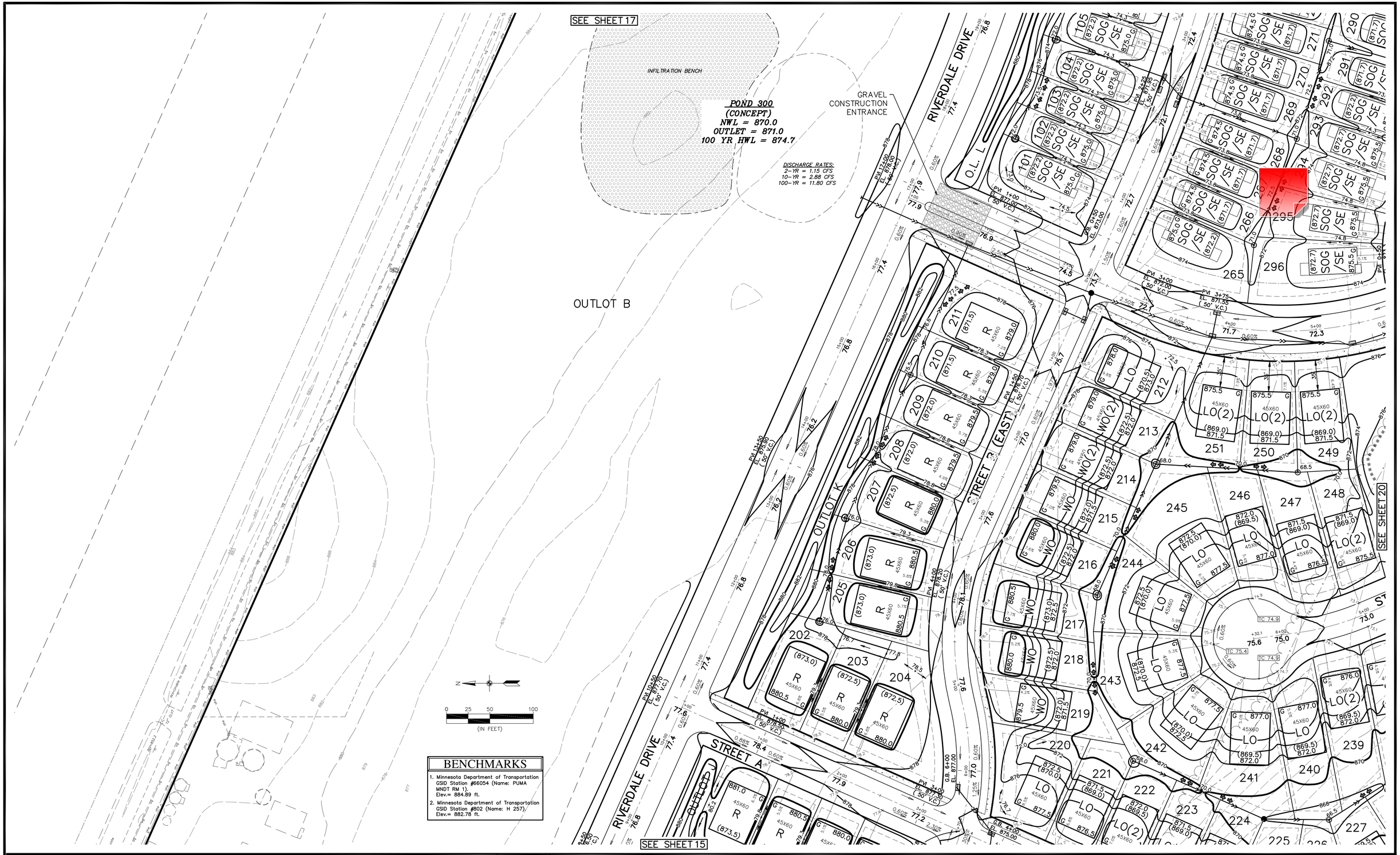

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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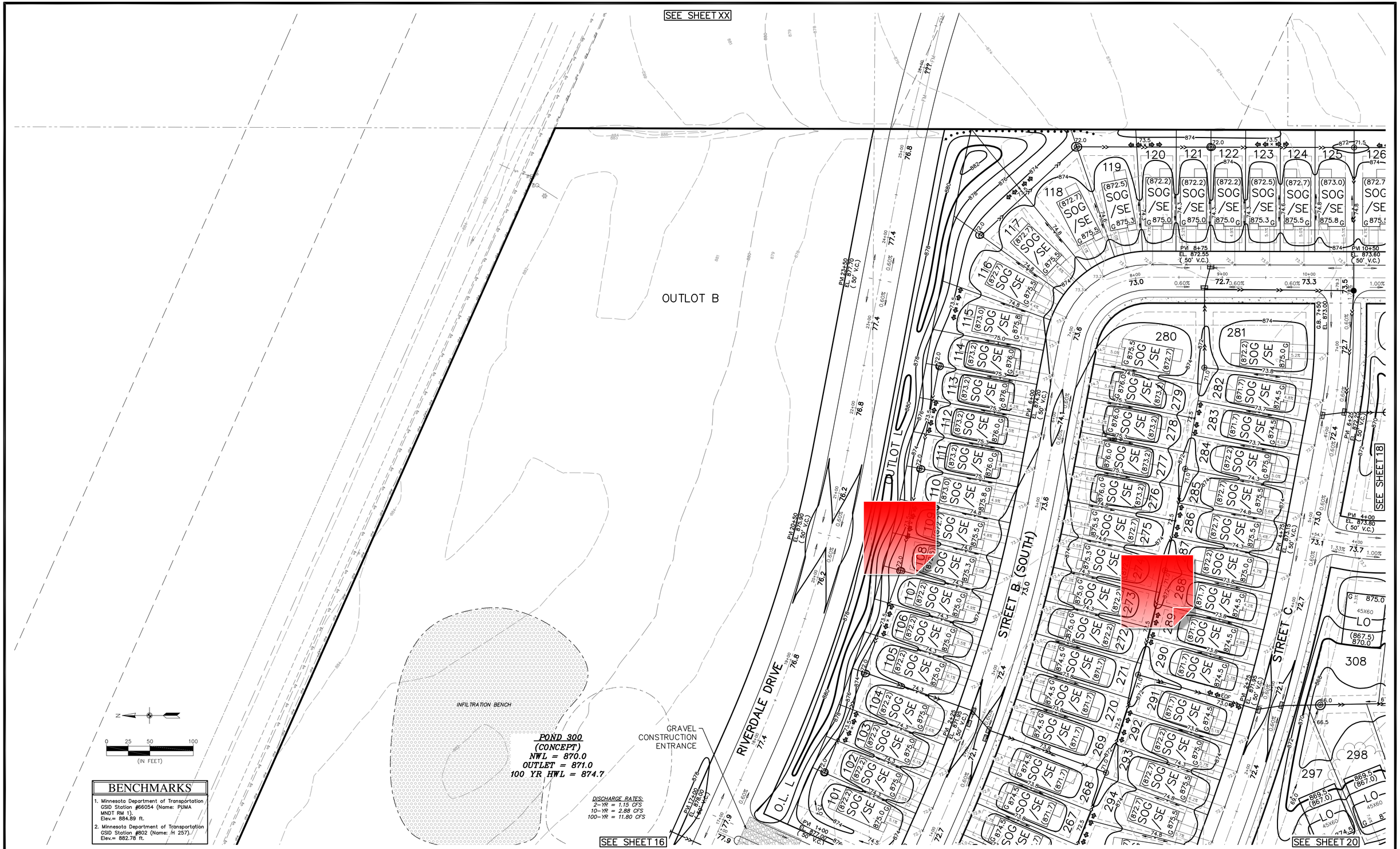

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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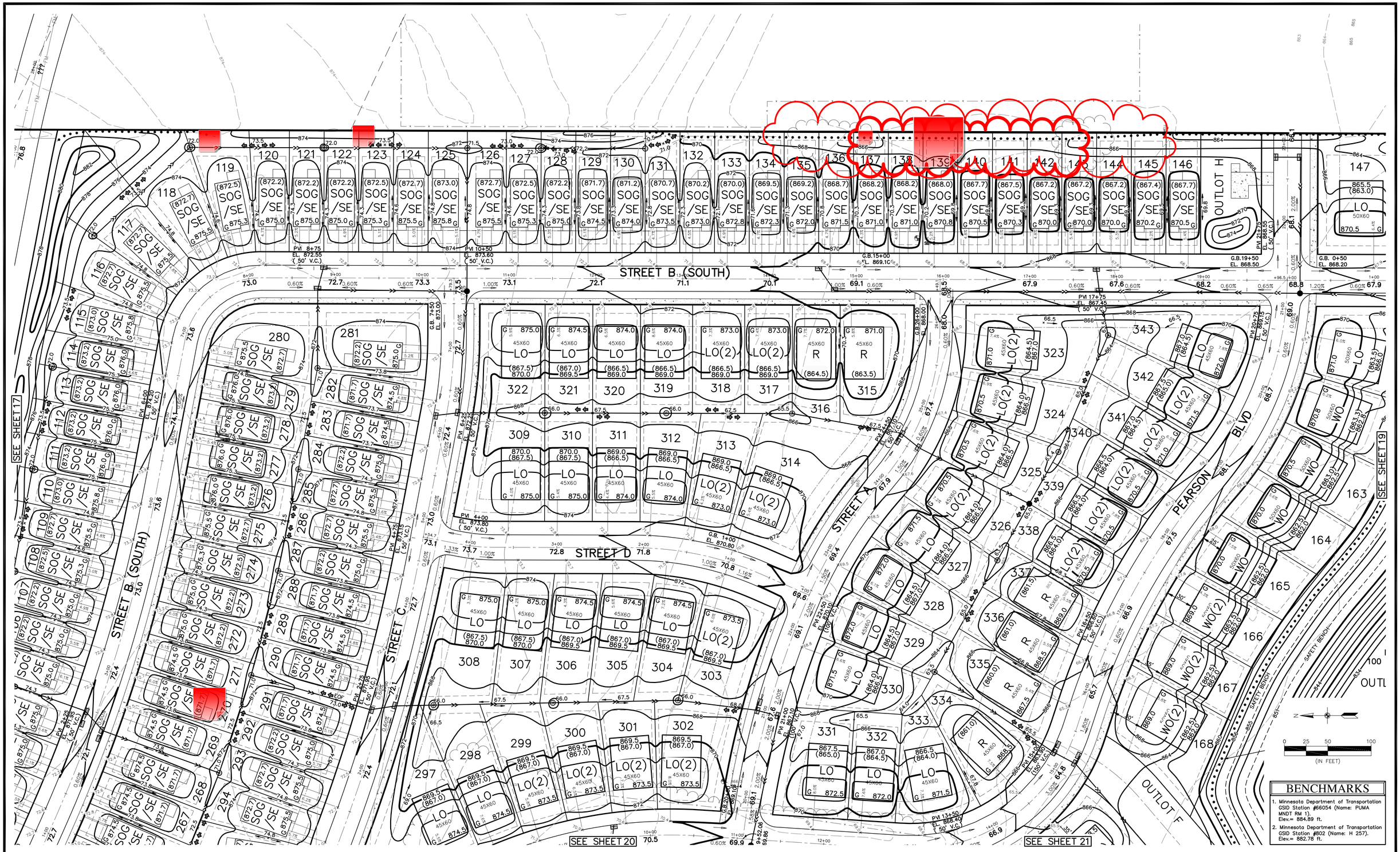

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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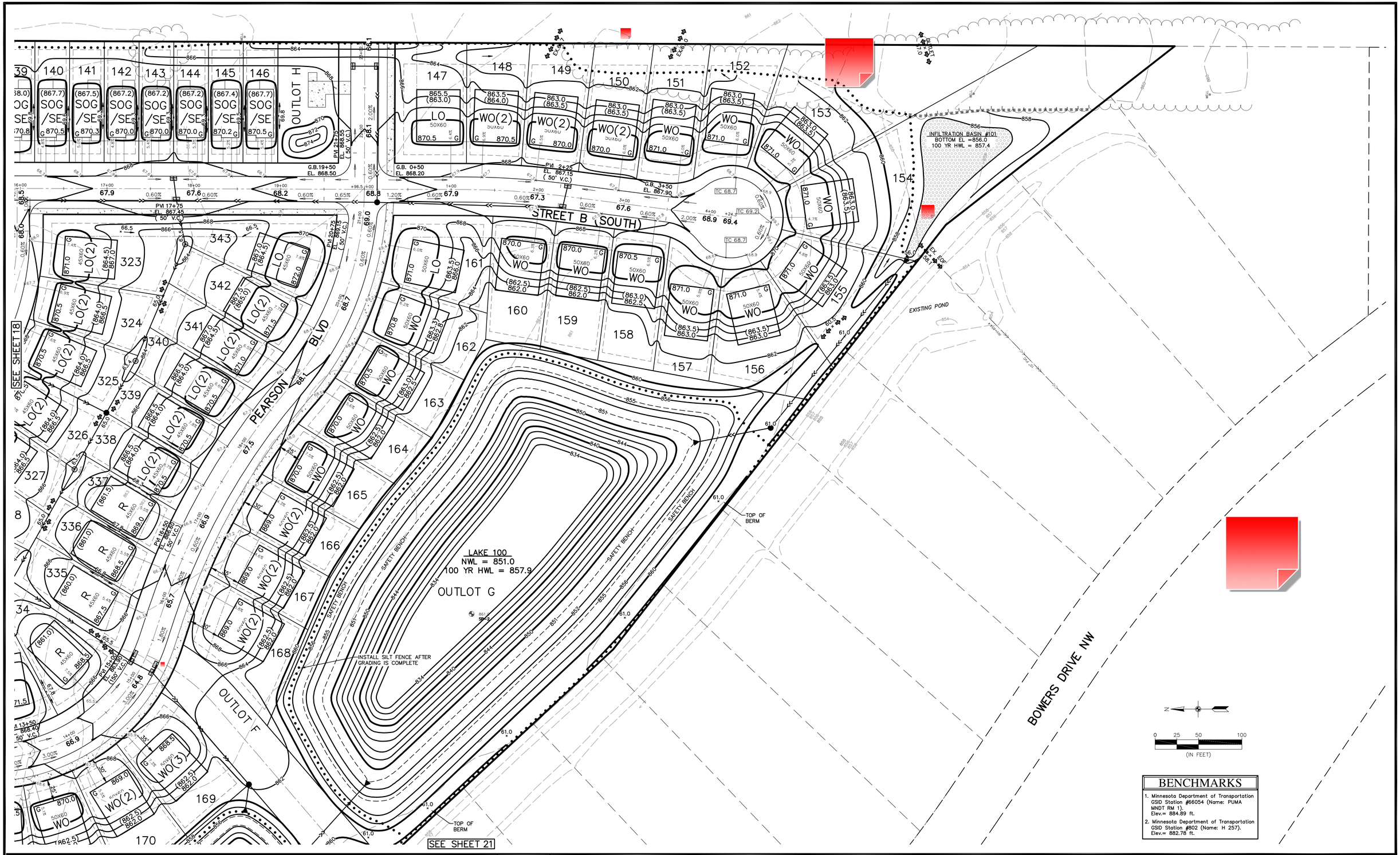

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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SEE SHEET 17

SEE SHEET 18

SEE SHEET 16 (EAST)

SEE SHEET 21

SEE SHEET 22

PEARSON BLVD

STREET A

STREET E

OUTLOT I

OUTLOT F

OUTLOT E

POND 200
NWL = 855.5
OUTLET = 856.5
100 YR HWL = 860.0

INFILTRATION BENCH

INFILTRATION BENCH

SAFETY BENCH

SAFETY BENCH

SAFETY BENCH

TOP OF BERM

INSTALL SILT FENCE AFTER GRADING IS COMPLETE

0 25 50 100
(IN FEET)

BENCHMARKS

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SEE SHEET 18

SEE SHEET 19

SEE SHEET 20

SEE SHEET 22

LAKE 100
NWL = 851.0
100 YR HWL = 857.9

OUTLOT G

OUTLOT F

OUTLOT E

POND 200
NWL = 855.5
OUTLET = 856.5
100 YR HWL = 860.0

INSTALL SILT FENCE AFTER GRADING IS COMPLETE

INFILTRATION BENCH

SAFETY BENCH

TOP OF BERM

EXISTING POND

STREET A

BOWERS DRIVE NW

0 25 50 100
(IN FEET)

BENCHMARKS

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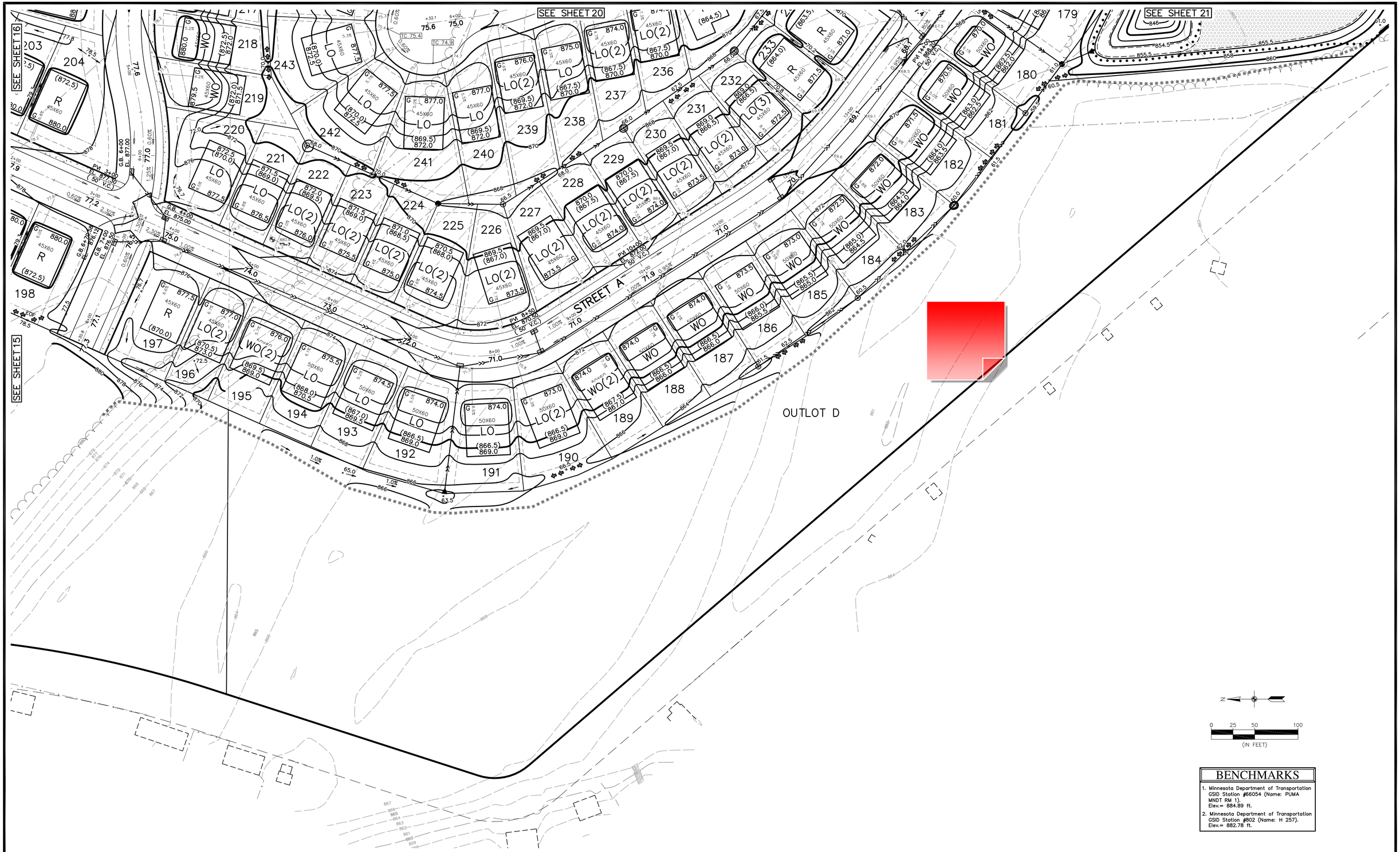

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PRELIMINARY GRADING & EROSION CONTROL PLAN

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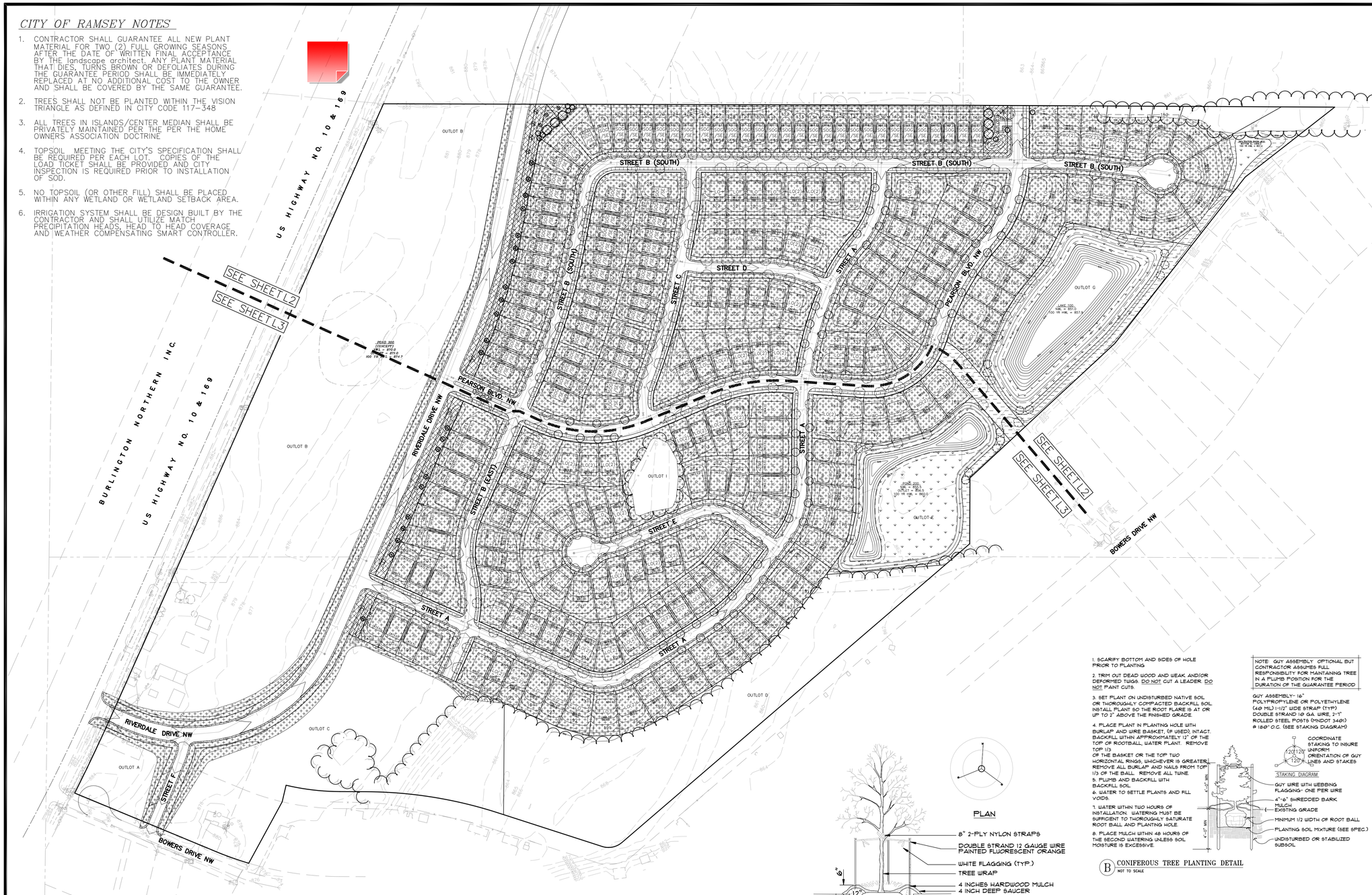
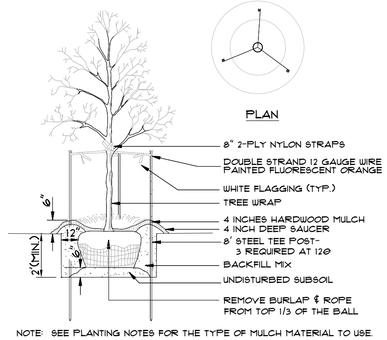
CITY OF RAMSEY NOTES

1. CONTRACTOR SHALL GUARANTEE ALL NEW PLANT MATERIAL FOR TWO (2) FULL GROWING SEASONS AFTER THE DATE OF WRITTEN FINAL ACCEPTANCE BY THE landscape architect. ANY PLANT MATERIAL THAT DIES, TURNS BROWN OR DEFOLIATES DURING THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED AT NO ADDITIONAL COST TO THE OWNER AND SHALL BE COVERED BY THE SAME GUARANTEE.
2. TREES SHALL NOT BE PLANTED WITHIN THE VISION TRIANGLE AS DEFINED IN CITY CODE 117-348
3. ALL TREES IN ISLANDS/CENTER MEDIAN SHALL BE PRIVATELY MAINTAINED PER THE PER THE HOME OWNERS ASSOCIATION DOCTRINE
4. TOPSOIL MEETING THE CITY'S SPECIFICATION SHALL BE REQUIRED PER EACH LOT. COPIES OF THE LOAD TICKET SHALL BE PROVIDED AND CITY INSPECTION IS REQUIRED PRIOR TO INSTALLATION OF SOD.
5. NO TOPSOIL (OR OTHER FILL) SHALL BE PLACED WITHIN ANY WETLAND OR WETLAND SETBACK AREA.
6. IRRIGATION SYSTEM SHALL BE DESIGN BUILT BY THE CONTRACTOR AND SHALL UTILIZE MATCH PRECIPITATION HEADS, HEAD TO HEAD COVERAGE AND WEATHER COMPENSATING SMART CONTROLLER.



1 / L1 OVERALL LANDSCAPE PLAN

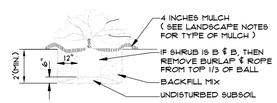


NOTE: SEE PLANTING NOTES FOR THE TYPE OF MULCH MATERIAL TO USE.

A DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

1. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING.
2. TRIM OUT DEAD WOOD AND WEAK AND/OR DEFORMED TWIGS. DO NOT CUT A LEADER. DO NOT PAINT CUTS.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED BACKFILL SOIL. INSTALL PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
4. PLACE PLANT IN PLANTING HOLE WITH BURLAP AND WIRE BASKET, (IF USED), INTACT. BACKFILL WITHIN APPROXIMATELY 12" OF THE TOP OF ROOTBALL. WATER PLANT. REMOVE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS, WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM TOP 1/3 OF THE BALL. REMOVE ALL TWINE.
5. PLUMB AND BACKFILL WITH BACKFILL SOIL.
6. WATER TO SETTLE PLANTS AND FILL VOIDS.
7. WATER WITHIN TWO HOURS OF INSTALLATION. WATERING MUST BE SUFFICIENT TO THOROUGHLY SATURATE ROOT BALL AND PLANTING HOLE.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

B CONIFEROUS TREE PLANTING DETAIL
NOT TO SCALE



C SHRUB & CONTAINER PLANTING DETAIL
NOT TO SCALE

LANDSCAPE PLAN NOTES

1. EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING AND CONSTRUCTION START. ANY DISCREPANCIES FOUND THAT AFFECT THE WORK SHALL BE REPORTED TO THE OWNER/LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING OR APPROVING ANY ADDITIONAL WORK REQUIRED.
2. UTILITY LOCATES. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL PUBLIC AND PRIVATE UTILITIES, INCLUDING IRRIGATION LINES, AT LEAST 48 HOURS BEFORE EXCAVATING OR IN ACCORDANCE WITH STATE LAW. IN MINNESOTA, CALL GOPHER STATE ONE-CALL AT 651-454-0002 FOR FIELD LOCATION OF PUBLIC UNDERGROUND UTILITY LINES. ALL LOCATES AND ITEMS NOTED AS 'FIELD VERIFY' ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR AT THEIR EXPENSE.
3. PERMITS. CONTRACTOR SHALL VERIFY WITH THE OWNER/LANDSCAPE ARCHITECT THAT THE REQUIRED PERMITS HAVE BEEN OBTAINED PRIOR TO CONSTRUCTION START. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CODES, REGULATIONS, AND PERMITS GOVERNING THE WORK.
4. EXISTING ITEMS TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING PAVEMENT, STRUCTURES, UTILITIES, TREES, SITE AMENITIES, ETC. THAT ARE TO REMAIN FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGE (AT CONTRACTOR'S EXPENSE) TO EXISTING ITEMS TO REMAIN.
5. CONSTRUCTION STAGING AND ACCESS. CONTRACTOR SHALL VERIFY THE LOCATION FOR CONSTRUCTION STAGING AND SITE ACCESS WITH THE OWNER/LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION START. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PEDESTRIAN AND VEHICLE ACCESS WITHIN AND ADJACENT TO THE SITE THROUGHOUT THE CONSTRUCTION PERIOD UNLESS OTHERWISE NOTED. LONG-TERM STORAGE OF MATERIALS OR SUPPLIES ON-SITE WILL NOT BE PERMITTED. ALL WASTE AND/OR UNUSED MATERIAL SHALL BE PROMPTLY REMOVED FROM THE SITE.
6. SITE REMOVALS. REFER TO CIVIL PLANS FOR GENERAL SITE REMOVALS. ALL ITEMS NOTED TO BE REMOVED SHALL BE COMPLETED BY THE CONTRACTOR AND IMMEDIATELY DISPOSED OF OFF-SITE, IN ACCORDANCE WITH LOCAL REGULATIONS, UNLESS OTHERWISE NOTED. COORDINATE WITH OWNER/LANDSCAPE ARCHITECT FOR ANY ITEMS NOTED AS 'REMOVED BY OTHERS' OR 'REMOVE AND SALVAGE.'
7. UTILITY COORDINATION. REFER TO CIVIL PLAN SHEETS FOR INFORMATION RELATED TO PROPOSED UTILITIES. COORDINATE WITH ELECTRICAL CONTRACTORS FOR SITE ELECTRICAL WORK AND SITE LIGHTING.
8. CONSTRUCTION STAKING. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING CONTROL POINTS AND ALL CONSTRUCTION FIELD STAKING DURING THE COURSE OF THE PROJECT.
9. DIMENSIONS. DIMENSIONS TAKE PRECEDENCE OVER SCALE. DIMENSIONS ARE TO FACE OF CURB, EDGE OF PAVEMENT/WALKWAY, OR OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
10. PLAN QUANTITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL MATERIAL QUANTITIES PER PLAN. MATERIAL SCHEDULES ARE PROVIDED SOLELY FOR CONTRACTOR'S CONVENIENCE.
11. REFERENCE SPECIFICATIONS. THE FOLLOWING SPECIFICATIONS SHALL GOVERN THIS PROJECT ACCORDING TO THE FOLLOWING ORDER:
    1. ADDENDA, WITH THOSE OF A LATER DATE HAVING PRECEDENCE OVER THOSE OF AN EARLIER DATE
    2. LANDSCAPE SPECIFICATIONS.
    3. PLAN DRAWINGS.
    4. PLANT / MATERIAL SCHEDULES.
    5. CITY STANDARD SPECIFICATIONS AND DETAILS.
    6. MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, LATEST EDITION.

CARLSON McCAIN
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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Landscape Architect under the laws of the State of Minnesota

Print Name: Ryan J. Ruttger, RLA
Signature:
Date: 11/25/20 License #: 56346

Drawn: RJR
Designed: RJR
Date: 11/25/20

Revisions:
1.

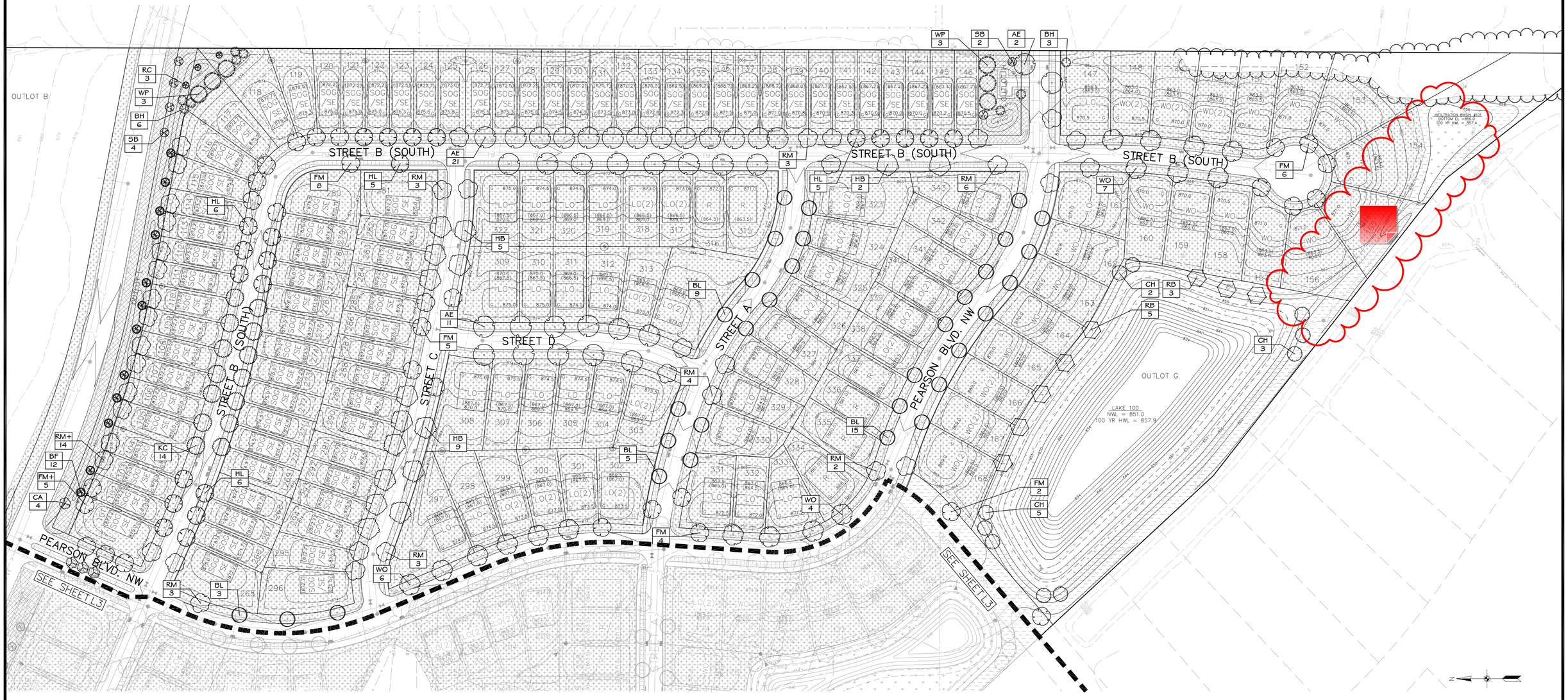
RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY LANDSCAPE PLAN

L1 of 4

Redline Copy for Updates



1/L2 LANDSCAPE PLAN ENLARGEMENT

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PRELIMINARY LANDSCAPE PLAN

L2 of 4

Save Date: 11/30/20 | F:\Jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\landscape\prelim plans\8494_landscape_city.dwg

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Redline Copy for Updates:

LANDSCAPE SPECIFICATIONS

1. TREE PROTECTION. ALL TREES NOT SPECIFICALLY NOTED OR MARKED ON SITE FOR REMOVAL SHALL REMAIN PROTECTED AND UNDISTURBED DURING CONSTRUCTION. TREE PROTECTION SHALL EXTEND TO THE DRIP LINE, WITHIN WHICH NO CONSTRUCTION ACTIVITY, MATERIAL STORAGE, OR VEHICLE PARKING SHALL BE PERMITTED. TREE PROTECTION FENCING SHALL BE ERECTED PRIOR TO CONSTRUCTION START PER PLANS OR AS DIRECTED BY OWNER/LANDSCAPE ARCHITECT AND SHALL CONSIST OF 4' TALL HEAVY DUTY ORANGE CONSTRUCTION FENCING WITH 6' STEEL FENCE POSTS SPACED 6' O.C. MAX.

2. EROSION CONTROL. REFER TO CIVIL PLAN SHEETS FOR STORMWATER POLLUTION PREVENTION PLAN (SWPPP), AND TEMPORARY AND PERMANENT STORMWATER BMPS, INCLUDING SILT FENCE, BIO-ROLLS, INLET PROTECTION, EROSION CONTROL BLANKETING, DUST CONTROL, SWEEPING AND ROCK CONSTRUCTION ENTRANCE. ALL DISTURBED AREAS SHALL RECEIVE PERMANENT STABILIZATION IN ACCORDANCE WITH THE LANDSCAPE PLAN WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED. IN THE EVENT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS, TEMPORARY STABILIZATION BMPS MUST BE IMPLEMENTED WITHIN 7 DAYS USING.

3. CLEARING AND GRUBBING. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING AND GRUBBING ALL AREAS INDICATED AS BEING DISTURBED OR OTHERWISE SHOWN ON PLANS. CLEARING AND GRUBBING SHALL INCLUDE REMOVAL AND DISPOSAL OF ALL TREES, STUMPS, BRUSH, GRASS, ROOTS AND OTHER ORGANIC MATERIAL AT AN APPROVED OFF-SITE DISPOSAL LOCATION.

4. SOIL PREPARATION. REFER TO GEOTECHNICAL REPORT FOR ANY REQUIRED SOIL CORRECTIONS, AMENDMENTS OR ADDITIONAL INFORMATION (IF APPLICABLE). EXISTING TOPSOIL SHALL BE STRIPPED FROM ALL DISTURBED AREAS AND STOCKPILED IN AN APPROVED LOCATION FOR RE-SPREAD. ALL AREAS WHERE SOIL HAS BEEN COMPACTED BY CONSTRUCTION ACTIVITY AND THAT ARE INDICATED TO BE SODDED, SEEDED OR PLANTING BED SHALL BE DE-COMPACTED TO A MINIMUM DEPTH OF 12 INCHES BY SOIL RIPPING, TILLING OR OTHER APPROVED SOIL LOOSENING METHOD.

5. TOPSOIL MATERIAL. ALL EXISTING, AMENDED OR IMPORTED TOPSOIL SHALL MEET THE REQUIREMENTS OF WDOT TOPSOIL TYPE A. A MINIMUM 4 INCH DEPTH OF TOPSOIL SHALL BE PLACED ON ALL AREAS TO BE SODDED OR SEEDED. A MINIMUM 12 INCH DEPTH OF TOPSOIL SHALL BE PLACED WITHIN ALL PLANTING BED AREAS. ALL TOPSOIL SHALL BE FINE GRADED, RAKED AND DRAGGED TO PROVIDE A SMOOTH, UNIFORM SURFACE. TOPSOIL GRADES SHALL BE WITHIN .1 FEET OF INDICATED FINISHED GRADE AND SHALL BE TRUE TO GRADIENTS SHOWN ON PLANS. REFER TO CIVIL PLAN SHEETS FOR FILTRATION BASIN SOIL REQUIREMENTS.

6. SEEDING AND TURF ESTABLISHMENT. CONTRACTOR SHALL OBTAIN OWNER/LANDSCAPE ARCHITECT'S APPROVAL OF FINAL GRADES AND TOPSOIL PREP PRIOR TO SEEDING. APPLY 12-12-12 GRANULAR STARTER FERTILIZER AT A RATE OF 250 LBS PER ACRE PRIOR TO SEEDING.. SEEDS SHALL BE SOWED IN 2 PERPENDICULAR PASSES, EACH PASS AT ONE-HALF THE INDICATED RATE, VIA BROADCAST SPREADER, DROP SEEDER OR DRILL SEEDER. FOLLOWING SEED APPLICATION, INSTALL TYPE 3N EROSION CONTROL BLANKET ON ALL SLOPES GREATER THAN 4:1. IN ALL OTHER AREAS, APPLY HYDROMULCH COVER (MUST BE A SEPARATE OPERATION FROM SEEDING) AT A TARGETED DRY WEIGHT RATE OF 3500 LBS PER ACRE. SOIL SHALL BE KEPT MOIST DURING ESTABLISHMENT WITH ADDITIONAL RE-SEEDING AS NECESSARY TO ACHIEVE A HEALTHY, UNIFORM STAND OF GRASS, FREE OF WEEDS AND WITH COVERAGE EXCEEDING 75% IN ANY 10'x10' AREA PRIOR TO FINAL ACCEPTANCE.

7. SODDING. CONTRACTOR SHALL OBTAIN OWNER/LANDSCAPE ARCHITECT'S APPROVAL OF FINAL GRADES AND TOPSOIL PREP PRIOR TO SODDING. APPLY 12-12-12 GRANULAR STARTER FERTILIZER AT A RATE OF 250 LBS PER ACRE PRIOR TO SODDING AND ROLL TOPSOIL TO CREATE A UNIFORM SURFACE FOR LAYING SOD. SOD SHALL NOT BE CUT MORE THAN 24-HOURS IN ADVANCE OF INSTALLATION. CONTRACTOR SHALL KEEP SOD MOIST FOR A MINIMUM OF 30 DAYS AND SHALL BE RESPONSIBLE FOR MAINTAINING THE SOD UNTIL FINAL ACCEPTANCE.

8. PLANT MATERIAL. ALL PLANTING STOCK SHALL CONFORM TO THE "AMERICAN STANDARD FOR NURSERY STOCK," ANSI-Z60, LATEST EDITION, OF THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIALS. OWNER/LANDSCAPE ARCHITECT RESERVE THE RIGHT TO REJECT ANY PLANTS WHICH ARE DEEMED UNSATISFACTORY BEFORE, DURING, OR AFTER INSTALLATION. NO SUBSTITUTION OF PLANT MATERIAL SHALL BE ACCEPTED UNLESS APPROVED IN WRITING BY THE OWNER/LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

9. PLANT MATERIAL SUBSTITUTIONS. ALL REQUESTS FOR PLANT SUBSTITUTIONS SHALL BE MADE IN WRITING TO THE OWNER/LANDSCAPE ARCHITECT AND MUST BE APPROVED BY THE CITY.

10. PLANT INSTALLATION AND ESTABLISHMENT. REFER TO STANDARD PLANTING DETAILS. CONTRACTOR SHALL STAKE TREE LOCATIONS FOR APPROVAL BY OWNER/LANDSCAPE ARCHITECT PRIOR TO PLANTING. ANY PLANT MATERIAL WHICH DIES, TURNS BROWN, OR DEFOLIATES (PRIOR TO TOTAL ACCEPTANCE OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE.

11. MULCH MATERIAL. DOUBLE SHREDDED HARDWOOD MULCH OR ROCK MULCH AS INDICATED ON PLANS. ALL MULCH SHALL BE CLEAN AND FREE OF NOXIOUS WEEDS, SOIL, OR OTHER DELETERIOUS MATERIAL, AND SHALL BE INSTALLED OVER A NON-WOVEN GEOTEXTILE FABRIC (INCIDENTAL) OR OTHER APPROVED WEED BARRIER TO A MINIMUM SETTLED DEPTH OF 4". MULCH SHALL BE HELD BACK FROM PLANT STEMS/TRUNKS A MINIMUM OF 3". WOOD MULCH SHALL BE PLACED AROUND INDIVIDUAL TREES TO A 4' MINIMUM DIAMETER. MULCH SHALL BE INSTALLED WITHIN 48-HOURS OF PLANT INSTALLATION.

12. LANDSCAPE EDGING. INSTALL LANDSCAPE EDGING BETWEEN ALL MULCH AREAS AND TURF. EDGING SHALL BE COMMERCIAL GRADE BLACK POLYETHYLENE OR VINYL EDGING, 0.1 INCH THICK BY 5 INCHES DEEP, V-LIPPED BOTTOM, HORIZONTALLY GROOVED, 1-INCH ROUND TOP, EXTRUDED IN STANDARD LENGTHS, WITH 9-INCH STEEL ANGLE STAKES.

13. IRRIGATION. DESIGN, FURNISH AND INSTALL A COMPLETE UNDERGROUND IRRIGATION SYSTEM FROM APPROVED POINT(S)-OF-CONNECTION WITHIN THE SITE COVERING ALL TURF AND PLANTING AREAS AS SHOWN ON THE LANDSCAPE PLAN. INCLUDES FLOW/PRESSURE TESTING, PLANS WITH DESIGN CALCULATIONS, AS-BUILT DRAWINGS, LABOR, MATERIALS, EQUIPMENT, AND SERVICES FOR THE TESTING, ADJUSTING, RETESTING AND READJUSTING AS REQUIRED TO PLACE THE SYSTEM IN AN APPROVED OPERATING CONDITION. THE IRRIGATION SYSTEM SHALL INCLUDE THE DESIGN AND INSTALLATION OF THE FOLLOWING: PIPING, METER AND BACKFLOW ASSEMBLIES, SPRINKLER HEADS, CABINETS, VALVES AND VALVE BOXES, CONTROLLERS, CONTROL WIRING, FITTINGS, ELECTRICAL CONNECTIONS, QUICK-COUPLERS, ALL OTHER NECESSARY ACCESSORIES, SYSTEM MANUALS, 1-YEAR MAINTENANCE PERIOD INCLUDING 1 FALL WINTERIZATION AND 1 SPRING START-UP. IRRIGATION PLANS TO BE PREPARED BY A QUALIFIED IRRIGATION DESIGNER AND SUBMITTED TO OWNER/LANDSCAPE ARCHITECT FOR APPROVAL.

14. MAINTENANCE. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER EACH PORTION OF THE WORK IS IN PLACE. PLANT MATERIAL SHALL BE PROTECTED AND MAINTAINED UNTIL THE INSTALLATION OF THE PLANTS IS COMPLETE, INSPECTION HAS BEEN MADE, AND PLANTINGS ARE ACCEPTED EXCLUSIVE OF THE GUARANTEE. MAINTENANCE SHALL INCLUDE MOWING, TRIMMING, WATERING, FERTILIZING, WEED AND PESTICIDE CONTROL, MULCHING, REMOVAL OF DEAD MATERIALS, RE-SETTING PLANTS TO PROPER GRADE AND KEEPING PLANTS IN A PLUMB POSITION. AFTER ACCEPTANCE, THE OWNER SHALL ASSUME MAINTENANCE RESPONSIBILITIES, HOWEVER, THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR ALL PLANT MATERIAL THROUGH THE COMPLETION OF THE WARRANTY PERIOD.

15. WATERING. UPON ESTABLISHMENT OF SEED AND INSTALLATION OF PLANTS, CONTRACTOR SHALL MAINTAIN A WATERING SCHEDULE WHICH WILL THOROUGHLY WATER ALL PLANTS AND TURF AREAS A MINIMUM OF ONCE A WEEK. MORE FREQUENT WATERING MAY BE REQUIRED DURING PERIODS OF HOT, DRY WEATHER. CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR WATER. IN THE ABSENCE OF PERMANENT IRRIGATION, TEMPORARY IRRIGATION, TREE WATERING BAGS, OR HAND-WATERING ARE ACCEPTABLE.

16. FINAL ACCEPTANCE. UPON SUBSTANTIAL COMPLETION OF THE WORK, CONTRACTOR SHALL REQUEST FINAL ACCEPTANCE OF THE WORK IN WRITING BY THE OWNER/LANDSCAPE ARCHITECT. IF ANY WORK IS FOUND TO BE INCOMPLETE OR UNSATISFACTORY IN THE OPINION OF THE OWNER/LANDSCAPE ARCHITECT, A WRITTEN PUNCH LIST WILL BE PREPARED LISTING ALL ITEMS THAT REQUIRE COMPLETING OR CORRECTING BEFORE FINAL ACCEPTANCE.

17. WARRANTY. ALL PLANTS, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR THREE (3) YEARS FROM THE DATE OF FINAL ACCEPTANCE, UNLESS OTHERWISE SPECIFIED. THE GUARANTEE SHALL COVER THE FULL COST OF REPLACEMENT INCLUDING LABOR AND MATERIAL.

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	RM	37	Acer rubrum `Northwood`	Northwoods Red Maple	2" Cal.	B&B
	RM+	21	Acer rubrum `Northwood`	Northwoods Red Maple	3" Cal.	B&B
	FM	45	Acer x freemanii `Sienna`	Sienna Glen Maple	2" Cal.	B&B
	FM+	10	Acer x freemanii `Sienna`	Sienna Glen Maple	2.5" Cal.	B&B
	RB	14	Betula nigra Clump Form, 2" Cal Equivalent	River Birch Multi-Trunk	8` Ht.	B&B
	HB	25	Celtis occidentalis	Common Hackberry	2" Cal.	B&B
	HL	22	Gleditsia triacanthos inermis `Harve`	Northern Acclaim Thornless Honey Locust	2" Cal.	B&B
	KC	14	Gymnocladus dioica `Espresso`	Kentucky Coffeetree	2" Cal.	B&B
	WO	35	Quercus bicolor	Swamp White Oak	2" Cal.	B&B
	BL	59	Tilia americana `Boulevard`	Boulevard Linden	2" Cal.	B&B
	AE	60	Ulmus americana `Princeton`	American Elm	2" Cal.	B&B
CONIFEROUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	BF	22	Abies balsamea	Balsam Fir	6` Ht.	B&B
	RC	3	Juniperus virginiana	Eastern Red Cedar	5 gal.	Cont.
	BH	9	Picea glauca densata	Black Hills Spruce	6` Ht.	B&B
	WP	6	Pinus strobus	White Pine	6` Ht.	B&B
	CH	17	Tsuga canadensis	Canadian Hemlock	6` Ht.	B&B
ORNAMENTAL TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	SB	6	Amelanchier x grandiflora `Autumn Brilliance` Clump Form, 1.5" Cal Equivalent	Autumn Brilliance Serviceberry	7` Ht.	B&B
	CA	7	Malus x `Prairifire` Red Flowers	Prairifire Crabapple	1.5" Cal.	B&B
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	SOD	135,011 sf	Turf Sod Bluegrass	Kentucky Bluegrass	sod	
	TI	2,202,069 sf	Type I - Low Maint. Turf Seed Refer to notes for acceptable seeding methods Seeding Rate 330 lb/ac	MnDOT Seed Mix 25-131	seed	
	TII	85,297 sf	Type II - High Maint. Turf Seed Refer to notes for acceptable seeding methods Seeding Rate 180 lb/ac	MnDOT Seed Mix 25-151	seed	
	TIII	174,580 sf	Type III - Stormwater Pond Pollinator Seed Mix Refer to notes for acceptable seeding methods. Seeding Rate 47.5 lb/ac	BWSR Stormwater Pond Pollinator NE	seed	
	TIV	95,767 sf	Type IV - Native Seed Mix Refer to notes for acceptable seeding methods. Seeding Rate 50.0 lb/ac	MnDOT Seed Mix 35-241	seed	

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Revisions:
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RIVERSTONE DEVELOPMENT, LLC.
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

PRELIMINARY LANDSCAPE PLAN

L4 of 4

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Memorandum

To: Tim Gladhill, Deputy City Administrator
Chloe McGuire, Senior Planner

From: Kristin Moen, Planning Consultant

Date: December 30, 2020

Re: Riverstone South Preliminary Plat Zoning Compliance Review
City Project Number 19-152
WSB Project No. 015204-000 Phase 10

Overview
The purpose of this memo is to provide an analysis of Comprehensive Plan and Zoning Code compliance for the Riverstone South development project (subject property).

The preliminary plat phase is the most significant approval step in the overall process. Preliminary Plat gives entitlement to the project, in which the City cannot reverse overall layout. The last step in the phase, Final Plat, simply approves construction documents and the Final Plat Sheet for recording and legal subdivision. Please see last page for list of contingencies of approval.

Please note that the zoning review assumed adoption of Ordinance #20-01 updating subdistrict structure and Zoning District Descriptions.

General
The project property is currently unplatted and unaddressed. It is approximately 110.29 acres, with 78.63 acres of residential development, 1 acre of public park area, 7 acres of tree preservation area, 22.98 acres of commercial development area, and 8.68 acres to be retained by the landowner. The proposed project is located south of Highway 10, between Bowers Drive NW and a proposed commercial strip located along the south side of Highway 10. The project is located in PIDs 29-32-25-23-0004, part of 30-32-25-11-0032 and part of 29-32-25-22-0003.

The project proposes 3 types of residential development as follows:

Lot Width and Type	Units Proposed	Gross Area (acres)	Net Density (units/acre)	Zoning District & Category
65-foot single-family lots	50	14.42	3.47	R-1 Residential (MUSA – 65) District
55-foot single-family lots	115	32.96	3.65	R-1 Residential (MUSA – 50) District
40-foot detached townhome lots	77	15.05	5.32	R-2 Residential (Detached Townhome) District

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Comprehensive Plan
The Ramsey 2040 Comprehensive Plan guides the subject property as Low Density Residential (LDR). A Comprehensive Plan Amendment is required to change areas of Low Density Residential to Medium Density Residential.

Zoning
The site is currently zoned R-1 Residential (MUSA – 80), and a portion will need to be rezoned with this project to R-2 Residential (Detached Towhome). The area directly east of the subject property is zoned R-2 Residential (Attached Towhome) and the project proposes medium density residential on the eastern edge, to be adjacent to existing medium density homes.

Bulk Standards

R-1 Residential (MUSA -65) District		
Standard	**Required**	**Complies?**
Minimum Lot Size	0.15 acres	Y
Density Range	2.5 to 4 units per acre	Y
Minimum Lot Width	65 feet	Y
Front yard setback	25 feet	Y
Rear yard setback	20 feet	Y
Side yard setback	5 feet	Y
Maximum Lot Coverage (All buildings, excludes paving)	35%	Y
Maximum Driveway Width at Street	30 feet; 24 feet on cul-de-sac	Y
Driveway Surface	Bituminous or Concrete	Y
Maximum Height	35 feet	Y

R-1 Residential (MUSA – 50) District		
Standard	**Required**	**Complies?**
Minimum Lot Size	0.15 acres	Y
Density Range	2.5 to 4 units per acre	Y
Minimum Lot Width	50 feet	Y
Front yard setback	25 feet	Y
Rear yard setback	20 feet	Y
Side yard setback	5 feet	Y
Side yard setback for corner lots	25 feet	Y
Maximum Lot Coverage (All buildings, excludes paving)	50%	Y
Maximum Driveway Width at Street	30 feet; 24 feet on cul-de-sac	Y
Driveway Surface	Bituminous or Concrete	Y

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Maximum Height	35 feet	Y

R-2 Residential (Detached Townhome) District		
Standard	**Required**	**Complies?**
Minimum Lot Size	0.10 acres	Y
Density Range	4 to 7 units per acre	Y
Minimum Lot Width	40 feet	Y
Front yard setback	25 feet	Y
Rear yard setback	20 feet	Y
Side yard setback	5 feet	Y
Side yard setback for corner lots	25 feet	Y
Maximum Lot Coverage (All buildings, excludes paving)	50%	Y
Maximum Driveway Width at Street	30 feet; 24 feet on cul-de-sac	Y
Driveway Surface	Bituminous or Concrete	Y
Maximum Height	35 feet	Y
Accessory Structures	Not allowed	Y

Floodplains: Floodplains exist on a portion of the site. Proposed improvements appear to comply with applicable floodplain regulations.

Wetlands: There do not appear to be any wetlands onsite, though they would be required to be identified during the preliminary plat process via survey and delineation.

Streets and Access: The Applicant has proposed several 29-foot-wide streets running through the site. The required 60-foot right of way has been met. Ramsey Public Works and Public Safety generally prefer 32-foot-wide streets. However, 29-foot-wide streets with restricted parking on one side of the street is acceptable to Ramsey City Code and was allowed in the Riverstone Neighborhood. Staff has directed the Developer that given the number of lots, these shall be public streets.

Landscape Plan: A landscape plan will be required with preliminary plat, which needs to include a tree survey of the site.

Parking: As proposed, parking would only be allowed on one side of the street. Driveways should be paired up to maximize open area along the street. Mailboxes must be clustered.

Lighting: The applicant should submit a lighting plan as part of site plan review with preliminary plat for any street lighting.

Grading: A grading plan will be required with preliminary plat.

Utilities and Municipal Services: The property is proposed to be connected to City Utilities. A Utility Plan will be required with preliminary plat.

Development Fees: The Applicant will be responsible for paying development fees at time of final plat. The Applicant will also be responsible for signing a development agreement with the City prior to recording and releasing final plat.

ProjectDox

Current Project - Project Markups Listing

Riverstone South (Project No. 19-152)

File Name	Markup Name	Markup Text	Markup Date	Created by
4 PRP.pdf	JJF	Understanding is city code is being ammended to address smaller lots and will include a 4-foot side yard easement along newly platted common property lines, which will no longer require a variance to allow. Recommend follow up with planning department on this issue.	12/30/2020	Joe Feriancek
19 grade.pdf	JJF	There is no access to this basin from the CDS, how is maintenance equipment proposed to get back to this infiltration basin. The basin only appears to be infiltrating water from the back of 3 houses, is this more of an emergency overflow for the lake?	12/30/2020	Joe Feriancek
19 grade.pdf	JJF	Assuming Outlot F is the maintance access for the 2 ponds, may want to consider concrete in the boulevard, as a pseudo driveway.	12/30/2020	Joe Feriancek
12 Site.pdf	LL	This area is not consistent with sheet 13. See note on 13 for additional informatoin.	12/30/2020	Len Linton
12 Site.pdf	LL	Sheets 12 & 13 are listed as utility plans. The storm sewer is shown; however, inverts are not listed. The preliminary plat utility sheets must list storm sewer inverts and pipe sizes. Pond outlet invert information must also be shown.	12/30/2020	Len Linton
_Riverston South_SWMP.pdf	LL	Per MIDS calculator: Forest 5.425 Acre Managed Turf 43.965 Acre Impervious Cover 47.587 Acre Required treatment volume 172,400 CF 3.965 Acre Feet The City uses 1 inch of runoff which is the LRRWMO standard.	12/30/2020	Len Linton

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Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
_Riverston South_SWMP.pdf	LL	Infiltrated Volume The City did a takeoff and got an area of 61,500 sq ft at 855.5, the base of the infiltrarion bench. We enlarged the area using 4:1 slopes for 1 foot depth and got 65,700 square feet. The maximum drawdown depth when using 0.25 in/ hour is 0.8 ft per the MIDS Calculator. The plans as presented to not come close to meeting the LRRWMO/ City requirements. The retained volume at 0.8 feet is 50,900 cubic feet, which is 30% of the required volume. The maximum drawdown depth when using 0.5 in/ hour is 1.8 ft per the MIDS Calculator. Using these surface areas with a depth of 1.8 feet retains 114,500 cubic feet, which is 66% of the required volume.	12/30/2020	Len Linton
_Riverston South_SWMP.pdf	LL	Please attach the MIDS input sheets for infiltration device used.	12/30/2020	Len Linton
25 Grade Tables.pdf	LL	See comment from Tim Gladhill regarding number of split entry lots in the narrow lot area. The maximum number of split entry lots must be established before final plat and all lots that are SOG must not have entries for SE in this table.	12/30/2020	Len Linton
25 Grade Tables.pdf	LL	The LRRWMO critera for lowest floor elevation is the highest of 3 feet above ground water, 2 feet above the nearest 100 year flood elevation or 1 foot above the nearest Emergency Overflow Elevation. Comments were made on the grading plans indicating areas where detailed analysis will be required to document the lowest floor will not be impacted when the floor elevation is below one of these criteria. This table must be updated to demonstrate compliance with these requirements.	12/30/2020	Len Linton

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
2 Excon.pdf	LL	Existing well must be properly abandoned. Provide copy of sealing record to City.	12/29/2020	Len Linton
13 Site.pdf	LL	The continuation labels on sheet 13 and sheet 12 are confusing and do not provide clear direction on where to find the next page. The right view on these sheet should be line work or the left view should have the aerial background for consistency on this page. Update the labels.	12/29/2020	Len Linton
18 grade.pdf	JF		12/29/2020	Joe Feriancek
18 grade.pdf	JF	Doesn't seem to be an path for storm runnoff in the rear yards of Lots 134-142	12/29/2020	Joe Feriancek
19 grade.pdf	JF	Cannot read the text of the high points on Lots 149 & 151	12/29/2020	Joe Feriancek
16 grade.pdf	LL	LRRWMO calculations are required to demonstrate lowest floor will not be impacted if water flows over emergency overflow.	12/29/2020	Len Linton
17 grade.pdf	LL	Minimum grade along all lot lines must be 2.0%.	12/29/2020	Len Linton
17 grade.pdf	LL	Use LRRWMO procedure to demonstrate lowest floors will not be impacted if water goes over the nearest emergency overflow.	12/29/2020	Len Linton
18 grade.pdf	LL	Minimum grade acros lots must be 2.0%.	12/29/2020	Len Linton
18 grade.pdf	LL	Must use LRRWMO method to show lowest floor will not be impacted by water going over the nearest emergency overflow.	12/29/2020	Len Linton
18 grade.pdf	LL	Provide some contour labels on both sides of backyard lot lines.	12/29/2020	Len Linton
18 grade.pdf	LL		12/29/2020	Len Linton
18 grade.pdf	LL	Must provide positive drainage along this lot line to keep runoff from flowing to the east.	12/29/2020	Len Linton

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
19 grade.pdf	LL	A legend is required on each sheet identifying the lines and symbols used on that sheet.	12/29/2020	Len Linton
19 grade.pdf	LL	Must provide positive drainage along lot lines and not allow runoff from develpoped areas to flow unchecked onto adjacent parcels.	12/29/2020	Len Linton
20 grade.pdf	LL	Must provide LRRWMO calculations demonstrating lowest floor will not be impacted by water going over emergency overflow.	12/29/2020	Len Linton
21 grade.pdf	LL	The stormwater management plan states a clay liner will be installed in the plan. A note to this effect must be added to this sheet at preliminary plat stage.	12/29/2020	Len Linton
22 grade.pdf	LL	Add existing contour labels in this area.	12/29/2020	Len Linton
15 grade.pdf	LL	Minimug grade must be 2.0% along all lot lines.	12/29/2020	Len Linton
15 grade.pdf	LL	Submit calculations for all blocks showing lowest floor elevation will not be impacted by water reaching nearest emergency overflow elevation.	12/29/2020	Len Linton
15 grade.pdf	LL		12/29/2020	Len Linton
15 grade.pdf	LL	Storm Sewer will be required on Street F at the intersection with Bowers Drive to capture most of the runoff from Street F.	12/29/2020	Len Linton
RiverstoneSouthEAW.pdf	CA	The CIty has a contract for residential curbside recycling but an open hauling system for garbage service. Residents can also enroll in the City's organics recycling program to further reduce solid waste.	12/28/2020	Chris Anderson
RiverstoneSouthEAW.pdf	CA		12/28/2020	Chris Anderson
L4.pdf	CA		12/23/2020	Chris Anderson
L4.pdf	CA	What is the definition for WDOT Topsoil Type A? Please include so we can verify this material complies with the topsoil standard of the City.	12/23/2020	Chris Anderson

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
L4.pdf	CA	Irrigation system must have some form of water efficient technology such as a smart controller and soil moisture sensors.	12/23/2020	Chris Anderson
L1.pdf	CA	While seed is acceptable for yard establishment, an escrow may be required if the Certificate of Occupancy for a particular lot is requested prior to the seed germinating and growing to the point that it is ready for mowing.	12/23/2020	Chris Anderson
L2.pdf	CA		12/23/2020	Chris Anderson
L2.pdf	CA	Add some additional tree plantings in these rear yards to assist with transitioning to the adjacent neighborhood. This was discussed and agreed to during the public input sessions that were held.	12/23/2020	Chris Anderson
13 Site.pdf	CA	Add symbol for proposed street light and prepare and submit a Street Light Plan for review by the City.	12/23/2020	Chris Anderson
14 INDEX.pdf	Tim Gladhill	For detached townhomes only - no more than 50% of units to be Split Entry. Please add this note to this plan sheet.	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	How are we accessing this pond? Perhaps this was addressed in previous comments. Should we carve this out as a separate outlot to avoid the issues we had with Pearson Place? Issue being placing topsoil and sod eliminating the infiltration functionality of the infiltration pond.	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	This watermain extension to be completed by Developer to be reimbursed by City.	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	Add note that Riverdale Drive to be constructed by others, but a contingency of Riverstone South to move forward. Riverstone South may not move forward until Riverdale Drive is approved with an executed construction contract (similar to Puma Street for Riverstone North).	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	Add a Future Street Sign here.	12/08/2020	Tim Gladhill

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
12 Site.pdf	Tim Gladhill	Add a Future Street Sign here.	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	This is not a lake. Please revise notation to show Stormwater Pond (dry pond).	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	Is it possible to sharpen this curve with a 45 degree angle at the corner? This would help with street naming.	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	Street Name Change here.	12/08/2020	Tim Gladhill
12 Site.pdf	Tim Gladhill	Street name change here? If so, make this the corner and straighten to the east to next intersection.	12/08/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	CA	Show the Mississippi River Corridor Critical Area (MRRCA) boundary.	08/06/2020	Chris Anderson
Riverstone South Sketch Plan.pdf	CA		08/06/2020	Chris Anderson
Riverstone South Sketch Plan.pdf	CA		08/06/2020	Chris Anderson
Riverstone South Sketch Plan.pdf	CA	Consider some landscaping in these backyards for transitioning.	08/06/2020	Chris Anderson
Pearson South Riverdale Realignment.pdf	JJF	MSA Rules for 35 MPH with crowned road, 454 minimum radius of curvature, if this becomes a 40 mph Rmin 667 feet. Don't know what the speed limit will be, but may want to give more space incase it becomes 40.	07/29/2020	Joe Feriancek
Pearson South Riverdale Realignment.pdf	JJF	Perminant CDS need 50' radius.	07/29/2020	Joe Feriancek
Pearson South Riverdale Realignment.pdf	LL	Consider increasing building setback from Riverdale to provide better site distance from left.	07/29/2020	Len Linton
Riverstone South Sketch Plan.pdf	JJF	Please consider working with the adjacent property owners to possibly combine the ponding for this site with the existing pond put in with the Pearson Place development. This pond is adjacent to the proposed pond as shown.	07/29/2020	Joe Feriancek

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
Riverstone South Sketch Plan.pdf	JJF	My understanding is this connection was going to be a road connection rather than a trail. A road connection would make the most sense in my opinion.	07/29/2020	Joe Feriancek
Riverstone South Sketch Plan.pdf	JJF	The stub location does not appear to leave much buildable area on the north side of the road if the next parcel develops before the Solar Farm site developes.	07/29/2020	Joe Feriancek
Riverstone South Sketch Plan.pdf	JJF	To give more comment to Tim's comment, it is not desirable for the City to have trunk utiliies, or any sanitary or water utilities in green space due to access/maintenance concerns.	07/29/2020	Joe Feriancek
Riverstone South Sketch Plan.pdf	JJF	Do you have a plan with proposed house types, or not that far along yet? Are the townhomes planned to be slab on grade, spacing wise they appear close together to have a walkout type design.	07/29/2020	Joe Feriancek
Riverstone South Sketch Plan.pdf	LL	The project to the south showed stormwater overflow from their pond onto this site. The overflow route for this site must be called out on the preliminary plat.	07/29/2020	Len Linton
Riverstone South Sketch Plan.pdf	LL	This muist be a full cul-de-sac, loosing the lots on either side of the stub until the next phase develops. The proximity of this stub to the south line of the solar farm limits future development until the solar farm is closed and the land redeveloped.	07/29/2020	Len Linton
Riverstone South Sketch Plan.pdf	LL	Trunk Sanitary Sewer will require deducation of adequate drainage and utility easements. Layout may need to be changed to provide the necessary easements. A forcemain from the lift station will also be required which will require additional easement width.	07/29/2020	Len Linton

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
Riverstone South Sketch Plan.pdf	LL	Street widths must be 32 feet or the lot widths must be increased. The 29 foot lots require restriction of parking to one side of the street. The combination of narrow lot widht and driveway width limit the number of available parking spaces even more with parking on one side of the street.	07/29/2020	Len Linton
Riverstone South Sketch Plan.pdf	LL	Coordinate Bowers Drive access with plans from previous development on Bowers Drive. Provide street access through this area.	07/29/2020	Len Linton
Pearson South Riverdale Realignment.pdf	Chloe	Will this leftover piece be used for ponding? If so we should get under DU easement or outlot so it's not read as a buildable parcel	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Chloe	Measure width of Bowers Drive lots (average or one or two is fine)	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Chloe	Indicate lot depth of these parcels for context	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Chloe	Indicate lot depth of this parcel	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Chloe	Flag these trees as goal of preservation based on utility plan	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Chloe	Measure size of backyard so we know how close house pads will be to existing property lines	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Chloe	Please provide approximate net density across site and per house type	07/22/2020	Chloe McGuire Brigl
Riverstone South Sketch Plan.pdf	Tim Gladhill	Label this as location of future Sanitary Sewer Lift Station	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill		07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Is there space for the Trunk Sanitary Line in these back yards? How do we access if there is a need for repair?	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Update plan set to match new drawing from Pearson/Dobbs.	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Must show connection to Bowers Drive.	07/21/2020	Tim Gladhill

ProjectDox

Current Project - Project Markups Listing

File Name	Markup Name	Markup Text	Markup Date	Created by
Riverstone South Sketch Plan.pdf	Tim Gladhill	The City's support for acquiring this area is contingent upon securing a third-party funding source.	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Please provide a separate exhibit that shows a ghost plat for this area.	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Please provide a natural corridor between these two areas.	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Previous discussion centered around 80 foot wide lots along the back of the Bowers Drive Neighborhood. Perhaps the City is open in exchange for additional open space preservation.	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	These lot sizes will require a Zoning Amendment and likely a Comprehensive Plan Amendment.	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Tim Gladhill	Please provide Net Density for the following: Overall (take out tree preservation area) Area of 65 foot wide lots (R-1 Residential District) Area of 55 foot wide lots and 40 foot wide lots (R-2 Residential District)	07/21/2020	Tim Gladhill
Riverstone South Sketch Plan.pdf	Logan Czech	Assuming ~2.5 residents/home this development will house ~600 people. Five parking spaces is not enough for the only park.	07/20/2020	Logan Czech
Riverstone South Sketch Plan.pdf	Logan Czech	Since it is the only shared space, one acre is fairly small considering the size of this development. Is there going to be a playground?	07/20/2020	Logan Czech

ProjectDox

Department Review Status Report

Project Name: Riverstone South (Project No. 19-152)

Workflow Started: 11/30/2020 3:08 PM

Report Generated: 12/31/2020 11:34 AM

Cycle	Department	Reviewer	Email	Status	Reviewer Comments	Applicant Comments
1						
2	Civil Engineer IV	Len Linton	llinton@cityoframsey.com	Corrections Required	!!! Corrections required before preliminary plat approval. !!! The Grading plans are lacking detail required to support deviation from lowest floor separation requirements of LRRWMO and City The Utility plans do not have invert or pipe size information for the storm sewer system. The Stormwater management plan is incomplete. The plans as shown do not meet the LRRWMO or City requirements for volume reduction (Infiltration). The plans meet about 30% of the requirement.	
	Engineering Tech	Logan Czech	lczech@cityoframsey.com	Approved		
	Fire	Carey Schiferli	cschiferli@cityoframsey.com	Approved	Hydrant needs to come out to Bowers Dr.	
	Police	Brad Bluml	bbluml@cityoframsey.com	Approved		
	Public Works - Utilities	John Nelson	jnelson@cityoframsey.com	Corrections Required	there needs to be a hydrant added to the east of the lift station for maintenance purposes	
	Environmental Review	Chris Anderson	canderson@cityoframsey.com	Corrections Required	Add Tree Inventory and Preservation Plan sheets to plan set. Also, see note on page #20 of EAW regarding solid waste.	
	Community Development Director	Tim Gladhill	tgladhill@cityoframsey.com	Corrections Required		
	Civil Engineer II	Joe Feriancek	jferiancek@cityoframsey.com	Approved	Relatively few comments, please address for final plat submittal. Riverdale Drive design could have impacts to grading plan.	
	Public Works - Street	Tim Gladhill	tgladhill@cityoframsey.com	Corrections Required	The median on Pearson Parkway needs to be pulled back from the intersections. Large plows will not be able to make that turn.	
	Lead Engineering Tech	Tim Gladhill	tgladhill@cityoframsey.com	No Review Required		

Metropolitan District
Waters Edge Building
1500 County Road B2 West
Roseville, MN 55113

December 30, 2020

Tim Gladhill
Community Development Director
City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

SUBJECT: MnDOT Review # **P20-081**
Riverstone South
SE Quad US 10/US 169 & Bowers Drive NW
Ramsey, Anoka County

Dear Mr. Gladhill:

Thank you for the opportunity to review the **Riverstone South** development. MnDOT has reviewed the documents and has the following comments:

Noise:
MnDOT's policy is to assist local governments in promoting compatibility between land use and highways. Residential uses located adjacent to highways often result in complaints about traffic noise. Traffic noise from this highway could exceed noise standards established by the Minnesota Pollution Control Agency (MPCA), the U.S. Department of Housing and Urban Development, and the U.S. Department of Transportation. Minnesota Rule 7030.0030 states that municipalities having the authority to regulate land use shall take all reasonable measures to prevent the establishment of land use activities, listed in the MPCA's Noise Area Classification (NAC), anywhere that the establishment of the land use would result in immediate violations of established State noise standards.

MnDOT policy regarding development adjacent to existing highways prohibits the expenditure of highway funds for noise mitigation measures in such developed areas. The project proposer is required to assess the existing noise situation and take the action deemed necessary to minimize the impact to the proposed development from any highway noise.

If you have any questions regarding MnDOT's noise policy please contact Natalie Ries in Metro District's Noise and Air Quality Unit at Natalie.Ries@state.mn.us or 651-234-7681**.**

An equal opportunity employer

Traffic:
MnDOT recommends a traffic impact study be completed due the final development plan generating close to 2,500 trips per day and the possible impacts to US 10, neighboring roads and accesses. The preferred access for the development to US 10 would be through the new interchange at Armstrong.

If you have any questions regarding this comment please contact Ashley Roup in Metro Traffic Unit at 651-234-7815 or ashley.roup@state.mn.us.

Multimodal:
When pedestrian facilities (i.e. the sidepath along US 10/US 169) are impacted due to maintenance or construction, pedestrian accommodations must be provided to the maximum extent feasible.

These accommodations should be made detectable and must have accessibility features up to the level of the disturbed route. Signage and devices, as necessary, must be provided to direct pedestrians safely through the work zone. Guidance for pedestrian accommodations through work zones can be found here: http://www.dot.state.mn.us/trafficeng/workzone/apr.html. The new street connection should include curb ramps in accordance to MnDOT Standard plan 5-297.250 and should match the width of the existing facility.

Because of the density of homes proposed with this development, constructing sidewalks along both sides of the internal street network should be considered. Also consider constructing a sidepath/trail along the south side of Riverdale Drive for its full length to expand the non-motorized network and connect to the sidepath along US 10/US 169.

For questions regarding these comments, contact Jesse Thornsen, Metro Multimodal, at Jesse.Thornsen@state.mn.usor 651-234-7788.

Water Resources:
When Bowers Drive is constructed as a cul-de-sac, the existing entrance culvert between the south trail and US 169 westbound should be removed and returned to a ditch section. When the connection of the proposed Riverdale Drive with US 169 westbound is made, an entrance culvert should be added between the trail and US 169 westbound; a 15" Reinforced Concrete Pipe (RCP) entrance culvert may be large enough based on the existing entrance culverts located east of the new intersection. The "Lake" identified in Outlot G doesn't show an outlet. Although the High Water Level (HWL) indicates the lake will contain a 100-yr event, an outlet would be prudent for the possibility of back-to-back 100-year events or a super-event. Although Pond 300 in Outlot B is identified as a concept, if incorporated, then hydraulics information will be required to ascertain any impacts to MnDOT right-of-way.

A drainage permit is required. The development will need to maintain or reduce existing drainage flow rates to MnDOT right of way. The submitted information appears to accomplish this, although the most current plan information will need to be reviewed during the permit application process.

Drainage calculations and supporting information related to contributing flow to MnDOT right-of-way may be requested. If requested during that review, existing and proposed drainage area maps and hydraulic calculations for the 10 and 100 year flows would be required.

For questions regards these comments, contact Jason Swenson, Metro Water Resources, at jason.swenson@state.mn.us or 651-234-7539.

Permits:
In addition to the previously mentioned Drainage permit, an Access permit from the City will be required for the new street connection, and a Miscellaneous Work permit will be required for the removal of Bowers Drive. Any other use of, or work within or affecting, MnDOT right of way will also require a permit.

Permits can be applied for at this site: https://olpa.dot.state.mn.us/OLPA/. Please upload a copy of this letter when applying for any permits.

Please direct questions regarding permit requirements to Buck Craig of MnDOT's Metro Permits Section at 651-775-0405 or Buck.Craig@state.mn.us.

Review Submittal Options
MnDOT's goal is to complete reviews within 30 calendar days. Review materials received electronically can be processed more rapidly. Do not submit files via a cloud service or SharePoint link. In order of preference, review materials may be submitted as:

1. Email documents and plans in PDF format to metrodevreviews.dot@state.mn.us. Attachments may not exceed 20 megabytes per email. Documents can be zipped as well. If multiple emails are necessary, number each message.
2. PDF file(s) uploaded to MnDOT's external shared internet workspace site at: https://mft.dot.state.mn.usmetrodevreviews.dot@state.mn.us. Contact MnDOT Planning development review staff at for uploading instructions, and send an email listing the file name(s) after the document(s) has/have been uploaded.

If you have any questions concerning this review, please contact me at (651) 234-7797.

Sincerely,

Cameron Muhic
Senior Planner

Copy sent via E-Mail:
Buck Craig, Permits
Mark Fairbrother, Water Resources
Anthony Wotzka, Area Engineer
Matthew Wernet, Surveys
Lance Schowalter, Design
Jason Swenson, Water Resources
Michael Lynch, Right-of-Way
Ashley Roup, Traffic

Mackenzie Turner Bargen, Multimodal
Natalie Ries, Noise
Russell Owen, Metropolitan Council
Jesse Thornsen, Multimodal
Jason Junge, Transit

CC Regular Session **7. 2.**

Meeting Date: 09/08/2020

By: Tim Gladhill, Community Development

Information

Title:

Review Sketch Plan for Riverstone South; Case of Capstone Homes

Purpose/Background:

The purpose of this case is to review a Sketch Plan for a project known as Riverstone South proposed by Capstone Homes located on the south side of Highway 10/169 east of Bowers Drive. The purpose of Sketch Plan Review is to provide high-level direction prior to the Developer preparing a Preliminary Plat. This is the time to indicate level of overall support and identify any red flags.

The Planning Commission and City Council have been discussing this project in planning stages since the beginning of 2020 along with multiple opportunities for public comment. The previous policy direction of the Planning Commission and City Council are summarized in the attached Planning Framework.

Notification:

Notification for this meeting is not required at has not been provided.

For the August 6 Planning Commission Meeting, notification of the Sketch Plan Review was sent via Standard US Mail for all Property Owners, according to Anoka County Property Records, within 700 feet of the Subject Property. Additional signage has been placed on the Subject Property. Staff also worked with nearby Property Owners prior to a formal application.

Observations/Alternatives:

Comprehensive Plan

The Comprehensive Plan guides this area as LDR - Low Density Residential. This designation guides future development at 3-4 units per acre.

The Net Density of the site as a whole after factoring out the 7 acres preserved for forestry/open space preservation is 3.38 units per acre. Net Density Calculations have be provided for each individual lot type provided (65 foot wide lots, 55 foot wide lots and 40 foot wide lots). It is anticipated that the area for the 40 foot wide lots as detached townhomes will need a Comprehensive Plan Amendment to MDR - Medium Density Residential.

Zoning District

The Subject Property is in the process of a Zoning Amendment for consistency with the 2040 Comprehensive Plan. Primarily as it relates to this scope of review, the following requirements are noted.

Minimum Lot Width	80 feet
Minimum Lot Size	10,800 square feet 1/4 acre

With that in mind, a Zoning Amendment will be required. The following Zoning Districts will be required for this project.

65 Foot Wide Lots	R-1 Residential (Villa) District

PREVIOUS REVIEW
Sketch Plan Review

55 Foot Wide Lots	R-2 Residential (Detached Villa) District
40 Foot Wide Lots	R-2 Residential (Townhome) District

The Subject Property is also located in the Mississippi River Corridor Critical Area (MRCCA), a designation of the State of Minnesota. Said rules were recently updated. The project generally conforms with the updated rules. The City will need to revise its Critical Area Ordinance as part of this project. Due to the fact that the project is located within the MRCCA and includes a quality continuous canopy coverage forest, Staff has asked the Developer to fill out an Environmental Assessment Worksheet (EAW), although it will not need to go through the full EAW Process as it does not meet the minimum threshold for Mandatory EAW (250 units). The City Council does have the discretion to require full EAW review. Additionally, the public could petition for EAW review. This creates a process administered by the State of Minnesota Environmental Quality Board (EQB). In summary, Staff believes the data is important and relevant and should therefore complete the standard worksheet; however, full EQB Review is not required in this instance.

Tree Preservation

A significant amount of discussion has centered on preserving portions of the existing forestry cover. The canopy coverage of this forest is high-quality. While the understory has had some disturbance due to previous grazing by farm animals, the Planning Commission, Environmental Policy Board and City Council have agreed that the quality of the ecological area is worth attempting to protect portions thereof.

Through discussions, the Developer is proposing to convey fee title of approximately 7 acres along the back side of Bowers Drive for purposes of tree preservation. Staff recommends that this is contingent upon the City successfully securing a third-party funding source intended for natural resource protection. This funding and implementation plan will continue to be discussed with Preliminary Plat.

PREVIOUS REVIEW
Sketch Plan Review

Public Park

The proposed project includes a 1 acre public park. The Park and Recreation Commission is supportive of this general approach. There are limited recreation areas in this area including for existing residents in the Bowers Drive Neighborhood and Alpaca Estates Neighborhood closer to Armstrong Boulevard. Eventually, the area of the east of the Subject Property is anticipated to develop as single-family residential as well. The Park and Recreation Commission feel a public park in this area is warranted.

In addition, this park is anticipated to be a nature-based park intended to preserve existing trees on the site with a tree fort theme.

Riverdale Drive

The project will require the extension of Riverdale Drive, a collector road serving multiple neighborhoods and business districts. The Riverdale Drive Extension is part of the long term plans to improve safety and mobility of Highway 10/169 regardless of future development. Additional detail is known since previous review. Staff will continue to work with the Developer on final design with potential construction in 2021. Additional detail on the funding approach is included in the attached Policy Framework.

Staff has been working with multiple residents on refining the final layout. Staff believes that the City, Developer and Property Owner are closer to a compromise with additional refinements to be made.

Access to Highway 10

Part of this project will result in the existing access from Bowers Drive to Highway 10/169 being closed. The new Riverdale Drive will be the new connection to Highway 10/169 as a right-in/right-out only. There will be no center median opening to access from westbound Highway 10. Bowers Drive residents will need to access westbound Highway 10/169 from Armstrong Boulevard.

Several residents have inquired about not allowing Riverdale Drive to connect to Highway 10. This would result in a long single access point to several hundred homes (Bowers Drive plus Riverstone South). This would not be consistent with City Code requirements and require a Variance. Staff is not supportive of this request due to public safety concerns.

Second Bowers Drive Access

Based on Planning Commission Review, this topic is the top concern of Bowers Drive Residents. General consensus is that all other concerns can generally be mitigated.

It has long been discussed providing a second access to Bowers Drive. Bowers Drive represents the longest dead end street in the community and exceeds current City Code requirements. First and foremost, the City acknowledges the unique neighborhood character of Bowers Drive and strives to protect this character. While the City feels strongly that a second connection is necessary and warranted, the City also believes that there is a way to accomplish this without traffic impacts. The connection point and road design can be accomplished in such a way that traffic modeling will demonstrate this this connection point will not result in additional traffic counts. In fact, Staff believes this may prove to be a benefit to Bowers Drive rather than a detriment.

Staff acknowledges that some on Bowers Drive are opposed to this connection, including the two new homes on either side of this connection point (currently an Outlot preserved for future road connection).

There are two general options on the table.

1. Full Road Connection
2. Restricted Public Safety Access

The Planning Commission previously recommended a full road connection. The City Council left both options on the table for further analysis and discussion. Staff generally prefers a public road connection with reduced width, but is open to policy direction.

Following the Planning Commission, Staff issued a survey to Bowers Drive Residents. Results of said survey are attached. Out of approximately 80 homes on Bowers Drive, the City received 30 responses (37% response rate) when factoring out duplicate responses from same household. 21 households responded that they do not support a second connection. 9 households supported some type of connection. The survey noted that non-responses could be considered as a non-objection to the second connection (50 households did not respond).

PREVIOUS REVIEW
Sketch Plan Review

Funding Source:

Processing of this case is the responsibility of the Applicant.

There is a Cost Share Agreement in place for the extension of Riverdale Drive that has the Developer, Property Owner and City contributing to the costs of this Collector Road serving multiple neighborhoods and areas and is part of the Ramsey Gateway Plan (US Highway 10/169).

Recommendation:

Based on discussion. The City has broad policy discretion as the request requires the approval of a Zoning Amendment (and possibly a Comprehensive Plan Amendment) due to lot sizes and densities.

Action:

Based on discussion. Provide feedback to the Developer as part of the plan development for the next stage in the process known as Preliminary Plat. Preliminary Plat is the most crucial stage in the subdivision process.

- Is the City Council comfortable moving into formal design and application based on the attached Sketch Plan and associated assumptions?

Attachments

Planning Framework
REVISED Sketch Plan
Riverdale Drive Plan (clean)
Redlined Plans
Review Comments
Density Exhibit
Bowers Drive Survey Responses

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	09/03/2020 01:42 PM
Tim Gladhill (Originator)	Tim Gladhill	09/03/2020 03:16 PM
Form Started By: Tim Gladhill		Started On: 09/01/2020 08:15 AM
Final Approval Date: 09/03/2020		

PREVIOUS REVIEW
Sketch Plan Review

HIGHWAY 10 SOUTH SMALL AREA PLAN
RIVERSTONE SOUTH PLANNING FRAMEWORK

PREVIOUS REVIEW
Sketch Plan Review

June, 2020

Document Purpose

The purpose of this document is to outline high-level land use planning policy for a portion of the Highway 10 South Small Area Plan currently known as Riverstone South by Capstone Homes. This a visionary document to help guide policy discussions. This is not the official land use plan for the area nor carries any legal entitlements. This document would be implemented through amendments to the City's Comprehensive Plan and Zoning Code.

PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY

Previous Review

February 11, 2020	Joint Meeting City Council and Planning Commission Broad Overview and Riverdale Drive Funding
February 18, 2020	Public Works Committee Riverdale Drive Funding
March 24, 2020	City Council Riverdale Drive Funding
April 7, 2020	Small Group Neighborhood Meeting Southern Public Safety Connection to Bowers Drive
April 14, 2020	Public Webinar Broad Overview and Land Use Planning
April 26, 2020	Small Group Neighborhood Meeting Riverdale Drive Connection to Highway 10 Options

PREVIOUS REVIEW
Sketch Plan Review

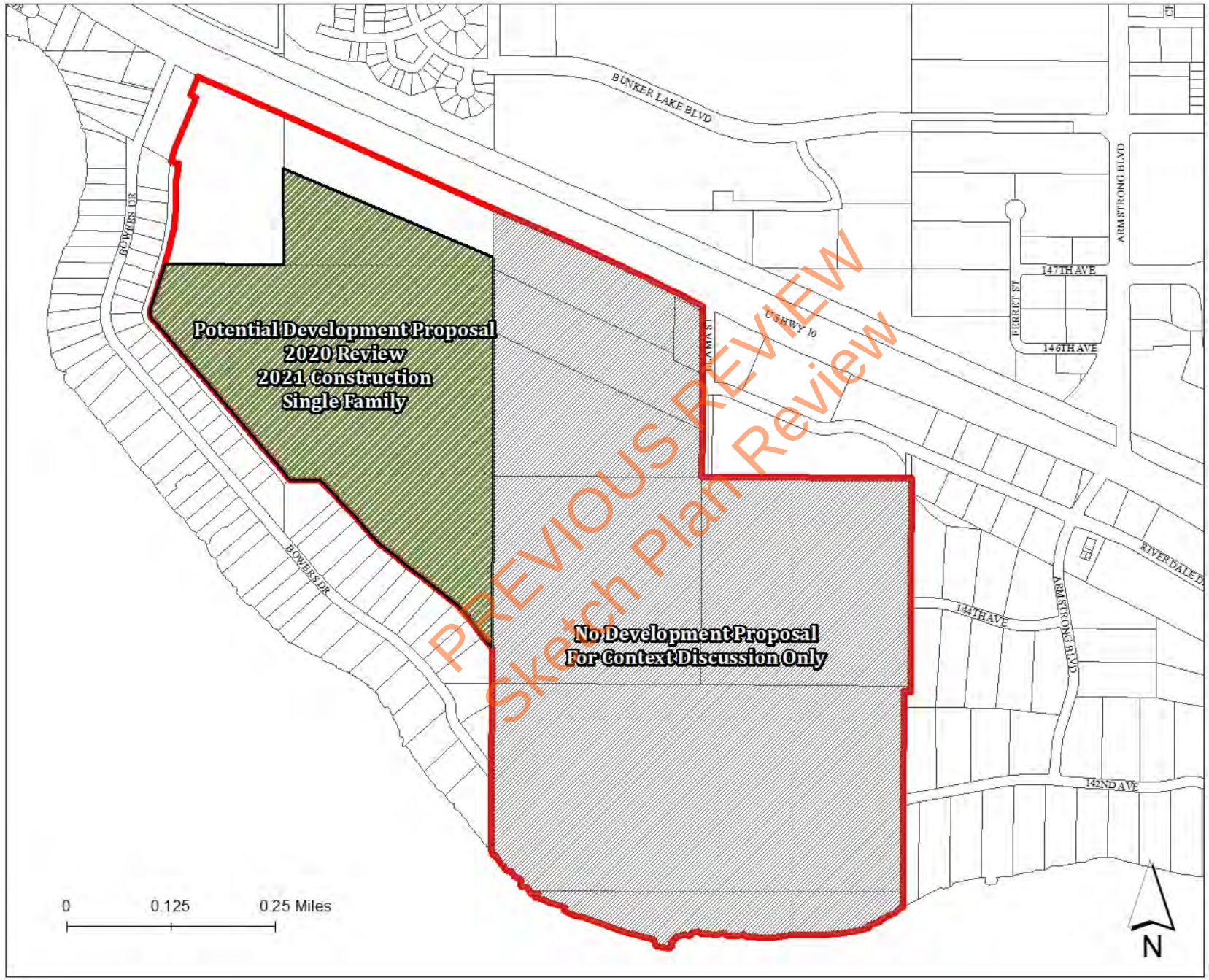
City of RAMSEY

Review of This Document

Planning Commission	Thursday, June 4, 2020	7:00 p.m.
Park and Recreation Commission	Thursday, June 11, 2020	6:30 p.m.
Environmental Policy Board	Monday, June 15, 2020	6:30 p.m.
City Council	Tuesday, June 23, 2020	7:00 p.m.

PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY



City of RAMSEY

Highway 10 South Planning Area

No Development Proposal

Potential Development

Planning Area

Map Prepared by the City of Ramsey
Data Source: Anoka County, City of Ramsey
April 16, 2020
Lampert Conformal Conic Projection
Project Folder

Existing Conditions

- Riverdale Drive/Highway 10/169
- Connexus Solar Farm (17 acres)
- Significant Ecological Resources
  - Tree Cover
  - Mississippi River Corridor Critical Area
- Adjacent Land Uses
  - Adjacent to Residential to west (Bowers Drive)
  - Adjacent to Agricultural/Future Residential to east (Riverside Farms)

PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY

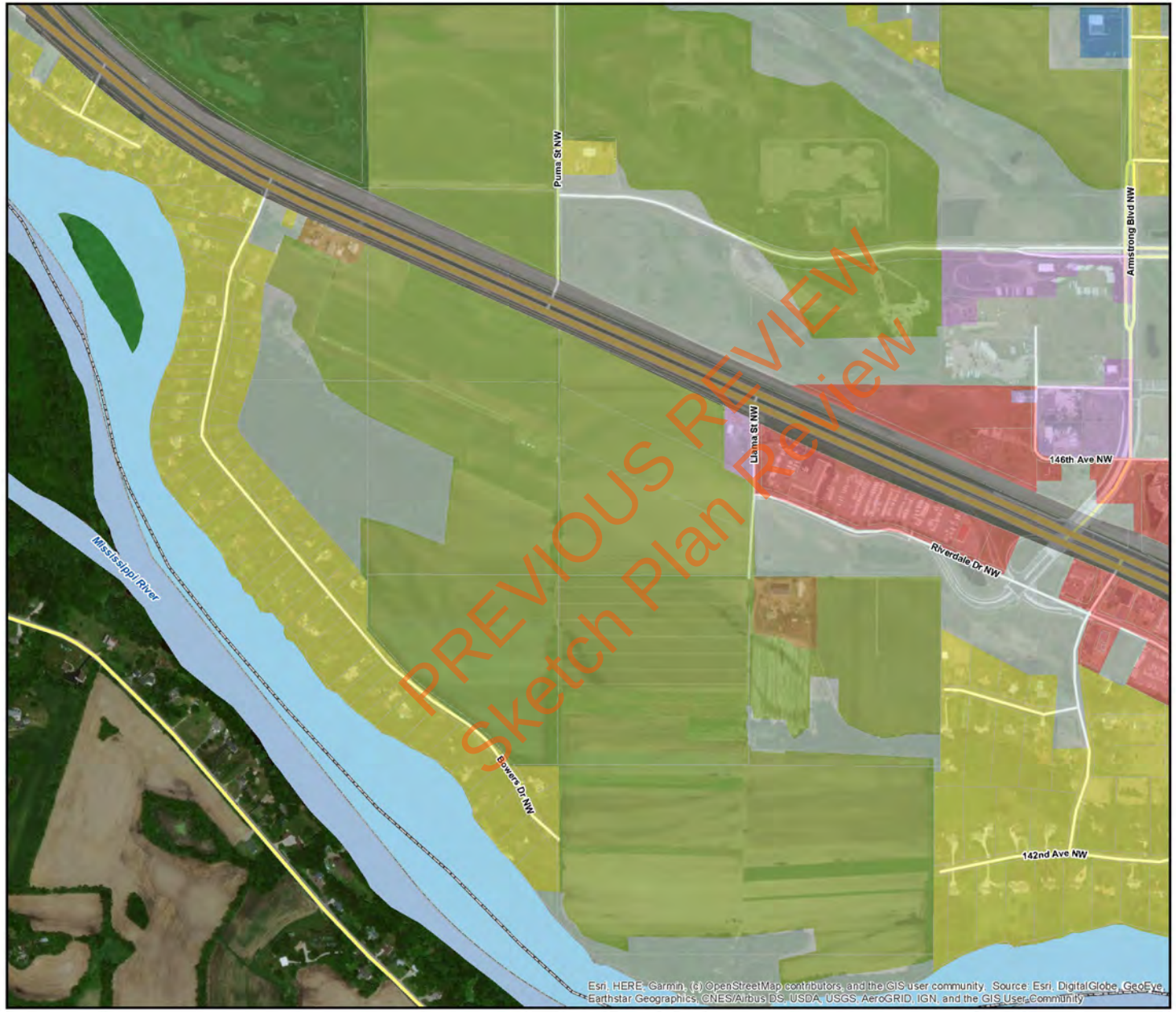
City of RAMSEY

Tree Preservation

Mississippi River Critical Area

Potential Development

Map Prepared by the City of Ramsey
Data Source: Anoka County, City of Ramsey
April 16, 2020
Lampert Conformal Conic Projection
Project Folder



City of RAMSEY

Ramsey Comprehensive Plan
Existing Land Use
Ramsey, MN

Legend

- Municipal Boundary
- Farmstead
- Single Family Detached
- Manufactured Housing Parks
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Industrial and Utility
- Extractive
- Institutitional
- Park, Recreational, or Preserve
- Golf Course
- Major Highway
- Railway
- Airport
- Agricultural
- Open Water
- Undeveloped

N

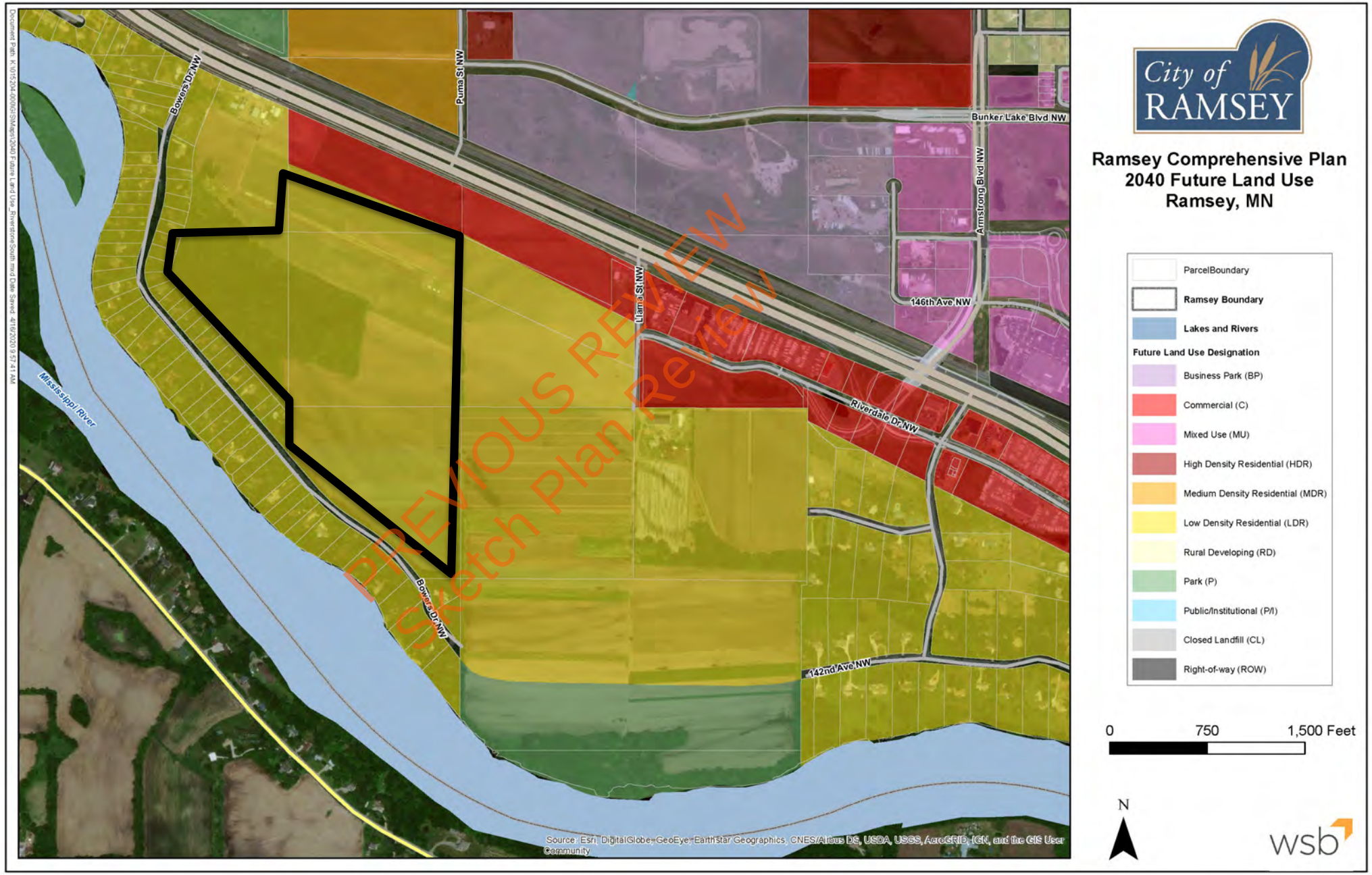
wsb

0 1,125 2,250 Feet

Future Conditions

- Future Commercial/Industrial
  - North side of project
  - Between Highway 10 and future Riverdale Drive Extension
- Public Safety Connection to Bowers Drive
- Tree Preservation Plan
- Density Transition
  - Adjacent to Residential
  - Adjacent to Commercial/Industrial/Highway 10/169

PREVIOUS REVIEW
Sketch Plan Review


Document Path: K:\015204.000\GIS\Maps\2040 Future Land Use_RiverstoneSouth.mxd Date Saved: 4/16/2020 9:57:41 AM
Bowers Dr NW
Puma St NW
Bunker Lake Blvd NW
Armstrong Blvd NW
Llama St NW
146th Ave NW
Riverdale Dr NW
Mississippi River
Bowers Dr NW
142nd Ave NW
PREVIOUS REVIEW
Sketch Plan Review
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
City of RAMSEY
Ramsey Comprehensive Plan
2040 Future Land Use
Ramsey, MN
ParcelBoundary
Ramsey Boundary
Lakes and Rivers
Future Land Use Designation
Business Park (BP)
Commercial (C)
Mixed Use (MU)
High Density Residential (HDR)
Medium Density Residential (MDR)
Low Density Residential (LDR)
Rural Developing (RD)
Park (P)
Public/Institutional (P/I)
Closed Landfill (CL)
Right-of-way (ROW)
0
750
1,500 Feet
N
wsb

City of RAMSEY

Built Environment

Potential Development

Map Prepared by the City of Ramsey
Data Source: Anoka County, City of Ramsey
April 16, 2020
Lampert Conformal Conic Projection
Project Folder

Future Land Use/ Development Options

PREVIOUS REVIEW
Sketch Plan Review

Connection to Bowers Drive (Public Safety)

Council Direction = No Connection

Connection to Bowers Drive (Public Safety)

Council Direction = No Connection

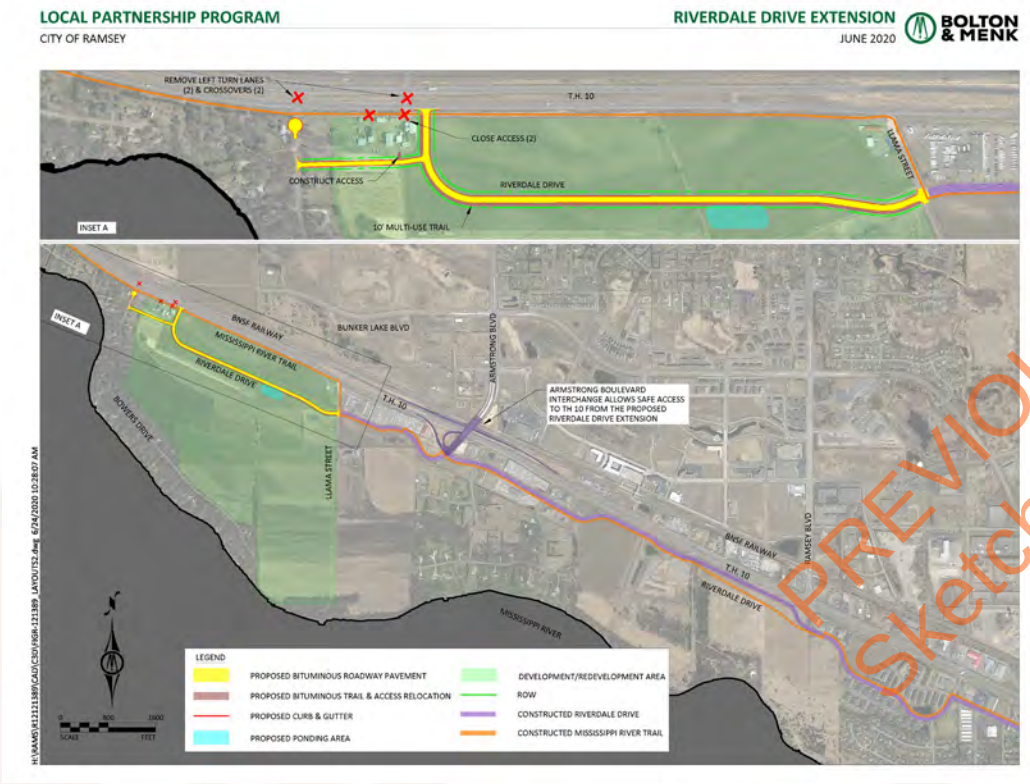
- Alternative #1
  - Full Public Street (28 foot width OK)
- Alternative #2
  - Heavy Duty 'Driveway'
  - Surmountable Curb on Riverstone South Side – Local Road
    - Access itself does not need curb
  - Signage – Public Safety Access
  - 20 Foot Width
  - Landscaping
- Need turning templates

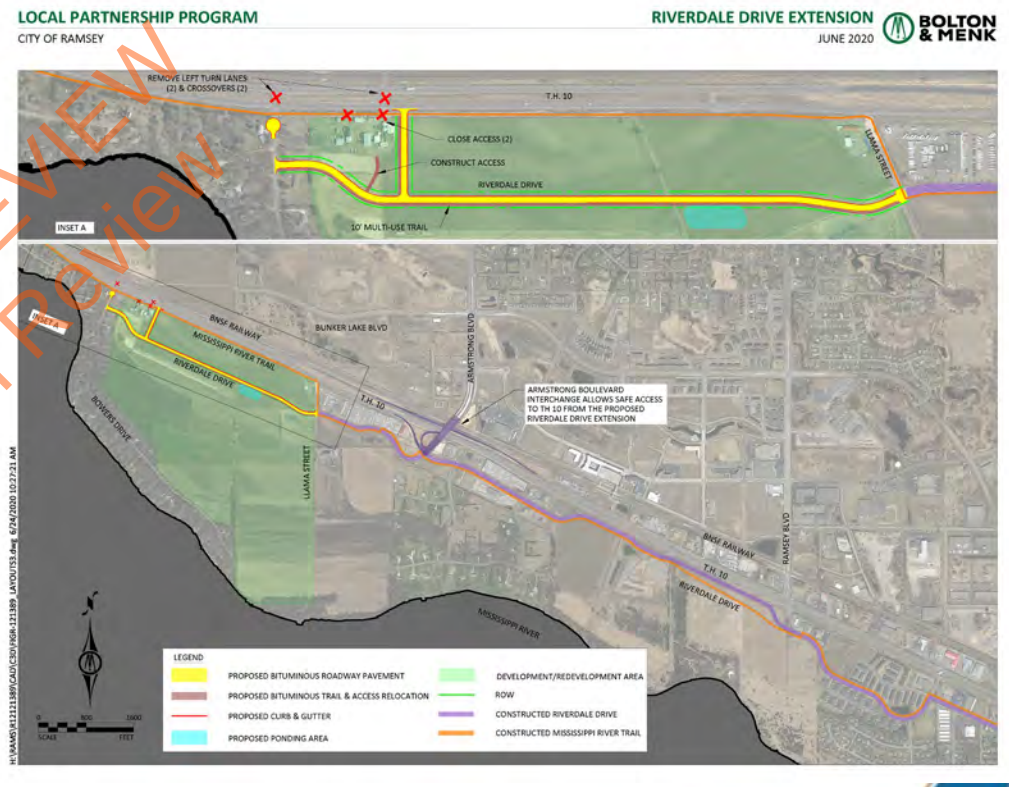
PREVIOUS REVIEW
Sketch Plan Review

Riverdale Drive Alternative #1 Developer/Owner Preference

City of RAMSEY

Riverdale Drive Alternative #2
Request by Neighboring Property





PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY

Potential Land Use/Future Development Compromise

- Enhance Density Transitioning
  - More than currently required by City Code
- Enhance Tree Preservation
  - More than currently required by City Code
- Transects/Zones
  - Larger lots adjacent to Bowers Drive
  - Medium-sized lots in middle zone
  - Smaller lots to the northeast
    - Intersection of Commercial/Industrial and Solar Farm
- Conservation Subdivision Design
- Similar to Riverstone Neighborhood
  - North of Highway 10

PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY

City of RAMSEY

Density Transitioning & Tree Preservation

Potential Development

Map Prepared by the City of Ramsey
Data Source: Anoka County, City of Ramsey
April 16, 2020
Lampert Conformal Conic Projection
Project Folder

Enhanced Tree Preservation Plan

PREVIOUS REVIEW
Sketch Plan Review

- Alternative #1
  - 1 Acre Nature Based Park
    - Preservation of existing trees
  - Additional 25 foot buffer adjacent to existing 50 foot buffer
    - 75 foot buffer total
    - NOTE: Parcel C retained by Pearson Properties and not part of development area
- Alternative #2
  - Preserve 10% of Project Site
  - Combo of Park Dedication and Other Open Space Preservation Funding

Previous concept underlay for context only. Actual concept will look different.

Open Space Preservation Funding Options

- Park Dedication Credit
- Trust for Public Land
- Anoka Conservation District
- Minnesota Department of Natural Resources
- Great River Greening

PREVIOUS REVIEW
Sketch Plan Review

Implementation Plan

PREVIOUS REVIEW
Sketch Plan Review

Implementation Plan

1. Allow mix of lot sizes in exchange for the following:
   - Enhanced tree preservation above and beyond minimum code requirements
2. Require a second connection to Bowers Drive in existing City-Owned Corridor
   1. Final design as full public roadway or reduced design for public safety to be evaluated with next steps
3. Require Riverdale Drive Extension
   1. Explore 2 options for connection to Highway 10/169

PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY

Resolution #20-065: Riverdale Drive Funding

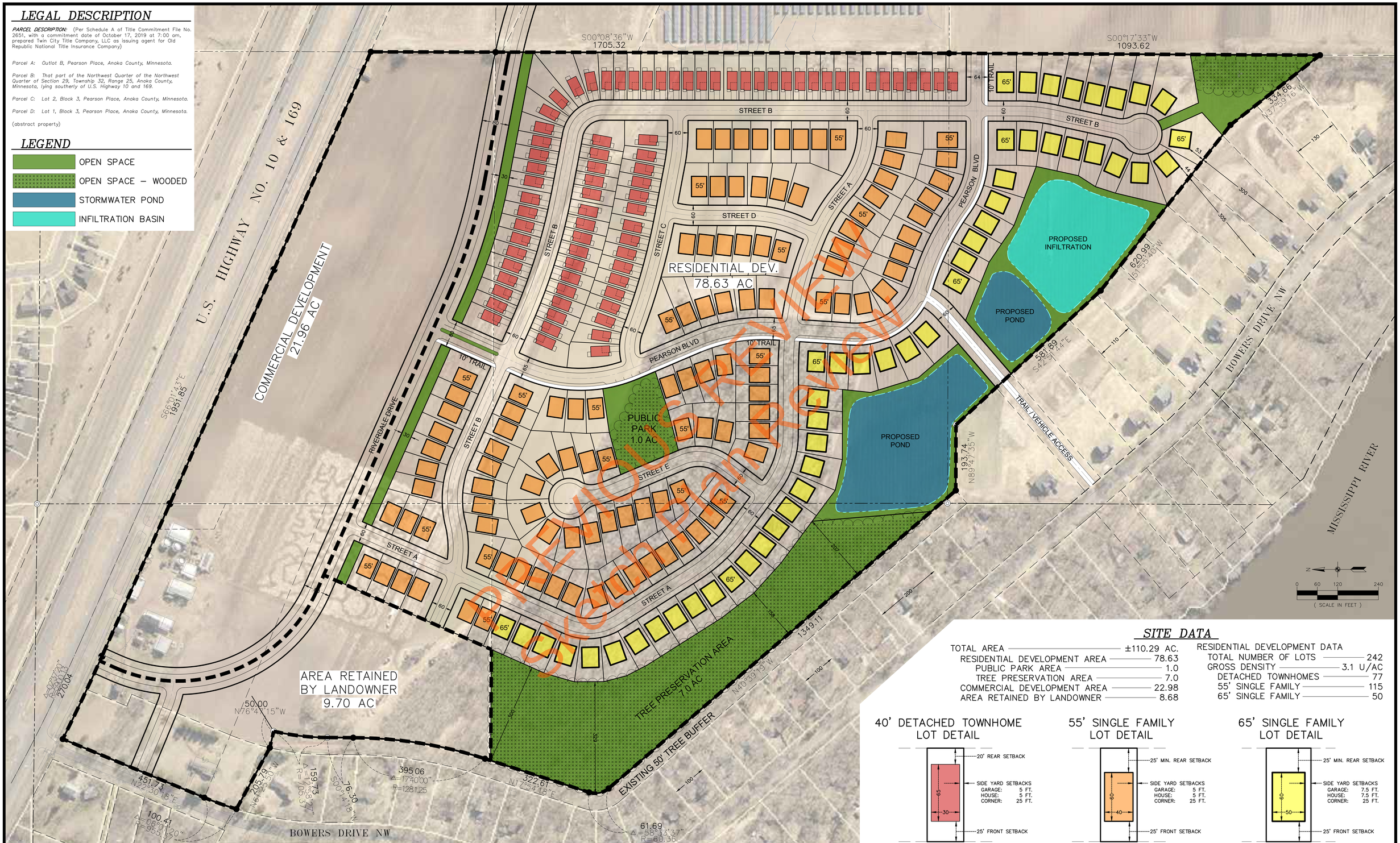
- 1/3 Cost Share of Pearson Frontage
- 1/3 Cost Share of Anoka County Frontage Funding Gap

	Pearson Frontage	Anoka County Frontage	Total
City/Public*	$388,000	$39,250	$427,250
Capstone	$339,125	$39,250	$378,375
Pearson	$339,125	$39,250	$378,375
Total	**$1,066,250**	**$117,750**	**$1,184,000**

*Includes both City Contribution and MnDOT Grant

PREVIOUS REVIEW
Sketch Plan Review

City of RAMSEY



PRELIMINARY REVIEW
Not for Plan Review

LEGAL DESCRIPTION

PARCEL DESCRIPTION: (Per Schedule A of Title Commitment File No. 2651, with a commitment date of October 17, 2019 at 7:00 am, prepared Twin City Title Company, LLC as issuing agent for Old Republic National Title Insurance Company)

Parcel A: Outlot B, Pearson Place, Anoka County, Minnesota.

Parcel B: That part of the Northwest Quarter of the Northwest Quarter of Section 29, Township 32, Range 25, Anoka County, Minnesota, lying southerly of U.S. Highway 10 and 169.

Parcel C: Lot 2, Block 3, Pearson Place, Anoka County, Minnesota.

Parcel D: Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

LEGEND

- OPEN SPACE
- OPEN SPACE – WOODED
- STORMWATER POND
- INFILTRATION BASIN

SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
PUBLIC PARK AREA	1.0
TREE PRESERVATION AREA	7.0
COMMERCIAL DEVELOPMENT AREA	22.98
AREA RETAINED BY LANDOWNER	8.68

RESIDENTIAL DEVELOPMENT DATA

TOTAL NUMBER OF LOTS	242
GROSS DENSITY	3.1 U/AC
DETACHED TOWNHOMES	77
55' SINGLE FAMILY	115
65' SINGLE FAMILY	50

40' DETACHED TOWNHOME LOT DETAIL

55' SINGLE FAMILY LOT DETAIL

65' SINGLE FAMILY LOT DETAIL

CARLSON McCAIN
ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

DRAWN BY: C#/RR
ISSUE DATE: 07/17/20
Revisions:

CAPSTONE HOMES, INC.
14015 Sunfish Lake Blvd. NW, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

SKETCH PLAN W/AERIAL

Save Date: 07/24/20 f:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\layouts\8494_layout 4.dwg

1 of 1

REVIEW COPY

REVISIONS
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6.

DRAWN BY: C#
ISSUE DATE: 07/07/2020
FILE NO: XXX

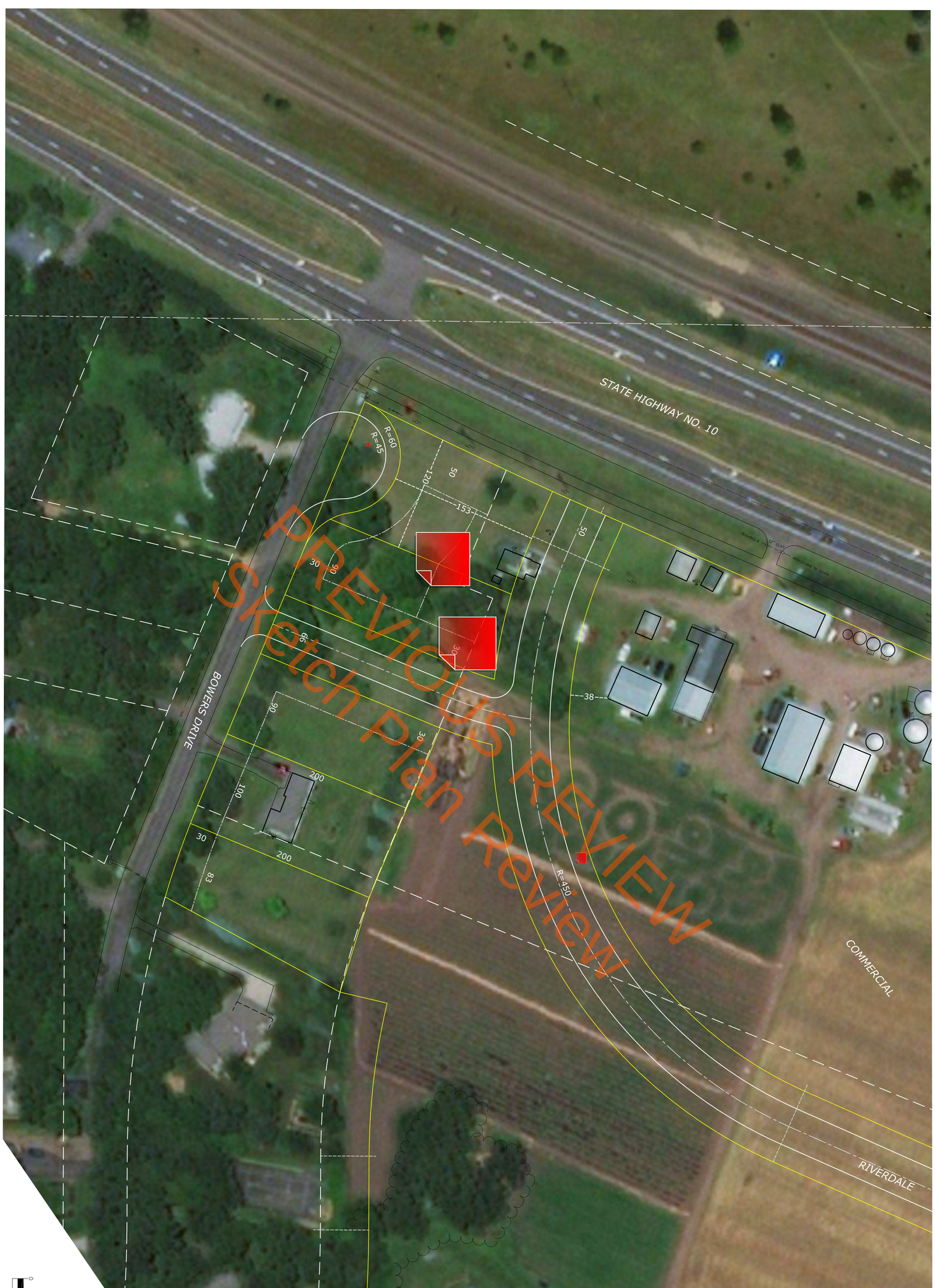
PEARSON PROPERTIES of RAMSEY LLC
604 Beilenberg Drive
Woodbury, MN 55125

CONCEPT PLAN
RIVERDALE ALIGNMENT DETAIL

PEARSON FARM SOUTH
Ramsey, Minnesota

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DRIVE NE, SUITE 100, BLAINE, MN 55449
TEL 763.489.7900 \ FAX 763.489.7959 \ CARLSONMCCAIN.COM

Save Date: 07/07/20 | F:\jobs\8301 - 8320\8301 - pearson property - ramsey\cad c3d\survey\layouts\layout 3.dwg



1 of 1

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Parcel D: Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

U.S. HIGHWAY NO. 10 & 169

COMMERCIAL DEVELOPMENT 22.98 AC

RESIDENTIAL DEV. 78.63 AC

PROPOSED POND

PROPOSED POND

PUBLIC PARK 1.0 AC

TREE PRESERVATION AREA 7.0 AC

AREA RETAINED BY LANDOWNER 8.68 AC

EXISTING 50' TREE BUFFER

STREET A

STREET B

STREET C

STREET D

STREET E

PEARSON BLVD

RIVERDALE DRIVE

BOWERS DRIVE NW

TRAIL / VEHICLE ACCESS

S00°17'33"W 1093.62

S66°21'43"E 1951.85

N76°47'15"W 50.00

N22°30'16"E 451.73

N13°58'27"W 205.79

159.73 Δ=12°55'27" R=706.37

76.30 S30°14'18"W

395.06 Δ=174°00" R=128.25

322.61 N17°54'16"E

61.69 Δ=58°33'37" R=60.36

100.41 Δ=08°07'20" R=955.37

270.04 Δ=09°32'43" R=1620.00

N40°39'19"W 134.

193.74 N89°47'35"W

58.89 S42°51'14"E

N39°15'W 52.99 Δ=5°45'40"

APPROVED Sketch Plan Review

0 60 120 240
(SCALE IN FEET)

SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
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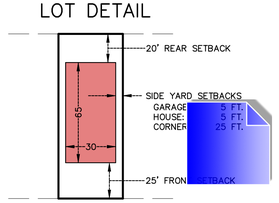
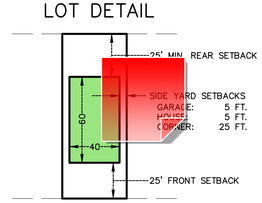
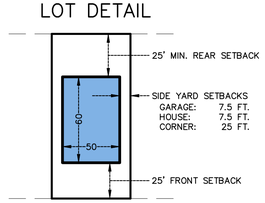
40' DETACHED TOWNHOME LOT DETAIL



55' SINGLE FAMILY LOT DETAIL



65' SINGLE FAMILY LOT DETAIL



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RIVERSTONE SOUTH
Ramsey, Minnesota

SKETCH PLAN W/AERIAL

2 of 2

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ProjectDox

Changemarks Report

Project Name: Riverstone South (Project No. 19-152)

Workflow Started: 07/20/2020 11:00 AM

Report Generated: 07/30/2020 01:04 PM

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	28	False	Unresolved	Civil Engineer IV		Riverstone South Sketch Plan.pdf	LL	Stormwater Route	The project to the south showed stormwater overflow from their pond onto this site. The overflow route for this site must be called out on the preliminary plat.	07/29/2020 3:23 PM	Len Linton	
		29	False	Unresolved	Civil Engineer IV		Riverstone South Sketch Plan.pdf	LL	Cul-de-sac	This muist be a full cul-de-sac, loosing the lots on either side of the stub until the next phase develops. The proximity of this stub to the south line of the solar farm limits future development until the solar farm is closed and the land redeveloped.	07/29/2020 3:23 PM	Len Linton	
		30	False	Unresolved	Civil Engineer IV		Riverstone South Sketch Plan.pdf	LL	Trunk Sanitary Sewer	Trunk Sanitary Sewer will require deducation of adequate drainage and utility easements. Layout may need to be changed to provide the necessary easements. A forcemain from the lift station will also be required which will require additional easement width.	07/29/2020 3:23 PM	Len Linton	

PREVIOUS REVIEW
Sketch Plan Review

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	31	False	Unresolved	Civil Engineer IV		Riverstone South Sketch Plan.pdf	LL	Street Widths	Street widths must be 32 feet or the lot widths must be increased. The 29 foot lots require restriction of parking to one side of the street. The combination of narrow lot widht and driveway width limit the number of available parking spaces even more with parking on one side of the street.	07/29/2020 3:23 PM	Len Linton	
		32	False	Unresolved	Civil Engineer IV		Riverstone South Sketch Plan.pdf	LL	Bowers Drive Access	Coordinate Bowers Drive access with plans from previous development on Bowers Drive. Provide street access through this area.	07/29/2020 3:23 PM	Len Linton	
		27	False	Unresolved	Civil Engineer IV		Pearson South Riverdale Realignment.pdf	LL	Sight Distance at intersection	Consider increasing building setback from Riverdale to provide better site distance from left.	07/29/2020 2:46 PM	Len Linton	
		22	False	Unresolved	Civil Engineer II		Riverstone South Sketch Plan.pdf	JJF	Existing Ponding Combination	Please consider working with the adjacent property owners to possibly combine the ponding for this site with the existing pond put in with the Pearson Place development. This pond is adjacent to the proposed pond as shown.	07/29/2020 2:52 PM	Joe Feriancek	
		23	False	Unresolved	Civil Engineer II		Riverstone South Sketch Plan.pdf	JJF	Bowers Drive Connection	My understanding is this connection was going to be a road connection rather than a trail. A road connection would make the most sense in my opinion.	07/29/2020 2:52 PM	Joe Feriancek	

PREVIOUS REVIEW
Sketch Plan Review

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	24	False	Unresolved	Civil Engineer II		Riverstone South Sketch Plan.pdf	JJF	Pearson Blvd/Stub location	The stub location does not appear to leave much buildable area on the north side of the road if the next parcel develops before the Solar Farm site developes.	07/29/2020 2:52 PM	Joe Feriancek	
		25	False	Unresolved	Civil Engineer II		Riverstone South Sketch Plan.pdf	JJF	Trunk Sewer Line	To give more comment to Tim's comment, it is not desirable for the City to have trunk utiliies, or any sanitary or water utilities in green space due to access/maintenance concerns.	07/29/2020 2:52 PM	Joe Feriancek	
		26	False	Unresolved	Civil Engineer II		Riverstone South Sketch Plan.pdf	JJF	home types	Do you have a plan with proposed house types, or not that far along yet? Are the townhomes planned to be slab on grade, spacing wise they appear close together to have a walkout type design.	07/29/2020 2:52 PM	Joe Feriancek	
		20	False	Unresolved	Civil Engineer II		Pearson South Riverdale Realignment.pdf	JJF	Radius of curvature	MSA Rules for 35 MPH with crowned road, 454 minimum radius of curvature, if this becomes a 40 mph Rmin 667 feet. Don't know what the speed limit will be, but may want to give more space incase it becomes 40.	07/29/2020 2:23 PM	Joe Feriancek	
		21	False	Unresolved	Civil Engineer II		Pearson South Riverdale Realignment.pdf	JJF	CDS Radius	Perminant CDS need 50' radius.	07/29/2020 2:23 PM	Joe Feriancek	

PREVIOUS REVIEW
Sketch Plan Review

ProjectDox

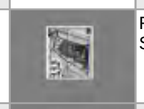
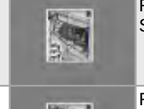
Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	12	False	Unresolved	City Planner		Riverstone South Sketch Plan.pdf	Chloe	Bowers Drive Lots	Measure width of Bowers Drive lots (average or one or two is fine)	07/22/2020 2:48 PM	Chloe McGuire Brigl	
		13	False	Unresolved	City Planner		Riverstone South Sketch Plan.pdf	Chloe	Lot Depth	Indicate lot depth of these parcels for context	07/22/2020 2:48 PM	Chloe McGuire Brigl	
		14	False	Unresolved	City Planner		Riverstone South Sketch Plan.pdf	Chloe	Lot Depth	Indicate lot depth of this parcel	07/22/2020 2:48 PM	Chloe McGuire Brigl	
		15	False	Unresolved	City Planner		Riverstone South Sketch Plan.pdf	Chloe	Tree Preservation	Flag these trees as goal of preservation based on utility plan	07/22/2020 2:48 PM	Chloe McGuire Brigl	
		16	False	Unresolved	City Planner		Riverstone South Sketch Plan.pdf	Chloe	Backyard size	Measure size of backyard so we know how close house pads will be to existing property lines	07/22/2020 2:48 PM	Chloe McGuire Brigl	
		17	False	Unresolved	City Planner		Riverstone South Sketch Plan.pdf	Chloe	Density	Please provide approximate net density across site and per house type	07/22/2020 2:48 PM	Chloe McGuire Brigl	
		11	False	Unresolved	City Planner		Pearson South Riverdale Realignment.pdf	Chloe	Ponding?	Will this leftover piece be used for ponding? If so we should get under DU easement or outlot so it's not read as a buildable parcel	07/22/2020 2:44 PM	Chloe McGuire Brigl	
		1	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Label Future Use	Label this as location of future Sanitary Sewer Lift Station	07/21/2020 6:47 PM	Tim Gladhill	

PREVIOUS REVIEW
Sketch Plan Review

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	2	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Trunk Sanitary Sewer Line	Is there space for the Trunk Sanitary Line in these back yards? How do we access if there is a need for repair?	07/21/2020 6:47 PM	Tim Gladhill	
		3	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Revised Connection to Bowers Drive	Update plan set to match new drawing from Pearson/Dobbs.	07/21/2020 6:47 PM	Tim Gladhill	
		4	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Connect to Bowers Drive	Must show connection to Bowers Drive.	07/21/2020 6:47 PM	Tim Gladhill	
		5	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Contingent Support	The City's support for acquiring this area is contingent upon securing a third-party funding source.	07/21/2020 6:47 PM	Tim Gladhill	
		6	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Ghost Plat	Please provide a separate exhibit that shows a ghost plat for this area.	07/21/2020 6:47 PM	Tim Gladhill	
		7	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Linnear Connection - Park to Tree Preservation	Please provide a natural corridor between these two areas.	07/21/2020 6:47 PM	Tim Gladhill	
		8	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	80 Foot Wide Lots	Previous discussion centered around 80 foot wide lots along the back of the Bowers Drive Neighborhood. Perhaps the City is open in exchange for additional open space preservation.	07/21/2020 6:47 PM	Tim Gladhill	
		9	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Zoning Amendment Required	These lot sizes will require a Zoning Amendment and likely a Comprehensive Plan Amendment.	07/21/2020 6:47 PM	Tim Gladhill	

PREVIOUS REVIEW
Sketch Plan Review

ProjectDox

Changemarks Report

Grouping	Cycle	Ref #	Complete?	Status	Department	Snapshot	File	Markup Name	Changemark Subject	Changemark Details	Markup Date	Updated By	Applicant Response
Main Workflow	1	10	False	Unresolved	Community Development Director		Riverstone South Sketch Plan.pdf	Tim Gladhill	Net Density Calculations	Please provide Net Density for the following: Overall (take out tree preservation area) Area of 65 foot wide lots (R-1 Residential District) Area of 55 foot wide lots and 40 foot wide lots (R-2 Residential District)	07/21/2020 6:47 PM	Tim Gladhill	
		18	False	Unresolved	Engineering Tech		Riverstone South Sketch Plan.pdf	Logan Czech	Parking Spaces	Assuming ~2.5 residents/home this development will house ~600 people. Five parking spaces is not enough for the only park.	07/20/2020 2:42 PM	Logan Czech	
		19	False	Unresolved	Engineering Tech		Riverstone South Sketch Plan.pdf	Logan Czech	Park Size	Since it is the only shared space, one acre is fairly small considering the size of this development. Is there going to be a playground?	07/20/2020 2:42 PM	Logan Czech	

PREVIOUS REVIEW
Sketch Plan Review

LEGAL DESCRIPTION

PARCEL DESCRIPTION: (Per Schedule A of Title Commitment File No. 2651, with a commitment date of October 17, 2019 at 7:00 am, prepared Twin City Title Company, LLC as issuing agent for Old Republic National Title Insurance Company)

Parcel A: Outlot B, Pearson Place, Anoka County, Minnesota.

Parcel B: That part of the Northwest Quarter of the Northwest Quarter of Section 29, Township 32, Range 25, Anoka County, Minnesota, lying southerly of U.S. Highway 10 and 169.

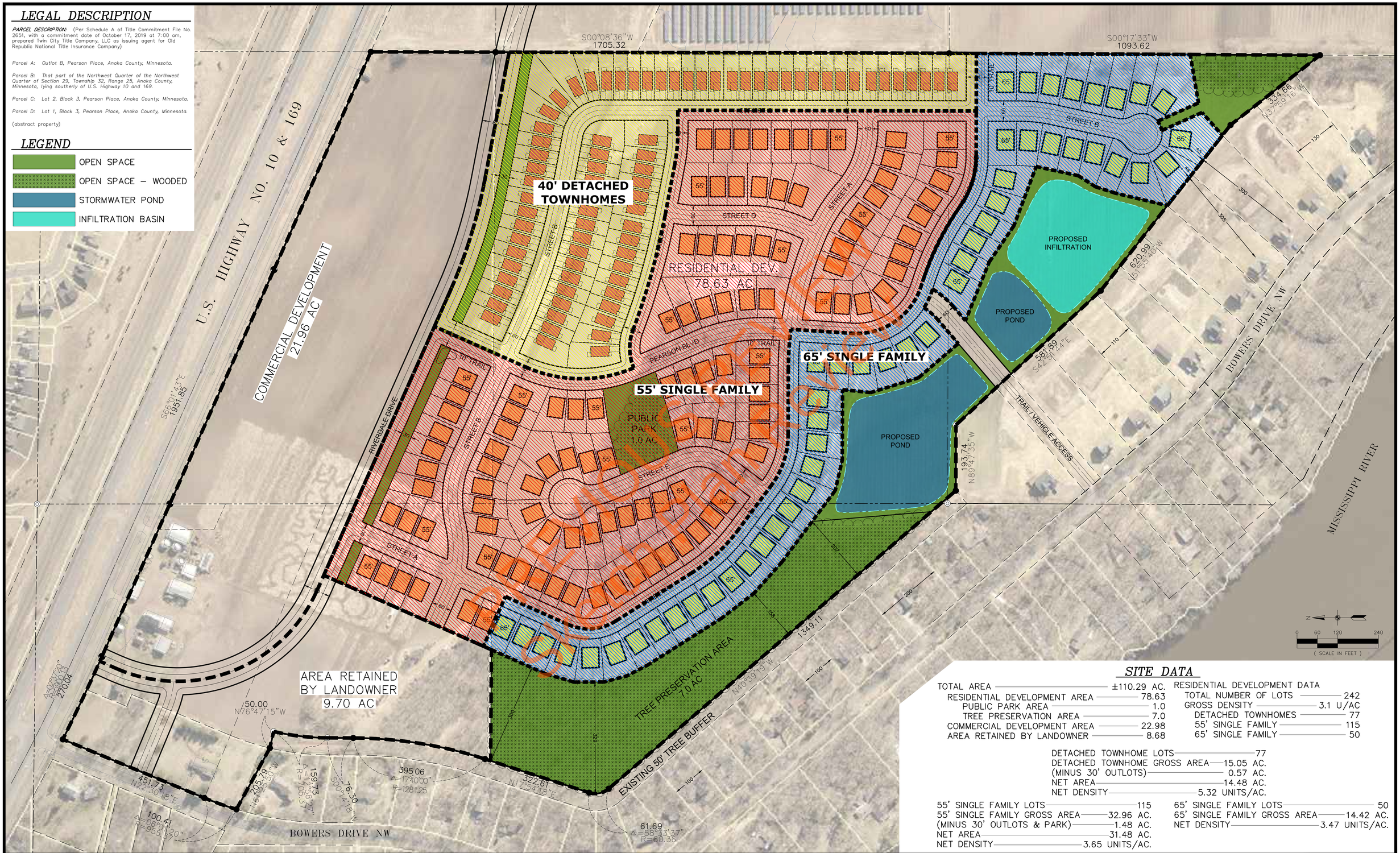
Parcel C: Lot 2, Block 3, Pearson Place, Anoka County, Minnesota.

Parcel D: Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

LEGEND

- OPEN SPACE
- OPEN SPACE – WOODED
- STORMWATER POND
- INFILTRATION BASIN



SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
PUBLIC PARK AREA	1.0
TREE PRESERVATION AREA	7.0
COMMERCIAL DEVELOPMENT AREA	22.98
AREA RETAINED BY LANDOWNER	8.68

RESIDENTIAL DEVELOPMENT DATA

TOTAL NUMBER OF LOTS	242
GROSS DENSITY	3.1 U/AC
DETACHED TOWNHOMES	77
55' SINGLE FAMILY	115
65' SINGLE FAMILY	50

DETACHED TOWNHOME LOTS	77
DETACHED TOWNHOME GROSS AREA	15.05 AC.
(MINUS 30' OUTLOTS)	0.57 AC.
NET AREA	14.48 AC.
NET DENSITY	5.32 UNITS/AC.

55' SINGLE FAMILY LOTS	115
55' SINGLE FAMILY GROSS AREA	32.96 AC.
(MINUS 30' OUTLOTS & PARK)	1.48 AC.
NET AREA	31.48 AC.
NET DENSITY	3.65 UNITS/AC.

65' SINGLE FAMILY LOTS	50
65' SINGLE FAMILY GROSS AREA	14.42 AC.
NET DENSITY	3.47 UNITS/AC.

CARLSON McCAIN
ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

DRAWN BY: C#
ISSUE DATE: 08/05/2020
Revisions:

CAPSTONE HOMES, INC.
14015 Sunfish Lake Blvd. NW, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

PRODUCT DENSITY EXHIBIT

Save Date: 08/05/20 f:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\layouts\8494_layout 4 product areas.dwg

City of RAMSEY

7550 Sunwood Drive NW • Ramsey, MN 55303
City Hall: 763.427.1410 • Fax: 763.427.5543
www.cityofframsey.com

What Do You Want in Our Backyard?
Riverstone South Planned Residential Neighborhood

BOWERS DRIVE CONNECTION SURVEY

The City is inviting you to participate in a survey regarding a proposed connection to Bowers Drive for public safety purposes.

To complete the survey, visit our page at:
www.cityofframsey.com/development or www.cityofframsey.com/769/Riverstone-South

The City prefers that responses be submitted online, but a paper copy has been provided on the back of this letter for convenience.

PREVIOUS REVIEW
Sketch Plan Review

The City has been discussing a potential detached single-family development on a on a site east of Bowers Drive with Capstone Homes. Many of you may have participated in online webinars and open houses on this topic. The City has now received an official Application from Capstone Homes for the first of three (3) major steps. The project is still in concept stages of planning and review. The City has put up a resource page for the project at www.cityofframsey.com/769/Riverstone-South.

The City strives for a more collaborative public engagement process and involving residents much earlier in the decision making process. Please note that if the project moves forward, there will be additional opportunities for public comment, **including the official public hearing at a future date.** In the meantime, the City Council will be reviewing the attached concept plan at their meeting on Tuesday, September 8 at 7:00 p.m. Please check www.cityofframsey.com/agendas for the most up to date information.

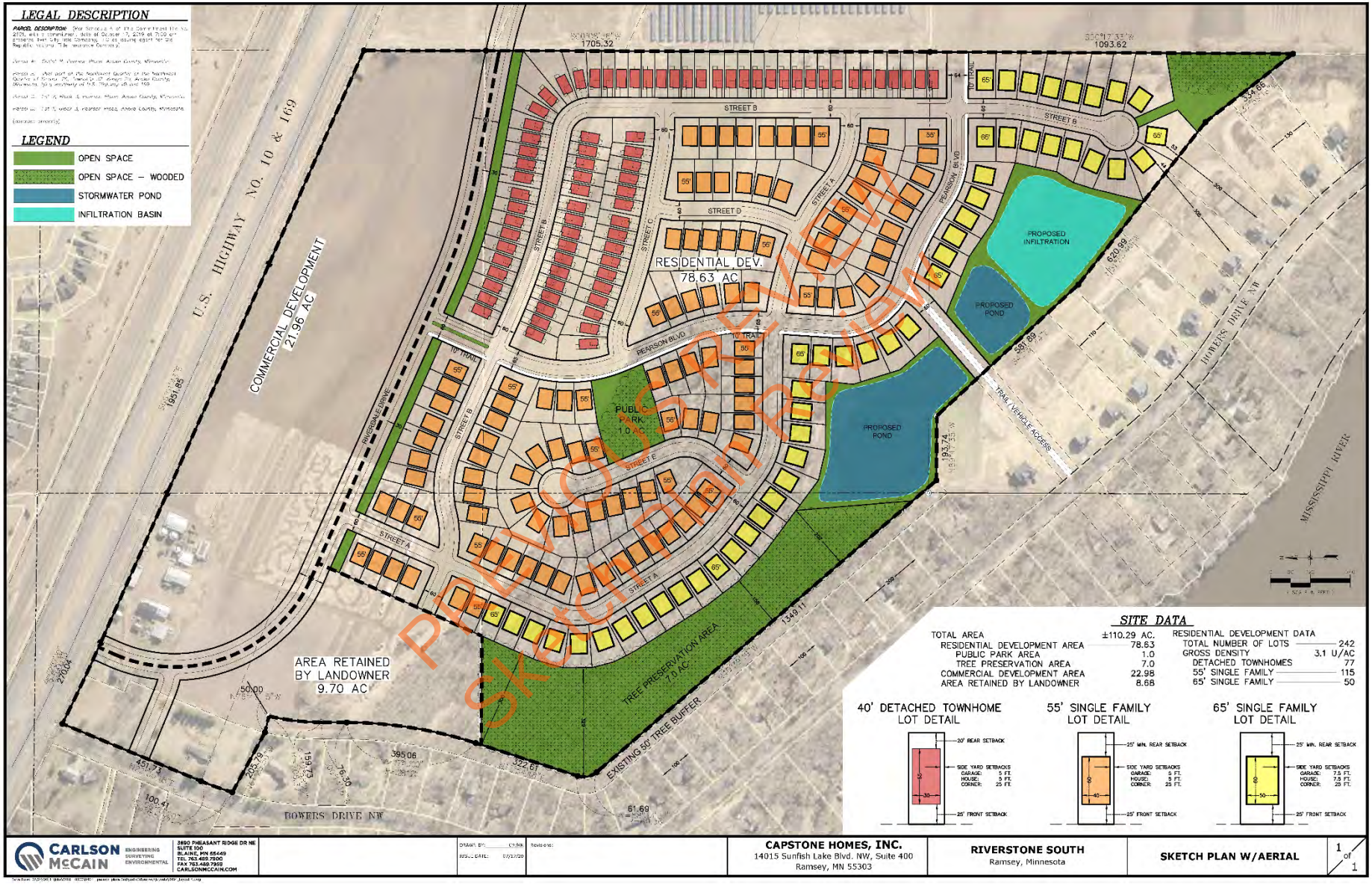
We value your input in this important neighborhood decision. Please let us know if you have any questions. We are available by phone at 763-433-9826 or by email at planning@cityofframsey.com. You can also request hard copies of materials (costs may apply) through this contact as well.

Sincerely,

CITY OF RAMSEY

Tim Gladhill
Deputy City Administrator

Riverstone South Concept Plan



BOWERS DRIVE CONNECTION SURVEY

Description

The City of Ramsey is currently reviewing a proposal for a 242 lot detached single-family development east of Bowers Drive. Bowers Drive is the longest dead-end street in the City with a single access point. For purposes of public safety, the City desires to make a second connection to Bowers Drive through the new Riverstone South Development. The proposed layout of Riverstone South should create minimal traffic impacts on Bowers Drive.

Respondents are encouraged to submit their responses online. This paper copy is provided as background and for those without access to computers and/or internet. https://www.cityoframsey.com/FormCenter/Development-Updates-4/Bowers-Drive-Connection-to-Riverstone-So-99 (or find a friendlier link at www.cityoframsey.com/development).

Background and Disclaimer

By filling out this form, you acknowledge that you have reviewed the materials available on the August 6 Planning Commission first. The City is recommending that a connection be made between Bowers Drive and the future Riverstone South development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS PREVIEW
Sketch Plan Review

[Survey Continues on Next Page]

Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name	**Email Address**
Address	
Phone Number	

Survey Question

For purposes of Public Safety Response, do you support a second access to Bowers Drive?

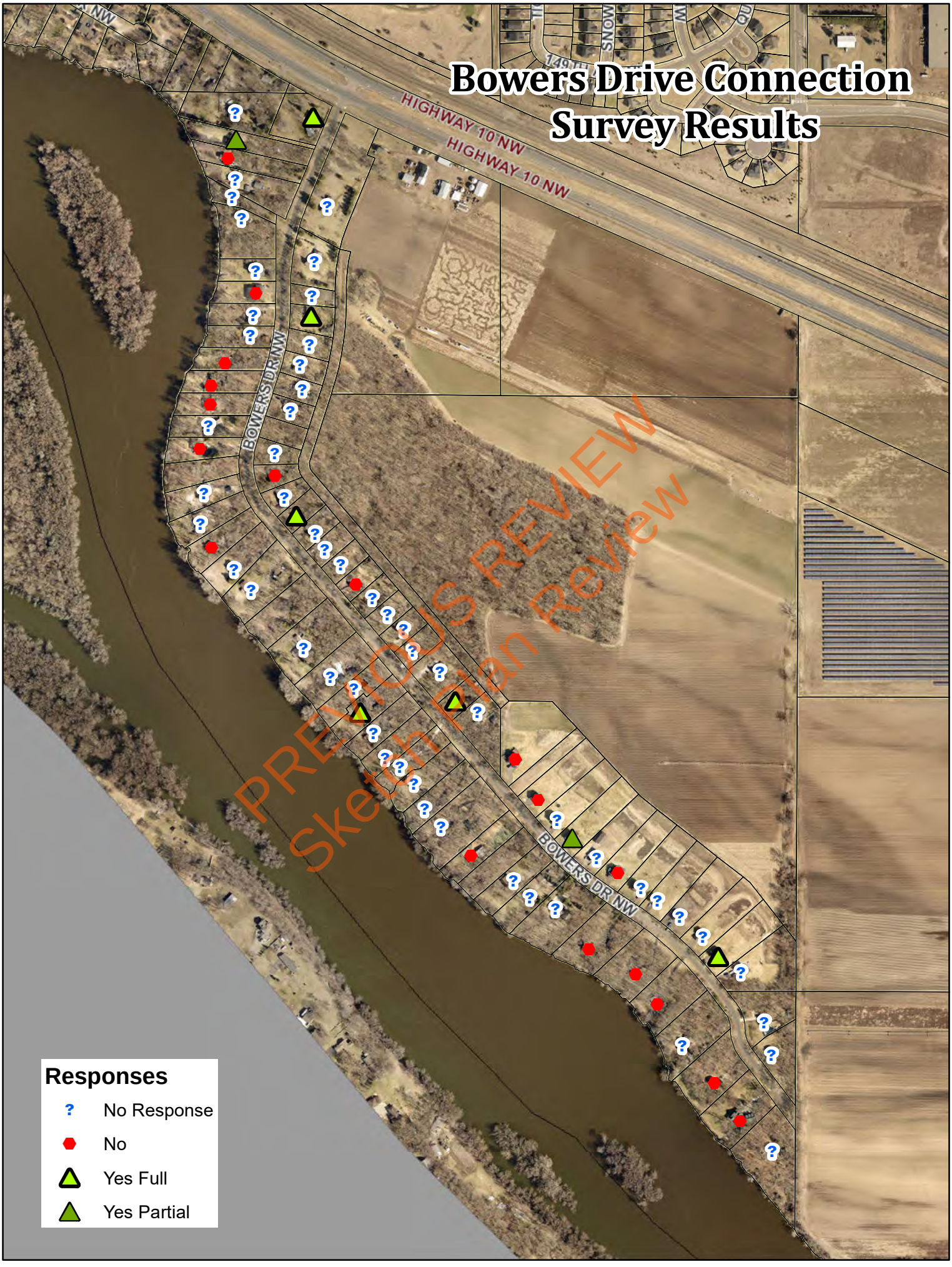
- ☐ Yes, I support a full public road connection
- ☐ Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ☐ No, I do not support a second connection to Bowers Drive
- ☐ Other (please describe below)

Comments

PREVIOUS REVIEW
Sketch Plan Review

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.


Bowers Drive Connection
Survey Results
HIGHWAY 10 NW
HIGHWAY 10 NW
BOWERS DR NW
BOWERS DR NW
PREVIOUS REVIEW
Sketch Plan Review
Responses
No Response
No
Yes Full
Yes Partial

Name	Address	For purposes of Public Safety Response, do you support a second access to Bowers Drive?	Please comment and explain your response above.
Jim Weidenbach	14230 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	Too much traffic on the road already.
Terry and Jane Luke	14250 Bowers DR NW	No, I do not support a second connection to Bowers Drive	We do not want this connection because it would create more vehicle and pedestrian traffic on Bowers DR. One of the reasons we moved to Bowers DR 43 years ago was for the privacy. Years ago the topic of making Bowers DR part of a scenic river route or trail was brought up. There was a very large turnout of Bowers DR residents at the meeting that were against that proposal. It was decided that in the future when the Pierson property was to be developed a trail would be within the boundary of the new development and would not be at all connected to Bowers DR. I would expect that the City of Ramsey would keep there word on this matter and that it should be on record.
Michael Sutton	14310 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	I see absolutely no value in the connection between Bowers Drive and the new development. The increased pedestrian and auto traffic if the connection would go forward would be unmanageable, potentially leading to assessments of the current residents to support street lighting along with other additions in the name of safety which we up until today have not needed. Also concerns of increased crime due to any additional connection allowing those who would commit crime alternate routes to escape.
Laurie Weber Schwarzenberger	14330 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	We have never had the need for a second access to Bowers Dr. We do not believe it is necessary. There will be other accesses to the new housing development for emergencies. We do mot want additional traffic on Bowers Drive. The value of our house has already decreased because of new houses across our street..We do not want the values to drop further.
Michel Pierce	14330 Bowers Dr. NW	No, I do not support a second connection to Bowers Drive	Do not want a connection to Bowers Dr. as it will increase crime and traffic on a street that we enjoy living on. Also, Please ensure that there is no construction access via Bowers Dr for this proposed development. Finally, Still looking for confirmation of a buffer in the southeastern portion of the proposed development between the newly constructed homes on Bowers and the proposed development.
Bridget George	14350 Bowers Drive NW	No, I do not support a second connection to Bowers Drive	I don't see the benefit or the actual need case, nor any data or history justifying the change. If the potential issue is a tree falling across the road, the city could instead proactively trim trees. As the structure of Bowers Drive is not on the table, it would seem to be of minimal benefit to have a 24 foot wide road with curb and gutter as the public works department is proposing rather than a wide trail, as the rest of the road does not have this structure either. If a road were required, a formal barrier would be important to restrict access and would be minimal hindrance to public safety. Perhaps a better investment would be fire hydrants. My primary concern is that the road would draw additional vehicle traffic from new development residents looking for an alternate route to highway 10. Bowers drive already has a large number of residents who exercise, walk, & and take pets along Bowers Drive. Additional auto traffic would pose a significant danger to residents, outweighing any potential safety benefits from a second access. Additionally, extra walkers from the new development looking to complete a loop between the new development and Bowers Drive would add to the number of pedestrians, bikes or dogs along the road, further exacerbating the new hazard created by the proposed new access road. Finally, I am concerned this is just step one of a larger plan by city developers to change Bowers drive road, widening the access, adding curb & gutter, etc. which would change the character of the neighborhood and negatively impact the current lot structure. If public safety is truly the concern of the city- improving or revising entrance and exit access to Bowers Drive should be the first focus- the current access to/from the neighborhood from Highway 10 is extremely dangerous- not enough distance to accelerate or decelerate, as well hazard of crossing the highway. This hazard would get worse with additional traffic from the new development using the access road as a short cut up Bowers Drive onto Highway 10.
Michael Manning	14365 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	
Jamey McPheeters	14420 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	
Kelly Hudick	14420 Bowers Drive NW	No, I do not support a second connection to Bowers Drive	
Paige Bentley	14435 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	Ours is one of the properties directly adjacent to this proposed road. We are opposed to a second access to Bowers Drive. First off, we were not told of this when we purchased our property and are greatly disappointed by the finger pointing and lack of transparency in addressing this issue. Second, we are concerned about lack of safety to our property directly. Since ours would become a corner lot, we would have an entire side of our house exposed to a new roadway that connects to a neighborhood with 250 new homes and an open invitation for possible criminal activity. We are concerned for the safety of our home and ourselves. Another issue to be addressed would be the change in value of our property and any devaluation because of this new said roadway. Will we be compensated, and how, for any losses incurred? The road overall cannot handle more traffic, be it pedestrian or vehicle. Bowers Drive is an active street and adding any traffic poses more of a safety issue to us and our neighbors. Will there be street lights along this new roadway that will be glaring into our bedroom windows? If you build a full roadway with curbs, does that means curbs for Bowers Drive? Where does this end? It seems youâ€™re creating a means for more problems and a never ending cycle. Disappointing to say the least. Weâ€™ve got a longer list of rising concerns that we cannot wait to voice and look forward to the opportunity to be heard.
James Wadey	14447 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	I feel there is no real need, as in the past 80+ years no issues have happened that has allowed for no access the additional road does not improve the issues beyond the connection so does not offer the correct solution if we are looking to improve safety, I am concerned with increased foot pedestrian traffic on bowers drive as there is no side walk and no lighting down the road as is already popular with residents. reduced security is also a concern as additional exits will exist for criminal a number of independent studies have proven this in Minnesota. i am also concerned that the city and developer have not been transparent of what the use of the out lot has been for, in the initial planning phase (12 new homes) or when i purchased my house.
Carol Larson	14480 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	See attached letter.
NICOLE JOHNSTON	14560 BOWERS Dr NW	No, I do not support a second connection to Bowers Drive	I do NOT want the extra traffic on the road, which leads to crime on the road. We did not move to the neighborhood to have additional traffic and issues. We moved here to have a quite DEAD END STREET!
Joshua J Fuhreck	14573 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	
Katherine Woods	14610 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	
Sam Sjostrom	14623 Bowers Dr Nw	No, I do not support a second connection to Bowers Drive	
Shelli Sjostrom	14623 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	
Steven Perkins	14650 Bowers DR NW	No, I do not support a second connection to Bowers Drive	Bowers DR NW is already a very busy street for both pedestrians and vehicles. There are no sidewalks and the current flow of traffic already presents a huge danger to residents walking, etc. Connecting Bowers DR to the new development by road and/or walking trail will increase traffic and create a more dangerous situation for people on feet and bikes.

PREVIOUS PREVIEW
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Ron Herst	14670 Bowers Dr. NW	No, I do not support a second connection to Bowers Drive	We have lived on Bowers Drive for 30 years and have been perfectly happy with the level of "Safety" that we've had. We are strongly opposed to the proposal to have a second access to Bowers Drive from Riverstone South. In the 30 years that we've lived here, the road has been perfectly adequate from a safety perspective. The very last thing that we want is any additional access to this road. We actually believe that our road is safer from crime in that it is a "dead end" and there is no other way in or out. Why should residents of 242 homes have access to Bowers Drive??? WE DON'T WANT IT !!!
Katherine Prokosch	14700 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	We retired from farming & chose this house because of the lack of traffic. If the City ignores my opinion then put in posts that can be dropped by remote control. They use in Switzerland - it gets cold there too! I also don't like the density.
Ralph R Nissen	14710 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	
John Fluegel	14740 Bowers Dr NW	No, I do not support a second connection to Bowers Drive	* Concerns that the 2nd access from neighboring high density low income housing will possibly reduce our property values on Bowers Dr. * Concerns this new 2nd access will result in future street lighting, road widening, sidewalks and fire hydrants etc on Bowers Dr. * Concerns of safety with increased foot/bicycle traffic on Bowers Dr. * Overall concerns regarding the dramatic increase in high density housing in Ramsey....we moved to Ramsey from Mpls 40 years ago to live in a peaceful and quiet neighborhood.
John Morris	14820 Bowers Dr	No, I do not support a second connection to Bowers Drive	Both john and I feel that to maintain the privacy and value of our neighborhood this access should not be allowed. There has never been any hard numbers put to incidents on our street that warrant the expenditure by the city or the change to our neighborhood. The new neighborhood is not being modeled after ours so therefore we feel it should be kept seperate.
Gretchen Morris	14820 Bowers Dr. NW	No, I do not support a second connection to Bowers Drive	Both john and I feel that to maintain the privacy and value of our neighborhood this access should not be allowed. There has never been any hard numbers put to incidents on our street that warrant the expenditure by the city or the change to our neighborhood. The new neighborhood is not being modeled after ours so therefore we feel it should be kept seperate.
Tony Durkin	14409 Bowers Dr NW	Yes, but only if it is used by Public Safety (and Public Works Maintenance)	I support public safety and a fire hydrant on the street, I do not support streetlights. My concern is that if a full access road is constructed that it will lead to more traffic which will lead to more wear and tear on the road which will lead to the road re-being redone which will include gutters and streetlights which will lead to a special assessment to my property taxes. I would like to see the signs of emergency vehicles only added to the access road.
Richard Sandeen	14826 Bowers Dr NW	Yes, but only if it is used by Public Safety (and Public Works Maintenance)	Perhaps a little off topic but I would like to see the road connection between Bowers and Riverdale Dr. be moved another 30 or 40 feet to the South locating it completely away from the end of my driveway.
Richard	14826 Bowers Dr NW	Yes, but only if it is used by Public Safety (and Public Works Maintenance)	
Katie Jensen	14331 Bowers Dr NW	Yes, I support a full public road connection	
Stephen J Nash	14500 Bowers Dr NW	Yes, I support a full public road connection	First, we need a second access for Bowers Drive. Second, I believe that the access in question should be a public road which will help disperse traffic on Bowers Dr.
Bert Horton	14510 Bowers Dr NW	Yes, I support a full public road connection	Tim Gladhill, I received your letter asking for input regarding the Capstone project. My major question is safety for Bowers Drive. Our road has a lot of curves and limited visibility when leaving many driveways. My hope was that there would be another entry/exit from Bowers to the east. That would decrease traffic as there would be two ways to enter or exit Bowers. In looking at your concept plan I see a new trail and what appears to be a trail and emergency vehicle road with gate. That would only increase foot traffic but not help the traffic we experience. I have heard there is second option being considered with the east trail/limited vehicle plan to allow full car traffic. I would not be in favor of the version that appears in your letter. I would consider Bowers far more safe with two real entry/exits than the limited emergency option. I am not concerned about the very rare case where emergency vehicles need an additional entry vs the traffic we have every day.
Bryan Olson	14513 Bowers Drive NW	Yes, I support a full public road connection	There should be trees planted on either side of this road. Those residents were not told by builders that there would be a road. They should plant spruce to provide year round privacy. Hopefully the first tier of new home drivers will not cut thru on Bowers to get to Hwy 10.
John LeTourneau	14607 NW Bowers Dr NW	Yes, I support a full public road connection	
Gene. Waldowski	14743 Bowers Dr Nw	Yes, I support a full public road connection	
Luther Olson	14840 Bowers Dr NW	Yes, I support a full public road connection	

PREVIOUS PREVIEW
Sketch Plan Review

From: [redacted]
To: Ramsey Planning
Subject: Bowers Drive Connection Survey
Date: Tuesday, August 18, 2020 4:42:53 PM

Tim Gladhill, I received your letter asking for input regarding the Capstone project. My major question is safety for Bowers Drive. Our road has a lot of curves and limited visibility when leaving many driveways. My hope was that there would be another entry/exit from Bowers to the east. That would decrease traffic as there would be two ways to enter or exit Bowers. In looking at your concept plan I see a new trail and what appears to be a trail and emergency vehicle road with gate. That would only increase foot traffic but not help the traffic we experience. I have heard there is second option being considered with the east trail/limited vehicle plan to allow full car traffic.

I would not be in favor of the version that appears in your letter. I would consider Bowers far more safe with two real entry/exits than the limited emergency option. I am not concerned about the very rare case where emergency vehicles need an additional entry vs the traffic we have every day.

Thanks, Bert Horton
14510 Bowers Drive NW
Ramsey, MN., 55303

PREVIOUS REVIEW
Sketch Plan Review

Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name	Email Address
Katherine Prokosch	[redacted]
Address	
14700 Bowers Dr N.W	
Phone Number	
[redacted]	

Survey Question

For purposes of Public Safety Response, do you support a second access to Bowers Drive?

- ☐ Yes, I support a full public road connection
- ☐ Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ☒ ~~No~~, I do not support a second connection to Bowers Drive — this is a double negative statement
- ☐ Other (please describe below)

Comments

We retired from farming & chose this house because of the lack of traffic.
If the city ignores my opinion then put in posts that can be dropped by remote control. Then use in Switzerland - it gets cold there too!
I also don't like the density.

Disclaimer

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PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2149

Date Submitted: 8/13/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Bridget George

Email Address

[redacted]

Address*

14350 Bowers Drive NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

I don't see the benefit or the actual need case, nor any data or history justifying the change. If the potential issue is a tree falling across the road, the city could instead proactively trim trees. As the structure of Bowers Drive is not on the table, it would seem to be of minimal benefit to have a 24 foot wide road with curb and gutter as the public works department is proposing rather than a wide trail, as the rest of the road does not have this structure either. If a road were required, a formal barrier would be important to restrict access and would be minimal hindrance to public safety. Perhaps a better investment would be fire hydrants. My primary concern is that the road would draw additional vehicle traffic from new development residents looking for an alternate route to highway 10. Bowers drive already has a large number of residents who exercise, walk, & and take pets along Bowers Drive. Additional auto traffic would pose a significant danger to residents, outweighing any potential safety benefits from a second access. Additionally, extra walkers from the new development looking to complete a loop between the new development and Bowers Drive would add to the number of pedestrians, bikes or dogs along the road, further exacerbating the new hazard created by the proposed new access road. Finally, I am concerned this is just step one of a larger plan by city developers to change Bowers drive road, widening the access, adding curb & gutter, etc. which would change the character of the neighborhood and negatively impact the current lot structure. If public safety is truly the concern of the city- improving or revising entrance and exit access to Bowers Drive should be the first focus- the current access to/from the neighborhood from Highway 10 is extremely dangerous- not enough distance to accelerate or decelerate, as well hazard of crossing the highway. This hazard would get worse with additional traffic from the new development using the access road as a short cut up Bowers Drive onto Highway 10.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2150

Date Submitted: 8/13/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

James Wadey

Email Address

[redacted]

Address*

14447 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

I feel there is no real need, as in the past 80+ years no issues have happened that has allowed for no access the additional road does not improve the issues beyond the connection so does not offer the correct solution if we are looking to improve safety, I am concerned with increased foot pedestrian traffic on bowers drive as there is no side walk and no lighting down the road as is already popular with residents. reduced security is also a concern as additional exits will exist for criminal a number of independent studies have proven this in Minnesota. i am also concerned that the city and developer have not been transparent of what the use of the out lot has been for, in the initial planning phase (12 new homes) or when i purchased my house.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2151

Date Submitted: 8/13/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

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Name*

Laurie Weber Schwarzenberger

Email Address

[redacted]

Address*

14330 Bowers Dr

City

Anoka

State

Mn

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

We have never had the need for a second access to Bowers Dr. We do not believe it is necessary. There will be other accesses to the new housing development for emergencies. We do mot want additional traffic on Bowers Drive. The value of our house has already decreased because of new houses across our street..We do not want the values to drop further.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2152

Date Submitted: 8/13/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

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☑ Yes

Purpose of Contact Information

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Name*

Paige Bentley

Email Address

[redacted]

Address*

14435 Bowers Dr NW

City

Ramsey

State

Minnesota

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

Ours is one of the properties directly adjacent to this proposed road. We are opposed to a second access to Bowers Drive. First off, we were not told of this when we purchased our property and are greatly disappointed by the finger pointing and lack of transparency in addressing this issue. Second, we are concerned about lack of safety to our property directly. Since ours would become a corner lot, we would have an entire side of our house exposed to a new roadway that connects to a neighborhood with 250 new homes and an open invitation for possible criminal activity. We are concerned for the safety of our home and ourselves. Another issue to be addressed would be the change in value of our property and any devaluation because of this new said roadway. Will we be compensated, and how, for any losses incurred? The road overall cannot handle more traffic, be it pedestrian or vehicle. Bowers Drive is an active street and adding any traffic poses more of a safety issue to us and our neighbors. Will there be street lights along this new roadway that will be glaring into our bedroom windows? If you build a full roadway with curbs, does that means curbs for Bowers Drive? Where does this end? It seems youâ€™re creating a means for more problems and a never ending cycle. Disappointing to say the least. Weâ€™ve got a longer list of rising concerns that we cannot wait to voice and look forward to the opportunity to be heard.

PREVIOUS PREVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2153

Date Submitted: 8/14/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

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Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

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Name*

Sam Sjostrom

Email Address

[redacted]

Address*

14623 Bowers Dr Nw

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

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Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2154

Date Submitted: 8/14/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

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Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

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☑ Yes

Purpose of Contact Information

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Name*

Gene. Waldowski

Email Address

[redacted]

Address*

14743 Bowers Dr Nw

City

Ramsey

State

Mn

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- (●) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

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Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2155

Date Submitted: 8/14/2020

Riverstone South Background

Riverstone South Background

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Fire Department Recommendation

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Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

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Purpose of Contact Information

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Name*

Shelli Sjostrom

Email Address

Address*

14623 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

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Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2156

Date Submitted: 8/15/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

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Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

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Name*

Richard Sandeen

Email Address

[redacted]

Address*

14826 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- (•) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

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Please comment and explain your response above.

Perhaps a little off topic but I would like to see the road connection between Bowers and Riverdale Dr. be moved another 30 or 40 feet to the South locating it completely away from the end of my driveway.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2158

Date Submitted: 8/15/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

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☑ Yes

Purpose of Contact Information

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Name*

Bryan Olson

Email Address

[redacted]

Address*

14513 Bowers Drive

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- (●) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

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Please comment and explain your response above.

There should be trees planted on either side of this road. Those residents were not told by builders that there would be a road. They should plant spruce to provide year round privacy. Hopefully the first tier of new home drivers will not cut thru on Bowers to get to Hwy 10.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2159

Date Submitted: 8/15/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

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Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

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☑ Yes

Purpose of Contact Information

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Name*

Richard

Email Address

Sandeen

Address*

14826 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- (•) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

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Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2160

Date Submitted: 8/15/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

John LeTourneau

Email Address

[redacted]

Address*

14607 NW Bowers Drive

City

Ramsey

State

Minnesota

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- (●) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2161

Date Submitted: 8/16/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Jim Weidenbach

Email Address

[redacted]

Address*

14230 bowers drive nw, anoka mn 55303

City

ramsey

State

mn

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

Too much traffic on the road already.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2162

Date Submitted: 8/16/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Steven Perkins

Email Address

[redacted]

Address*

14650 Bowers DR NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

Bowers DR NW is already a very busy street for both pedestrians and vehicles. There are no sidewalks and the current flow of traffic already presents a huge danger to residents walking, etc. Connecting Bowers DR to the new development by road and/or walking trail will increase traffic and create a more dangerous situation for people on feet and bikes.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2163

Date Submitted: 8/16/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

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Name*

Tony Durkin

Email Address

[redacted]

Address*

14409 Bowers drive

City

Ramsey

State

Mn

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- (•) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

I support public safety and a fire hydrant on the street, I do not support streetlights. My concern is that if a full access road is constructed that it will lead to more traffic which will lead to more wear and tear on the road which will lead to the road re-being redone which will include gutters and streetlights which will lead to a special assessment to my property taxes. I would like to see the signs of emergency vehicles only added to the access road.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2165

Date Submitted: 8/16/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Kelly Hudick

Email Address

[redacted]

Address*

14420 Bowers Drive NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2166

Date Submitted: 8/16/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Jamey McPheeters

Email Address

[redacted]

Address*

14420 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2167

Date Submitted: 8/17/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Katie Jensen

Email Address

[redacted]

Address*

14331 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- (●) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2168

Date Submitted: 8/17/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Stephen J Nash

Email Address

[redacted]

Address*

14500 Bowers Dr NW

City

ANOKA

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- (●) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

First, we need a second access for Bowers Drive. Second, I believe that the access in question should be a public road which will help disperse traffic on Bowers Dr.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2169

Date Submitted: 8/17/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Ralph R Nissen

Email Address

[redacted]

Address*

14710 Bowers Drive NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2170

Date Submitted: 8/17/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

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Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Luther Olson

Email Address

[redacted]

Address*

14840 Bowers Dr NW

City

Anoka

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- (●) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ( ) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2171

Date Submitted: 8/18/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Ron Herst

Email Address

[redacted]

Address*

14670 Bowers Dr. NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

We have lived on Bowers Drive for 30 years and have been perfectly happy with the level of "Safety" that we've had. We are strongly opposed to the proposal to have a second access to Bowers Drive from Riverstone South. In the 30 years that we've lived here, the road has been perfectly adequate from a safety perspective. The very last thing that we want is any additional access to this road. We actually believe that our road is safer from crime in that it is a "dead end" and there is no other way in or out. Why should residents of 242 homes have access to Bowers Drive??? WE DON'T WANT IT !!!

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2172

Date Submitted: 8/18/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Gretchen Morris

Email Address

[redacted]

Address*

14820 Bowers Dr. NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

Both john and I feel that to maintain the privacy and value of our neighborhood this access should not be allowed. There has never been any hard numbers put to incidents on our street that warrant the expenditure by the city or the change to our neighborhood. The new neighborhood is not being modeled after ours so therefore we feel it should be kept seperate.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2173

Date Submitted: 8/18/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

John Morris

Email Address

[redacted]

Address*

14820 Bowers Dr

City

Ramsey

State

Minnesota

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

Both john and I feel that to maintain the privacy and value of our neighborhood this access should not be allowed. There has never been any hard numbers put to incidents on our street that warrant the expenditure by the city or the change to our neighborhood. The new neighborhood is not being modeled after ours so therefore we feel it should be kept seperate.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2175

Date Submitted: 8/19/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

NICOLE JOHNSTON

Email Address

[redacted]

Address*

14560 BOWERS DRIVE NW

City

RAMSEY

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

I do NOT want the extra traffic on the road, which leads to crime on the road. We did not move to the neighborhood to have additional traffic and issues. We moved here to have a quite DEAD END STREET!

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2177

Date Submitted: 8/19/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Katherine Woods

Email Address

[redacted]

Address*

14610 Bowers Drive NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2180

Date Submitted: 8/21/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Michel Pierce

Email Address

[redacted]

Address*

14330 Bowers Dr. NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

Do not want a connection to Bowers Dr. as it will increase crime and traffic on a street that we enjoy living on. Also, Please ensure that there is no construction access via Bowers Dr for this proposed development. Finally, Still looking for confirmation of a buffer in the southeastern portion of the proposed development between the newly constructed homes on Bowers and the proposed development.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2182

Date Submitted: 8/22/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Terry and Jane Luke

Email Address

[redacted]

Address*

14250 Bowers DR NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

We do not want this connection because it would create more vehicle and pedestrian traffic on Bowers DR. One of the reasons we moved to Bowers DR 43 years ago was for the privacy. Years ago the topic of making Bowers DR part of a scenic river route or trail was brought up. There was a very large turnout of Bowers DR residents at the meeting that were against that proposal. It was decided that in the future when the Pierson property was to be developed a trail would be within the boundary of the new development and would not be at all connected to Bowers DR. I would expect that the City of Ramsey would keep there word on this matter and that it should be on record.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2183

Date Submitted: 8/22/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Michael Manning

Email Address

[redacted]

Address*

14365 Bowers Dr NW

City

Ramsey

State

Minnesota

Zip Code

55303-7264

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2184

Date Submitted: 8/23/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

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PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Michael Sutton

Email Address

[redacted]

Address*

14310 Bowers Drive NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

I see absolutely no value in the connection between Bowers Drive and the new development. The increased pedestrian and auto traffic if the connection would go forward would be unmanageable, potentially leading to assessments of the current residents to support street lighting along with other additions in the name of safety which we up until today have not needed. Also concerns of increased crime due to any additional connection allowing those who would commit crime alternate routes to escape.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2210

Date Submitted: 8/26/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
Sketch Plan Review

I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

John Fluegel

Email Address

Address*

14740 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- Yes, I support a full public road connection
- Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (selected) No, I do not support a second connection to Bowers Drive
- Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

* Concerns that the 2nd access from neighboring high density low income housing will possibly reduce our property values on Bowers Dr. * Concerns this new 2nd access will result in future street lighting, road widening, sidewalks and fire hydrants etc on Bowers Dr. * Concerns of safety with increased foot/bicycle traffic on Bowers Dr. * Overall concerns regarding the dramatic increase in high density housing in Ramsey....we moved to Ramsey from Mpls 40 years ago to live in a peaceful and quiet neighborhood.

PREVIOUS REVIEW
Sketch Plan Review

Print

Bowers Drive Connection to Riverstone South - Submission #2243

Date Submitted: 9/2/2020

Riverstone South Background

Riverstone South Background

By filling out this form, you acknowledge that you have reviewed the materials on this link first. The City of Ramsey is recommending that a connection be made between Bowers Drive and the future Riverstone South Development.

Fire Department Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. The roadway connection will give Public Safety a second access point to the long Bowers Drive dead-end in the event of an emergency. If Bowers Drive were to be blocked for some reason, this road would allow Public Safety a second access to the Bowers Drive Neighborhood. The road needs to be built to the standards to support the weight of a Fire Vehicle and Equipment and not designed as a standard pedestrian trail. Bowers Drive is the longest dead-end cul-de-sac we have in the City. Bowers Drive does not have any fire hydrants to assist in emergencies.

Police Department Recommendation

The Police Department is in support of the proposed roadway which would connect the existing cul-de-sac of Bowers Drive that has existed for a number of years to the new Riverstone South Development. Due to the nature and location of this proposed road, the Police Department believes the positives to public safety outweigh any possible negatives which could result from the change. We believe having a second access would increase our ability to quickly render aid to the Ramsey Residents who live on this existing street, who we serve and protect. As the specifics of this road are discussed further, the Police Department would request it be constructed for year-round access and not have breakaway barriers or gates.

Public Works Maintenance Recommendation

The proposed road that would connect Bowers Drive with the new Riverstone South Development is an important and vital roadway connection for Public Safety. Public Works Staff and equipment are a vital part of every large-scale emergency response effort. Therefore, the Public Works Department recommends the access road be built to a minimum width of 24 feet with B Style Curb and designed to 9 Ton Specifications. This road needs to be designed to handle large emergency equipment, such as Fire Engines, Public Works Vehicles and Electrical Line Repair Vehicles. As also mentioned by Police and Fire, this is a long cul-de-sac road with only a single access point.

PREVIOUS REVIEW
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I acknowledge that I have read the information above before responding to this survey.*

☑ Yes

Purpose of Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name*

Joshua J Fuhreck

Email Address

[redacted]

Address*

14573 Bowers Dr NW

City

Ramsey

State

MN

Zip Code

55303

Phone Number

[redacted]

For purposes of Public Safety Response, do you support a second access to Bowers Drive?*

- ( ) Yes, I support a full public road connection
- ( ) Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- (•) No, I do not support a second connection to Bowers Drive
- ( ) Other (please describe below)

Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Please comment and explain your response above.

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Contact Information

The City is requesting that names and addresses are being captured as part of the public record. To ensure that those directly and most impacted by the policy decision are recorded and not unduly influenced by those not directly or most impacted by the decision, address verification is important.

Name	Email Address
Carol Larsen	[redacted]
Address	
14480 Bowers Dr. NW, Ramsey, MN 55303	
Phone Number	
[redacted]	

Survey Question

For purposes of Public Safety Response, do you support a second access to Bowers Drive?

- ☐ Yes, I support a full public road connection
- ☐ Yes, but only if it is used by Public Safety (and Public Works Maintenance)
- ☒ No, I do not support a second connection to Bowers Drive
- ☐ Other (please describe below)

Comments

On separate pages
Please share with Council & mayor.
I have questions about exit & entrance on Bowers from Hwy 10.

PREVIOUS REVIEW
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Disclaimer

For purposes of this survey, a non-response will be considered as a non-objection to the connection.

Tim Gladhill, Deputy City Administrator

Ramsey City Hall,7550 Sunwood Dr. NW

Ramsey, MN. 55303

Dear Mr. Gladhill,

In response to your notification that I have the opportunity to respond to your mailing regarding what I want in my backyard...Riverstone South. I do not support a second connection to Bowers Drive.

1. Believing that the people who bought lots and built homes without knowing that there was a possibility the city would put a road between their homes to access Bowers Drive, seems unfair to the residents in the two homes on either side of the "emergency entrance" proposed to Bowers Drive.
2. Headlights aimed at the homes directly across Bowers Drive from that entrance invades the privacy of those residences.
3. Opening up the entrance to 243 residences will create more traffic on our street which has already been the case because of the Capstone addition making it less safe for residents of Bowers to walk because of the speed of many of those vehicles. Monday is garbage pick up on Bowers Drive and there are already many garbage trucks speeding back out of Bowers Drive which I assume would increase even more if that access were open to Riverstone South.
4. None of the agencies who are promoting the emergency entrance live on Bowers Drive. I do, and I've lived here for 56 years. We've had very few emergencies on Bowers Drive during that time and I don't believe the length of the street has ever been hazardous for emergency vehicles.
5. One of the advantages to those of us who reside on Bowers Drive is that we know the neighborhood and our residents. Either those using Bowers Drive know where they are or are lost. Please don't give in to the myth that an expensive road connecting the proposed addition to Bowers Drive would benefit the residents of Bowers Drive. I don't believe it would. In the event of an emergency, not having any in probably over 60 years, if a tree blocked the road, nearly every household owns a chain saw. That speaks for itself. I've always felt safe here, basically because of the dead -end road. If anyone or anything looks suspicious, someone notices and will report it.
6. Bowers Drive owners use the street to walk their dogs and exercise themselves. Opening it up with free access to 240 more households will bring more dogs and people using the street for exercise. Visit Bowers Drive in the winter when you see how yellow the snow is in our entrance to our driveways and along the road let alone the leavings of the dogs by our plowed out mail boxes. Not everyone carries a bag to pick up after their pets. And you want to give access to 240 more households to access our street for the purpose of relieving their animals. No Thanks!!!!
7. If you would, please consider how opening up this entrance to benefit 240 more households, and how it would affect those who are residents who bought or built here were influenced by

PREVIOUS PREVIEW
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the beauty and not overly crowded lots or streets. We were here first and consideration for us should be primary. There has to be a way that an emergency entrance could be restricted to emergency vehicles only...find out how emergency vehicles can activate signals on traffic lights when they need to get through... instead of leaving an emergency entrance open to all through traffic. Doing that would negatively impact us should you approve it...more traffic, too many people, many who are just curious and perhaps more chance for crime with an easier exit and entrance to our neighborhood.

8. Thank you for your consideration of my thoughts and those of many of my neighbors. Having lived here for over half a century, I would implore you to consider these thoughts and desires regarding this important issue.

Sincerely,

Carol Larsen
14480 Bowers Dr NW
Ramsey, MN 55303
[redacted]

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CITY COUNCIL
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey City Council conducted a regular meeting on Tuesday, September 8, 2020, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Mayor John LeTourneau
Councilmember Mark Kuzma
Councilmember Jeff Menth
Councilmember Debra Musgrove
Councilmember Chris Riley
Councilmember Dan Specht

Members Absent: None

Also Present: City Administrator Kurtis Ulrich
Police Chief Jeff Katers
Parks and Assistant Public Works Superintendent Mark Riverblood – attended remotely
Public Works Superintendent Grant Riemer
Deputy City Administrator Timothy Gladhill
City Engineer Bruce Westby

1. CALL TO ORDER

Mayor LeTourneau called the regular meeting of the Ramsey City Council to order at 7:00 p.m., followed by the Pledge of Allegiance led by Mayor LeTourneau.

2. PRESENTATION

2.01: Presentation Proclaiming September 17-23, 2020 as Constitution Week

Mayor LeTourneau read the proclamation declaring September 17-23, 2020 as Constitution Week.

3. CITIZEN INPUT

None.

4. APPROVE AGENDA

Motion by Councilmember Menth, seconded by Councilmember Musgrove, to approve the agenda as presented.

Motion carried. Voting Yes: Mayor LeTourneau, Councilmembers Menth, Musgrove, Kuzma, Riley, and Specht. Voting No: None.

5. CONSENT AGENDA

Motion by Councilmember Riley, seconded by Councilmember Kuzma, to approve the following items on the Consent Agenda:

5.01: Approve the following Meeting Minutes:
1) City Council Work Session dated August 25, 2020
2) City Council Regular dated August 25, 2020

5.02: Approve Rental Licenses

5.03: Adopt Resolution #20-193 Approving Cash Disbursements Made and Authorizing Payment of Accounts Payable Invoicing Received During the Period of August 20, 2020 through September 3, 2020

5.04: Adopt Resolution #20-185 Proclaiming September 17-23, 2020 as Constitution Week

5.05: Adopt Resolution #20-191 Declaring Costs to be Assessed and Calling for Public Hearing on Proposed Assessment for Past-Due Charges on Municipal Utility Bills (which may include water, sewer, street lighting, recycling, stormwater charges, and penalties incurred) and Current Services Rendered

5.06: Adopt Resolution #20-192 Approving Snow Storage Agreement on City Owned Land

5.07: Adopt Resolution #20-194 Approving Underwriting Service Agreement for Small Business Relief Grant Program

5.08: Adopt Resolution #20-195 Ordering Assessment Roll and Calling Assessment Hearing for Improvement Project #20-04, Puma Street Improvements

5.09: Adopt Resolution #20-196 Approving Letter of Support for Metropolitan Council Clean Water Fund Request for State Fiscal Year 2022-2023

5.10: Adopt Resolution #20-197 Approving Amended Petition and Waiver Agreement for Municipal Water and Sanitary Sewer Connection to 7600 163rd Lane NW

Motion carried. Voting Yes: Mayor LeTourneau, Councilmembers Riley, Kuzma, Menth, Musgrove, and Specht. Voting No: None.

6. PUBLIC HEARING

None.

7. COUNCIL BUSINESS

7.01: Adopt Resolution #20-171 Accepting Bids and Awarding Contracts for Bid Package #1 and Alternate #1 for the New Public Works Facility

Public Works Superintendent Riemer reviewed the staff report and recommendation to adopt Resolution #20-171 accepting bids and awarding contracts for Bid Package #1 with a base bid amount of $6,138,361 and including Alternate Bid #1 in the amount of $441,938 for a total of $6,580,299.

Councilmember Musgrove asked if it is unusual to have this type of bidding competition and low bidders.

Public Works Superintendent Riemer replied that he believes that COVID has slowed down the commercial side of construction and therefore there is more interest from those contractors.

Motion by Councilmember Menth, seconded by Councilmember Riley, to Adopt Resolution #20-171 Accepting Bids and Awarding Contract for Bid Package #1 for the New Ramsey Public Works Facility, Improvement Project #20-07.

Further discussion: Councilmember Kuzma asked RJM to come forward and discuss why it is a good time to go forward with alternate bid #1. Curtis Sell, RJM, stated that there would be cost efficiencies in completing the alternate bid into the original build, as the cost to complete an expansion in the future adds additional costs. He noted that there would also be a schedule efficiency in completing both of those elements at once. Councilmember Musgrove asked when the Council will see updated sketches for the building. Mr. Sell stated that bid package #1 contains the larger denser portions of the project and the architect is working to complete bid package #2, which contains more of the design details.

Motion carried. Voting Yes: Mayor LeTourneau, Councilmembers Menth, Riley, Kuzma, Musgrove, and Specht. Voting No: None.

7.02: Review Sketch Plan for Riverstone South; Case of Capstone Homes

Assistant City Administrator Gladhill reviewed the staff report and asked the Council to provide feedback to the developer as part of the plan development for the next stage in the process known as Preliminary Plat. Preliminary Plat is the most crucial stage in the subdivision process. It was noted that the City has broad policy discretion as the request requires the approval of a Zoning Amendment and possibly a Comprehensive Plan Amendment due to lot sizes and densities.

Councilmember Specht asked if the Comprehensive Plan identifies a trail connection to the end of Bowers Drive.

Assistant City Administrator Gladhill stated that there has been some discussion on the MRT trail and where it will connect. He noted that the discussion is focused more on Riverdale Drive rather than running that trail through the Bowers Drive properties. He stated that staff will continue to work with new developments in order to secure segments near the river.

Mayor LeTourneau noted that the MRT extends past Bowers Drive to the west and is not proposed to go down Bowers Drive at this point. He noted that there is a full access onto the trail from Bowers Drive. He asked if the Council is required to make any decisions about the secondary road access tonight.

Assistant City Administrator Gladhill stated that tonight they are looking at whether there is general consensus to move forward with the plan development as proposed. He stated that they

would like direction on the Bowers Drive connection but noted that the decision could be changed prior to adoption of the Preliminary Plat.

Councilmember Riley asked if these would be the same lot sizes as Riverstone North.

Assistant City Administrator Gladhill confirmed that these would be the same lot sizes and would be very much a mirror image of the development, with the exception of the removal of one of the product types.

Councilmember Musgrove asked for details on Riverdale Drive and the history of the layout on the sketch.

Assistant City Administrator Gladhill provided background information on the access planning study that was completed in 2014 by the City and MnDOT, noting that study showed Riverdale Drive consuming some of the first few lots. He provided additional details on the proposed layout for Riverdale Drive which was developed by the developer working with the input of the Bowers Drive residents to find an alignment that worked well for everyone involved.

Mayor LeTourneau provided an opportunity for members of the public to provide input.

Jeff Johnson, 14540 Bowers Drive, referenced the Bowers Drive survey and asked at what point the Council would automatically move ahead. He asked if the decision has already been made on Bowers Drive. He stated that the residents have not been given any data from public safety on how much safer the neighborhood would be with the additional access. He stated that when you open up a cul-de-sac that increases opportunity for crime as that creates another way for people to access and exit the neighborhood. He stated that this road has been around for about 80 years and noted that there has not been one time since he has lived at his home where EMS has not been able to access the homes on Bowers Drive. He stated that there is a difference between a need and a desire. He stated that connecting Bowers Drive to Capstone would substantially increase the pedestrian traffic on Bowers Drive, which is a narrow road that is not lit by streetlights. He stated that providing this connection is attempting to solve a problem that does not exist and would instead create more problems that need to be solved, which would destroy the reason people purchased homes on that road. He stated that people that purchased property on Bowers Drive chose to live there and do not need the City to calculate their risk levels. He stated that if the residents on Bowers Drive felt threatened, they would not have purchased their properties. He commented that residents do not leave Bowers Drive, they seek property on Bowers Drive. He did not think it appropriate to include or make assumptions about the people that did not respond to the survey. He commented that the residents of Bowers Drive do not want the connection and did not believe there is anything wrong with keeping those neighborhoods isolated rather than connecting them. He did not think that putting a secondary access onto Bowers Drive would solve any problems and instead would create additional problems.

Mayor LeTourneau thanked Mr. Johnson for his input.

Mr. Johnson stated that at the last planning meeting he asked for information as to what would be required for the Bowers Drive residents to stop this process and he has not received that information.

Mayor LeTourneau stated that staff is still determining that but recognized that the voices of Bowers Drive have a high impact.

Councilmember Musgrove stated that it is clear that Mr. Johnson does not want a road and asked if he would support a narrow trail with breakaway barriers that could be used by emergency vehicles.

Mr. Johnson stated that once that is developed, people will use that as a trail and the pedestrian traffic will come from Capstone onto Bowers Drive. He confirmed that his concern is related to the increased pedestrian traffic and safety concerns with that activity.

Councilmember Musgrove asked what Mr. Johnson would believe to be a workable option.

Mr. Johnson stated that he would like to see the data that proves this would make that neighborhood safer as the data currently shows that the secondary access and increased pedestrian traffic would make the area more unsafe.

Councilmember Musgrove referenced the mention of 50 foot and 100-foot setbacks.

Mr. Johnson noted that the original planning meetings for Capstone referenced a 100-foot setback, but those original 12 homes were setback 50 feet instead.

Police Chief Katers appreciated Mr. Johnson's position. He stated that his comments related to public safety remain the same for any neighborhood noting that he prefers two points of access for all neighborhoods although he recognizes the uniqueness of Bowers Drive. He stated that he cannot provide statistical information of what may happen in the future and can only provide input on what could happen. He stated that there could be multiple situations that could cause the current access to be closed, therefore public safety prefers to have two points of access in order to get people in and out of a neighborhood.

Mr. Johnson stated that everyone that lives on Bowers Drive is aware of the risk they took in purchasing their property and they are not asking for that secondary access. He stated that cul-de-sacs are safer than any other road in terms of crime. He stated that he has not been provided with any information that has proven that two accesses would make the residents safer.

Police Chief Katers stated that his standard response for a development is to have two accesses. He stated that he is familiar with the cul-de-sac studies, noting that those were small areas in Minneapolis and therefore that is an urban area versus a rural environment and that study only took into account burglary and not the other crimes or situations that could exist.

Councilmember Specht thanked Mr. Johnson for his input and recognition of property rights. He stated that he has heard of informal surveys that have been completed with more response.

Josh Fuhreck, 14573 Bowers Drive, thanked Capstone for their efforts on this project. He stated that overall, this is a good project and the developer has given consideration to the unique forestry environment that exists on the property. He stated that overall, he supports the project, but he does not support the Bowers Drive connection. He stated that the public safety concerns mentioned have an extremely remote possibility of occurring. He noted that if the connection is provided to allow the additional pedestrian traffic on the narrow roadway of Bowers Drive, that would create a much more likely and real safety concern. He stated that it would be very unlikely that a tree would fall, and an emergency situation would occur at the same time, noting that has not happened once in 80 years. He stated that the City's survey was extremely slanted, mentioning only the City points and a statement that said if you do not respond we will assume you favor the connection. He presented a survey of 85 homes, noting that 60 residents responded in opposition of the connection to Bowers Drive. He asked the Council to consider the survey he presented rather than the survey completed by the City.

Councilmember Musgrove asked what the area between the homes is right now.

Mr. Fuhreck stated that currently it is a strip of land between two homes and one would assume that the land belongs to one of the two adjacent homes. He confirmed that the area is not mowed or maintained.

James Wadey, 14447 Bowers Drive, stated that he is one of the homes adjacent to the proposed access connection. He echoed the comments of the previous two speakers. He stated that when he purchased his home two years ago there was no indication that there would be a road and it was shown as an outlot. He stated that they asked Capstone the plans for the outlot and there was never a mention of a road connection. He stated that they signed the survey in opposition of the road. He agreed that the pedestrian traffic is already heavy with Bowers Drive residents and opening the secondary access would bring additional security concerns. He stated that there are a number of studies that show opening up a cul-de-sac has a detrimental impact on burglary. He commented that the City was never transparent through the channels he had available when he purchased his home about a potential road connection.

Carol Larson, 14480 Bowers Drive, stated that she has lived on Bowers Drive for 56 years and has seen a lot of changes. She stated that she appreciates that they have been isolated from a lot of the changes in Ramsey. She noted that she anticipated that there would be development on the Capstone property and Riverstone South and therefore does not object to that development. She stated that she does object to placing a roadway between two homes that were not alerted to that possibility. She stated that those homes would lose all privacy and they would have chosen other lots would they have known that. She stated that she has submitted several things to the Council in written form. She explained that if you go down Bowers Drive in the winter the driveways are plowed but the snow is yellow and brown because of the dogs in the area and did not want to see additional dogs being walked on the road. She commented that vehicles travel on Bowers Drive and adding additional pedestrian traffic would seem to be the opposite of increasing public safety. She believed that the one access should be provided from Highway 10.

Councilmember Specht asked if the City gets involved when there is sale of property next to a City owned property.

Assistant City Administrator Gladhill stated that the City cannot control the information shared by a realtor when selling a property. He explained that the City obtained that outlot in order to reserve that corridor for the future, therefore the area was not signed as a future road. He stated that perhaps the people that purchased those homes were not alerted to the possibility of a roadway connection in that location.

Mayor LeTourneau stated that he feels there are two separate issues in this case, the development plan, and the road connection to Bowers Drive.

Assistant City Administrator Gladhill stated that this is the opportunity for the Council to provide direction to the developer on the plan development for preliminary plat. He stated that perhaps the decision is not ready to be made on the road connection. He noted that this is the first time the petition has been presented to the City and the Council could direct staff to work towards a compromise or could take that option off the table all together. He confirmed that there is time to explore the Bowers Drive connection further at a future point.

Councilmember Kuzma stated that it sounds like the City owns the outlot currently and asked if there would be a possibility to provide the connection in the future.

Assistant City Administrator Gladhill confirmed that the decision could be made in the future if desired, noting that the intent has always been to reserve the corridor.

Councilmember Kuzma stated that he would recommend that the lot be reserved, and he would not support a road connection at this time because of the large opposition to the issue. He noted that the City would always have the ability to pursue that in the future.

Mayor LeTourneau confirmed the standpoint of Councilmember Kuzma to table the road connection at this time but still reserve the outlot and an outlot from Capstone in order to preserve that ability in the future.

Councilmember Specht stated that he likes the overall plan and additional tree preservation. He also agreed that the connection to Bowers Drive should be removed at this point.

Councilmember Musgrove asked if the cul-de-sacs proposed in the development would meet the standards of public safety.

Assistant City Administrator Gladhill stated that every development project goes through a development committee that includes representation from all City departments and noted that as designed staff is not concerned with the cul-de-sac sizes proposed.

Councilmember Musgrove asked if there has been discussion to having a third access to Riverdale near the 40-foot lots.

Assistant City Administrator Gladhill stated that there is an undetermined development area in the future that is identified with a stub road. He stated that staff feels that the two access points is sufficient and adding additional access points would cause conflicts on the access road.

Councilmember Musgrove asked if there would be any special easements on the property, such as a conservation easement.

Assistant City Administrator Gladhill stated that the protected area would be conveyed to the City and the City would own that property in fee title to prevent confusion and conflicts that have occurred in other neighborhoods that used conservation easements.

Councilmember Musgrove agreed that she would like to see the development move forward and would also support removing the road connection to Bowers Drive.

Councilmember Riley stated that right now they are focusing on the process of listening to residents. He stated that there is also a process of listening to the Planning Commission, public works and public safety who have all said that connection is necessary. He stated that one of the goals of the City is to have a connected community. He stated that he would support this development moving forward without the connection but would want to circle back to that potential connection in the future.

Councilmember Menth stated that if the Bowers Drive connection is eliminated that would leave two access points into the proposed development and asked if that would be considered sufficient.

Assistant City Administrator Gladhill confirmed that would be deemed sufficient for the new development.

Councilmember Menth commented that the statement is often made that a decision is made before they walk into the room and noted that tonight the residents that spoke changed his mind on this issue. He stated that he listened to the four residents tonight and they persuaded him. He stated that he would like to hold onto the right-of-way but keep Bowers Drive the way it is. He stated that the residents of Bowers Drive do not want that connection and the Council is supposed to represent the residents.

Councilmember Kuzma stated that perhaps when the curbs are installed there be a curb cut in that location, which would allow public safety to go through that area.

Assistant City Administrator Gladhill stated that even if there is not a road connection, staff would still like to use that corridor to place a hydrant in that location. He stated that the decision does not need to occur today, but staff will continue those discussions.

Councilmember Specht stated that he likes that a consensus was reached. He noted that if it were his decision completely, he would even favor selling that land to an adjacent landowner that may be interested.

Mayor LeTourneau stated that he was fond of hearing the statement from Councilmember Menth related to the fact that residents often believe that the Council has made up its mind before entering the room. He stated that many times in his years on the Council he has thought that the Council was in agreement on a topic because of the information from staff but that has changed on multiple occasions because of the input from the public. He stated that he also supports the consensus of the Council tonight to support this development moving forward as proposed without the connection to Bowers Drive at this time. He thanked Capstone for continuing to work with residents and listening to their input throughout this process. He commended Capstone for preserving additional trees and bringing forward a solid project to the community.

Mr. Johnson thanked Capstone and the members of the Council and City staff for hearing the residents tonight.

8. MAYOR, COUNCIL AND STAFF INPUT

City Administrator Ulrich announced upcoming meetings and events.

9. ADJOURNMENT

Motion by Councilmember Riley, seconded by Councilmember Musgrove, to adjourn the meeting.

Motion carried.

The regular meeting of the City Council adjourned at 8:32 p.m.

Respectfully submitted,

Kurtis G. Ulrich
City Administrator

ATTEST:

Katie M. Schmidt
Administrative Assistant

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

A recording of this meeting is available for viewing online at www.qctv.org <http://www.qctv.org>. Recordings are available for 36 months after the date of the meeting.

JOINT CITY COUNCIL AND PLANNING COMMISSION WORK SESSION
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Ramsey City Council conducted a City Council Work Session on Tuesday, February 11, 2020, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Mayor John LeTourneau (attending remotely)
Acting Mayor Chris Riley
Councilmember Nadine Heinrich
Councilmember Mark Kuzma
Councilmember Jeff Menth
Councilmember Debra Musgrove
Councilmember Dan Specht

Planning Commission
Members Present: Chairperson Randy Bauer
Commissioner Bruce Anderson (attending remotely)
Commissioner Cheri Gengler
Commissioner Torrey Johnson
Commissioner Gary VanScoy
Commissioner Matt Woestehoff

Also Present: City Administrator Kurtis Ulrich
Fire Marshal Carey Schiferli
Police Captain Brad Bluml
Public Works Superintendent Grant Riemer
Administrative Services Director Colleen Lasher
Deputy City Administrator Timothy Gladhill
City Engineer Bruce Westby
Senior Planner Chloe McGuire Brigl

1. CALL TO ORDER

Acting Mayor Riley called the City Council Work Session to order at 5:30 p.m.

2. TOPICS FOR DISCUSSION

2.01: Receive Update on Riverstone Preliminary Plat (Master Plan) and Discuss Puma Street Reconstruction Options

Deputy City Administrator Gladhill provided a broad overview of the purpose of the discussion tonight.

Senior Planner McGuire Brigl reviewed the staff report and details related to the proposed land use changes to the plat.

Acting Mayor Riley asked the number and location of 40-foot lots.

Heather Lorch, Capstone, identified 38 proposed detached townhomes, which would replace the 48 proposed quad homes, and pointed out the location for those homes.

Councilmember Kuzma asked the price range and size of the homes.

Ms. Lorch replied that the price range would be between $265,000 and $295,000 with square footage ranging between 1,800 and 2,400 square feet.

Acting Mayor Riley asked for details on the discussion that occurred related to the potential connector street between this development and the neighboring development.

Ms. Lorch replied that they did receive the suggestion from the comments but both developers believed that it would be better to have standalone developments. She stated that Capstone is willing to provide a pedestrian connection that could connect the two developments.

Councilmember Kuzma asked for input related to the sewer and water connection to the adjacent development that was previously discussed.

Stephen Bona, Capstone, replied that Capstone came to an agreement with AKM following the last discussion, that has since expired, and they are awaiting a new agreement to be signed.

Councilmember Musgrove stated that she likes that Capstone heard the comments from the residents to eliminate the quad homes and adjust the plan in this manner. She commented that she also does not like the idea of a connecting the road between the developments and appreciated the willingness of Capstone to put in the pedestrian connection between neighborhoods.

Planning Commissioner Chair Bauer disclosed that he lives in the Riverstone development and does not believe that a connecting road with the adjacent parcel would provide a benefit.

Deputy City Administrator Gladhill reviewed the remainder of the staff report related to the Puma Street reconstruction. He noted that Paxmar submitted an email in opposition of the proposed assessment.

Acting Mayor Riley asked if there is a reason that the roadway would not be improved to the City's street standards.

Mayor LeTourneau asked how the new alignment would lay with the density of the housing.

Deputy City Administrator Gladhill identified the proposed realignment, which has always been contemplated following the Preliminary Plat approval of Paxmar.

Planning Commission Chair Bauer stated that Puma Street might be utilized by more than just the residents, with the industrial park in that area. He stated that the employees and possibly trucks accessing the industrial park will increase traffic on Puma Street and therefore believed the City should contribute to the project.

Councilmember Kuzma asked if this is an MSA street.

Deputy City Administrator Gladhill stated that this roadway is included in the MSA system, and would be eligible for MSA funds, but the City would need to decide if this is the correct project to use MSA funds on, as there is a large demand on the limited MSA funding. He noted that the Public Works Committee will continue that discussion.

Councilmember Specht agreed that the City should financially contribute towards the project.

Councilmember Musgrove asked for background information on the temporary construction of Puma Street.

Deputy City Administrator Gladhill provided background information on the creation of Puma Street.

Councilmember Heinrich asked if there have been similar projects in years past.

Deputy City Administrator Gladhill replied that there have been a variety of similar projects. He stated that some projects in The COR have been funded by the City at a rate of 60 percent that could be reimbursed through TIF.

Councilmember Specht asked if the cost-share is lesser in this case because these are residential developments rather than commercial.

Deputy City Administrator Gladhill stated that looking holistically at the City's transportation needs; this is not the same setup as the Bunker Lake industrial park scenario. He noted that the Bunker Lake industrial park scenario was more linked through economically development and the City funded its portion through the County HRA funds.

Councilmember Specht asked for details on the position of Paxmar in its email.

Deputy City Administrator Gladhill stated that Paxmar stated that he is unsure of the exact amount Paxmar feels would be fair but believes that one third is too much for their development to be assessed. He noted that the Paxmar parcel is still awaiting rezoning to support its proposed development.

Mayor LeTourneau asked if the City is still the owner of the parcel east of Puma Street.

Deputy City Administrator Gladhill stated that the City largely owns the four-acre parcel where the road alignment would occur.

Councilmember Kuzma suggested that the City proceed with the benefit analysis study to support any potential assessment.

Deputy City Administrator Gladhill stated that Capstone does have an aggressive schedule for the next phase of development, and they would not be able to build on those lots within the realignment area until the Puma Street agreement is finalized.

Planning Commissioner Anderson asked what would happen in the case that the third party does not move forward, specifically whether the City and Capstone would be then stuck with a 50/50 split.

Deputy City Administrator Gladhill stated that as long as the City follows the proper metrics, appraisals show the increase in value is equal to the assessment amount; the City would be fully protected.

Councilmember Heinrich asked for input from Capstone or their thoughts on the potential cost-share split.

Ms. Lorch stated that Capstone was aware that there was a need for an assessment on this part of the parcel and was under the impression that it would be a similar cost-share to the previous. She stated that they hoped that the cost-share would be less with another developer. She stated that Capstone did fund 18 percent of the improvement cost for Bunker Lake Boulevard because it felt that improvement would provide a benefit to its residents. She stated that Capstone would agree to the third split, with the caveat that the City and other developer equally contribute.

Planning Commissioner Woestehoff asked if there are safety concerns with Alpine in that area.

Police Captain Bluml stated that this would correct the safety concern with the Alpine walking trail that previously existed.

Planning Commissioner Woestehoff suggested that the City take a larger share in this from a safety standpoint and contribute at a rate of 50/25/25.

Deputy City Administrator Gladhill noted that the Public Works Committee can discuss that option.

Councilmember Menth asked if Paxmar is on board with this proposal.

Deputy City Administrator Gladhill confirmed that Paxmar does not agree with this proposal. He noted that Paxmar was invited to attend tonight but chose not to be a part of the discussion.

Councilmember Musgrove asked if Paxmar would perhaps accept the cost-share of 50/25/25 in order to allow this project to proceed at a quicker pace and without the need for the additional study.

Councilmember Heinrich stated that while she supports the safety aspect, she does support the third split scenario and would support moving forward on that.

Councilmember Kuzma stated that it would be difficult to determine what would be assessed until the benefit analysis study is completed. He stated that if supported, he would support the third split scenario.

Deputy City Administrator Gladhill stated that staff can bring forward the two cost-share scenarios (the third scenario and 50/25/25) to the Public Works Committee for further discussion.

Mr. Bona stated that the schedule is moving fast, and they would like to begin grading in March, with roads paved by June. He appreciated any assistance the City could provide in the Puma Street agreement moving forward to allow their schedule to continue to move at that pace.

2.02: Discuss Policy Direction on Pearson South/Riverstone South Subdivision; Case of Capstone Homes

Deputy City Administrator Gladhill reviewed the staff report related to land use.

Acting Mayor Riley commented that he would like to see less 40-foot wide lots.

Planning Commissioner Woestehoff asked if this property is zoned R-1 MUSA.

Deputy City Administrator Gladhill confirmed that to be true and noted that a Comprehensive Plan amendment and zoning amendment would be needed.

Councilmember Menth referenced the surrounding area and asked how that land is planned to be developed.

Deputy City Administrator Gladhill identified the landowners and land use guiding of the surrounding properties.

Councilmember Menth stated that in the past he has heard discussion of connecting Bowers Drive to another roadway.

Deputy City Administrator Gladhill noted that would be a separate discussion that would involve the development of a different parcel.

Councilmember Kuzma asked the reasoning for the smaller lots.

Tom Bakritges, Capstone, stated that their goal is to have spring construction in 2021. He stated that this is a good opportunity to move to the south with development. He stated that this piece of ground is contained and is unique as they will be faced with challenges from the adjacent uses (solar farm, industrial/commercial, and residential). He stated that they would like to mirror what they have done to the north, noting that they attempt to provide housing to all the different

markets. He stated that the smaller lots would be bordered by the future commercial/industrial area and the solar farm, he noted that the site would transition as you move south in order to match the existing residential development.

Mr. Bakritges stated that the solar farm and commercial/industrial is not very attractive to be adjacent to residential and therefore that is why they are proposing a lesser price point residential product in that area.

Councilmember Specht commented that he believes that this is a good mix of housing products and supports the plan moving forward. He stated that residents on Bowers Drive have commented that it would be nice to have another method to connect rather than only having access onto Highway 10.

Mayor LeTourneau stated that the plan as presented is a great place to start. He stated that as a resident of Bowers Drive, there has been a discussion by those residents. He stated he is appreciative of the 50-foot buffer and prefers this use to additional commercial/industrial. He appreciated that this product would mirror the existing residential that it would border.

Planning Commissioner VanScoy stated that he supports the suggestion of staff to connect this to Bowers Drive. He commented that from a safety perspective he would imagine that this would be an issue.

Police Captain Bluml stated that the Police would like access to Bowers Drive as it would provide additional opportunity in emergencies.

Fire Marshal Schiferli commented that it is important to have two accesses for many reasons. He stated that this is the longest cul-de-sac in the City, and this is a non-hydrant area, therefore the Fire Department needs to bring in water. He commented that if a tree goes down, or a power line, that could block the only entrance to Bowers Drive as it currently exists. He noted that the new development would also be connected to City water and therefore would have hydrants and the road connection would only improve the element of safety.

Deputy City Administrator Gladhill advised that an Environmental Assessment Worksheet (EAW) would be required as this moves forward and would include a traffic study.

Public Works Superintendent Riemer stated that if a connection is going to be made, Public Works would like to have a full road connection.

Mayor LeTourneau stated that as a homeowner on Bowers Drive, he can comment that the resistance that the City would have to the homes is less resistant now but there would be quite a bit of resistance in regards to a second access point.

Councilmember Heinrich appreciated the input from Mayor LeTourneau. She commented that while residents enjoy their privacy, public safety is of utmost importance for the residents and therefore supports a full road connection.

Councilmember Menth asked if the Bowers Drive connection would occur through this design proposal or whether it would connect across Armstrong.

Deputy City Administrator Gladhill stated that currently the plan includes an oversized road connection with breakaway barriers for Public Safety, but Public Safety would like that to be a full road connection at that point. He stated that conceptually it is not difficult to add that road at this step in the plan and noted that is the purpose of tonight's discussion.

Councilmember Musgrove commented that she would support the full road connection.

Mayor LeTourneau stated that the residents are all in favor of having the access to Highway 10 changed and would support the connection to Riverdale Drive.

Acting Mayor Riley confirmed the consensus of the Council to provide direction for a full road connection.

Deputy City Administrator Gladhill reviewed the Riverdale Drive extension element and potential cost-share elements. He noted that the City could attempt to compete for MnDOT funds. He noted that staff could bring forward the discussion to the Public Works Committee.

Councilmember Specht stated that because the roadway is part of the Highway 10 plan, he would support the City having a higher share of the cost.

Deputy City Administrator Gladhill confirmed that staff would prioritize Riverdale over Puma Street and that is why the third/third/third cost-share scenario was proposed on Puma Street.

2.03: Discuss Policy Direction on Outlot C, Northfork Development Proposal; Case of BK Land Development

Deputy City Administrator Gladhill provided a broad overview of the purpose of the discussion tonight.

Senior Planner McGuire Brigl reviewed the staff report.

Councilmember Heinrich asked if a gate or fence would be around the entire development.

Luke Konewko, BK Land Development, commented that would go along Alpine as a form of a buffer. He stated that they would be open to suggestions from the City and noted that the fence could also be berming or landscaping.

Deputy City Administrator Gladhill asked for input on the appropriate/desired mix between the housing products.

Councilmember Kuzma stated that he supported this plan when it was previously presented, primarily because the demand for the smaller product is high and those homes sell quickly. He stated that he continues to support the plan as presented.

Councilmember Menth asked public safety to comment on the road width.

Fire Marshal Schiferli stated that the parking would need to be restricted on one side. He noted that the aerial truck would take up the entire road width. He stated that the narrow roads can work but would need to be posted for no parking on one side. He commented that he would like to see wider roads.

Police Captain Bluml stated that he would defer to fire, as fire trucks are much larger than police vehicles. He stated that a narrower road provides less time for driver reaction for pedestrians. He noted that parking could occur on one side during the day, but overnight parking is not allowed on any City road.

Councilmember Kuzma commented that the neighboring development already has roads of this width.

Public Works Superintendent commented that Public Works can live with the 29-foot road, but no parking has to be enforced in order to support snowplows.

Councilmember Musgrove asked, and received confirmation that the road would be signed and designated as no parking on one side.

Acting Mayor Riley stated that this would match the adjacent development and therefore would be a good use. He commented that he would like to see the overall number of the smaller lots reduced.

Planning Commissioner Woestehoff stated that he has received resident comments that the housing prices are too expensive, noting that the smaller homes have a lesser cost and therefore he will support this proposal.

Councilmember Specht commented that he will also support the plan as proposed.

Councilmember Musgrove asked if the villa product would be part of an HOA.

Mr. Konewko confirmed that the villas would have a full HOA, while the single-family product would have an HOA that only maintains common areas.

Councilmember Musgrove commented that she supports this proposal.

Planning Commission Chair Bauer commented that he lives in a villa in Riverstone and there is a high demand for that product. He commented that he and his neighbors are very satisfied, noting that the villa is a great product for snowbirds. He believed that it would not make sense to increase the number of single-family lots, as there is high demand for the villa product.

Mayor LeTourneau commented that he would welcome the mix of house styles and has a greater concern with the tax base that will be generated through this project. He noted that the growth in

the housing community will also support the desire of the overall community to attract additional retailers.

Councilmember Menth stated that during the previous review he expressed a desire for less villas and more single-family homes. He stated that he has since driven through the adjacent development and has no problem with the mix proposed. He stated that he spoke with residents that live in the villas and are very satisfied with the product.

Councilmember Heinrich stated that she originally had concern with the number of smaller lots but noted that she could support the smaller lots if the road width were increased.

Mr. Konewko stated that they could look into increasing the road width but would want to ensure that the mix of products would not be impacted and the separation between products could continue to be provided.

Deputy City Administrator Gladhill noted that the input has been received by the developer and it will be their choice whether to move forward on the project.

2.04: Note Additional Policy Projects and Development Proposals of Interest

No discussion.

3. TOPICS FOR FUTURE DISCUSSION

3.01: Review Future Topics/ Calendar

Noted.

4. MAYOR / COUNCIL / STAFF INPUT

None.

5. ADJOURNMENT

The Work Session of the City Council was adjourned at 6:58 p.m.

Respectfully submitted,

Kurtis G. Ulrich
City Administrator

ATTEST:

Katie M. Schmidt
Administrative Assistant

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

Motion by Councilmember Riley, seconded by Councilmember Menth, to recommend that the City Council confirm direction to continue funding discussions with the City offering to pay up to one third of the project costs on the Pearson Properties Frontage.

Motion carried. Voting Yes: Chairperson Kuzma, Councilmembers Riley and Menth. Voting No: None.

5.02: Center Street Area Capital Improvement Planning

Parks and Assistant Public Works Superintendent Riverblood reviewed the staff report and recommendation to proceed and approve the planning activity outlined in the case.

Chairperson Kuzma asked if the design cost would cover both the park and pump house areas.

Parks and Assistant Public Works Superintendent Riverblood provided additional details on the elements that are included in the design, including the pump house elements and Center Street improvements.

Chairperson Kuzma asked if the pump house elements would include filters that may be necessary for water treatment.

Parks and Assistant Public Works Superintendent Riverblood noted that would be a separate activity, and they would ensure not to plan anything in areas that would perhaps need to be disturbed in the future for water treatment improvements.

Councilmember Menth asked for additional details on how the improvements would be added.

Parks and Assistant Public Works Superintendent Riverblood replied that the pump house material is meant to have material clad onto it, explaining that the new materials would be added to the existing structure. He provided additional details on the location of the temporary section of road and trail that would be improved.

Councilmember Riley agreed that this is the right time to improve the pump house as the area around it continues to develop.

Councilmember Menth noted that the last Council meeting included a discussion on the desire to hold apartment buildings to certain standards and agreed that the City should hold itself to the same standard.

Motion by Councilmember Menth, seconded by Councilmember Riley, to recommend to the City Council to approve $11,800 for Center Street area capital improvement planning.

Motion carried. Voting Yes: Chairperson Kuzma, Councilmembers Menth and Riley. Voting No: None.

City Planner Anderson replied that he assumes that the plan was developed based on comments from the previous iteration. He stated that if this has morphed into small lot single family, or something similar to COR 3, planting requirements would be based on street frontage. He stated that the landscaping plan could then be modified and some of this confusion might be eliminated. He agreed that it does not appear density transitioning would be required as part of this initial phase.

Mr. Lazan stated that he would be more than happy to work with staff to better reflect the requirements of small lot single family. He noted that they would also be willing to work to allow more diversity in building materials as well. He agreed that perhaps the staff comments from the previous concept were carried through in the development of this plat.

6.02: Approve Planning Framework for Highway 10 South Planning Area – Riverstone South

Presentation

Deputy City Administrator Gladhill presented the Staff Report stating that staff would like clear policy direction on the points raised in the staff report.

Commission Business

Commissioner Gengler asked to see the alternative road layouts and which is being proposed.

Deputy City Administrator Gladhill stated that this was developed later in the process because of input from residents on Bowers Drive. He provided additional details on the road alignment and connection to Bowers Drive. He noted that the connection to Bowers would be a public road but would not be Riverdale Drive.

Commissioner VanScoy referenced the public safety connection to Bowers Drive and noted that under any other circumstance he would not understand why a minimum access for safety is being considered as it seems inadequate. He stated that there are a lot of residents on Bowers Drive and asked why a connection to the new development is not proposed.

Deputy City Administrator Gladhill noted that has been discussed at length. He stated that there has been opposition from those on Bowers Drive. He noted that the existing situation was not created by the developer. He stated that City can choose to make the road a full road, but the residents on Bowers Drive do not want that. He stated that public safety feels that it would be adequate as proposed. He stated that the two neighbors in Pearson Place seemed unaware that the plan would be to connect the area, even though the 60-foot corridor was collected. He stated that the Commission could make the recommendation for a full road, but this seemed to be an adequate compromise.

Commissioner VanScoy commented that he does not understand why this is an issue for those folks. He commented that there is a mile-long cul-de-sac which is unacceptable from a safety aspect.

Commissioner Anderson agreed with the comments of Commissioner VanScoy. He did not believe this could move forward unless a road goes through. He stated that in his opinion he would not support a plan that did not provide a connection. He commented that there needs to be a way out.

Commissioner Woestehoff stated that he would agree with those comments, noting that the 20-foot extension would be a minimum. He stated that people will appreciate the cut through more than they would oppose it after constructed. He stated that the new road seems like a good idea.

Commissioner Anderson stated that he wants a road in there and does not think it should be constructed to bare minimums and should instead stick to the standards for a City street.

The applicant, stated that they appreciate continuing to work with the staff as they want to make this a nice neighborhood. He stated that staff did a good job describing the constraints and conditions around the property. He stated that they are trying to achieve sustainability of the neighborhood and the concept plan is key. He stated that multiple housing types bring in multiple age groups and buyers which helps to make the development sustainable over time. He stated that they knew that tree preservation would be important. He noted that the deeded parcel was provided by the adjacent property and they would provide additional property that would be used for screening. He stated that they support the current layout that has been developed, versus having the access on the east side. He explained that they want people coming into the site to first see the park and preserved tree area. He stated that once the input is gathered in the next few meetings, they will present a concept plan that provides a transition from the existing neighborhood with a variety of housing products and fits with the other adjacent uses.

Motion by Commissioner Anderson, seconded by Commissioner VanScoy, to recommend that the City Council adopt the document as an official, yet nonbinding policy document to guide future conversations pertaining to Riverstone South with the added condition of the public road.

A roll call vote was performed:

Commissioner Peters	aye
Commissioner Woestehoff	aye
Chairperson Bauer	aye
Commissioner Johnson	aye
Commissioner Gengler	aye
Commissioner Anderson	aye
Commissioner VanScoy	aye

Motion Carried.

Parks & Assistant Public Works Superintendent Riverblood stated that he was unsure if the park element was discussed as the focus seemed to be on density transitioning, tree preservation and the connection road. He stated that there will be more opportunities for public comment as this moves forward.

Chair Bennett noted that some elements will be dependent upon the goals of the developer, as empty nesters would have different desires in a park.

Councilmember Heinrich commented that it seemed the developer desired to place high density units near the solar array with the larger lots adjacent to Bowers Drive.

Chair Bennett agreed that would be a logical layout.

Commissioner Sis referenced the 50-foot buffer and asked if that would remain wooded.

Parks & Assistant Public Works Superintendent Riverblood stated that the 50-foot area is owned by the City and the City would maintain control rather than an HOA, so that area would remain wooded.

Motion by Commissioner Sis, seconded by Commissioner Barten, to recommend that the City Council adopt the document as an official, yet nonbinding policy document, together with park and trail recommendations to guide future conversations pertaining to Riverstone South as discussed by the Commission.

Motion carried. Voting Yes: Chair Bennett; Commissioners Sis, Bayer, Barnes, Barten, Guck, Leistico, and Loss. Voting No: None. Absent: None.

6. COMMISSION/STAFF INPUT

Parks & Assistant Public Works Superintendent Riverblood highlighted upcoming recreation programing and modified summer events.

Commissioner Bayer commented on the dog park and stated that it would be helpful to have tables in the shade for residents.

Parks & Assistant Public Works Superintendent Riverblood commented that he will look into it to determine if there would be a seating option within the proposed new addition to the off-leash area.

7. ADJOURNMENT

Motion by Commissioner Bayer, seconded by Commissioner Loss, to adjourn the meeting.

Motion carried. Voting Yes: Chair Bennett; Commissioners Barnes, Sis, Barten, Bayer, Guck, Leistico, and Loss. Voting No: None. Absent: None.

ENVIRONMENTAL POLICY BOARD
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

On Monday, June 15, 2020, the Environmental Policy Board (EPB) met in the Council Chambers at the Ramsey Municipal Center, 7550 Sunwood Drive N.W., Ramsey, Minnesota.

Members Present:	Chairperson Michael Valentine Board Member Reid Bernard Board Member Jane Covart Board Member Melissa Fetterley (joined remotely) Board Member Michael Hiatt (joined remotely) Board Member Jared Little Board Member Laura Moore (joined remotely)
Members Absent:	None
Also Present:	City Planner Chris Anderson City Council Liaison Jeff Menth

1. CALL TO ORDER

Chairperson Valentine called the meeting to order at 6:30 p.m.

2. CITIZEN INPUT

None.

3. APPROVE AGENDA

Motion by Board Member Covart and seconded by Board Member Little to approve the agenda as submitted.

A roll call vote was performed:

Board Member Moore	aye
Board Member Little	aye
Board Member Fetterley	aye
Board Member Bernard	aye
Board Member Hiatt	aye
Board Member Covart	aye
Chairperson Valentine	aye

Motion carried.

4. APPROVE MINUTES

4.01: Approve Meeting Minutes Dated May 20, 2020

Motion by Board Member Little and seconded by Board Member Covart to approve the regular meeting minutes dated May 20, 2020.

A roll call vote was performed:

Board Member Little	aye
Board Member Bernard	aye
Board Member Moore	aye
Board Member Fetterley	aye
Board Member Hiatt	aye
Chairperson Valentine	aye
Board Member Covart	aye

Motion carried.

5. POLICY BOARD BUSINESS

5.01: Approve Planning Framework for Highway 10 South Planning Area – Riverstone Area

City Planner Anderson presented the staff report. He stated that the purpose of the case is to provide very high-level policy direction pertaining to a potential development project south of Highway 10 and east of Bowers Drive (portions of the Pearson Farm). This is not a formal application nor official development review. The intent is to provide staff with direction on key policy points to assist staff in reviewing concepts with Capstone Homes, the potential developer. As is commonplace, there will be significant opportunities for ongoing public engagement throughout this process moving forward.

Board Member Moore stated that her main concern would be the preservation of the trees. She asked the type of park that would be proposed, whether it would be a preserve area or whether it would remove trees to install a play park.

City Planner Anderson replied that the parks staff has referred to this as a tree fort park, working with what is out there to create an area for play.

Board Member Hiatt stated that in previous discussions it had been mentioned that Bowers Drive is the longest cul-de-sac in Ramsey and asked if there would be a potential to provide a connection through this neighborhood to improve public safety.

City Planner Anderson replied that there was a virtual workshop to receive high level public input related to tree preservation and density transitioning along with traffic and safety connections. He confirmed that there will be a second access provided for Bowers Drive, noting that the details are still being worked out.

Chairperson Valentine asked the status of the river crossing that was under discussion for some time.

City Planner Anderson replied that Ramsey continues to work with Dayton on that potential opportunity, although that area is not part of this discussion.

Board Member Fetterley commented that it would be nice to have a larger transition buffer, noting that would also help to preserve additional trees. She stated that the goal is to preserve the largest number of native trees possible and would encourage the developer to keep that in mind.

Board Member Hiatt asked if preserving trees above the required amount in code can be mandated or whether that would be a decision of the developer.

City Planner Anderson explained that it would depend upon the request from the applicant. He stated that if the developer requests something, such as rezoning, the City could then negotiate for items such as additional tree preservation. He explained that if a developer came forward with a request that meets all the standards, the City would not have the ability to mandate any additional requirements. He stated that the intent tonight is to provide high level input that the developer can use when further designing their proposal. He stated that the Board could consider encouraging the developer to look at conservation design and how that could be incorporated into plans going forward.

Board Member Covart referenced the buffer and noted that it stops at the larger lots and asked if that would be extended.

City Planner Anderson replied that the buffer is a wooded stand that is owned by the City. He provided background information and noted that there is no intention to extend the buffer past that area. He further clarified that the lots in Pearson Place were purposefully designed to be larger and deeper than the previously existing lots along Bowers Drive to provide more separation between those newer homes and future development of the remainder of the Pearson Family Farm.

Councilmember Menth stated that he likes the buffer and recognized the need for a second connection to Bowers Drive for public safety. He stated that it would be great to preserve some of the wooded area and add a park as well.

Motion by Board Member Covart and seconded by Chairperson Valentine to recommend that the City Council adopt the document as an official, yet nonbinding policy document, and provide support for enhanced tree preservation efforts and other natural resources related guidance to shape future conversations pertaining to Riverstone South, encouraging the developer to preserve as much of the tree stand as possible, encouraging the second connection for Bowers Drive, encouraging incorporation of conservation design principles, to keeping the park as natural/rustic as possible.

A roll call vote was performed:

Board Member Bernard	aye
Board Member Covart	aye
Board Member Moore	aye
Board Member Fetterley	aye
Board Member Little	aye

Board Member Hiatt aye
Board Member Valentine aye

Motion carried.

5.02: Consider Draft Landscaping Ordinance Amendment

City Planner Anderson presented the staff report. He stated that the purpose of this case is to check in with the EPB on the draft ordinance amendment for landscaping standards in the Employment Districts. As a result of the Comprehensive Plan Update, there will be a number of City Code amendments in the coming year and as part of that, staff is looking at overhauling much of the Zoning Code. As can be seen from the draft ordinance, more than just the Employment Districts are being addressed. A new section entitled Landscaping is being proposed and all landscaping standards are being removed from individual zoning districts and moved here. There is a lot of repetition between many of the districts and this will help reduce the overall size of the Zoning Chapter.

Chairperson Valentine stated that he is happy with the progress, noting that it appears the discussion of the Board has been incorporated thus far.

Board Member Hiatt commented that he likes the idea to consolidate landscaping into its own section where it also makes it clear as to the difference in requirements per zoning section.

City Planner Anderson stated that he will continue to work on this and bring it back to the Board in the future, noting that it is not time sensitive.

6. BOARD / STAFF INPUT

City Planner Anderson reported that the timeframe for filings has closed and there is not a need for a primary to be held in August for the City Council elections.

7. ADJOURNMENT

Motion by Board Member Little and seconded by Board Member Covart to adjourn the meeting.

A roll call vote was performed:

Board Member Little aye
Board Member Covart aye
Chairperson Valentine aye
Board Member Bernard aye
Board Member Moore aye
Board Member Hiatt aye
Board Member Fetterley aye

Motion carried.

The meeting adjourned at 7:20 p.m.

Respectfully submitted,

_____
Chris Anderson
City Planner

ATTEST:

_____
JoAnn Shaw
Community Development Assistant

Drafted by Amanda Staple
TimeSaver Off Site Secretarial, Inc.

Senior Planner McGuire Brigl stated that she reached out to Anoka County about the possibility of a four way stop and the County did not view a four way stop or traffic light as an option at that intersection because of spacing. She stated that the County stated that adding a four way stop at that location could actually make traffic worse down the road.

City Engineer Westby stated that volumes of traffic and pedestrians, along with site constraints have to be reviewed along with a number of warrants. He stated that with these traffic volumes a four-way stop would not be warranted. He stated that a four-way stop could also create a false sense of security for pedestrians.

Senior Planner McGuire Brigl clarified that the trail along Nowthen is in the plan sheets, although she did not present that element tonight.

Councilmember Specht stated that he has been contacted by residents about this proposed project. He stated that he would need to see turn lanes, traffic studies and noise studies included in order to support this project.

Councilmember Heinrich asked for details on the plan review comments and staff letter mentioned in the staff report recommendation.

Deputy City Administrator Gladhill explained that staff provides comments to the developer in multiple sources and provided clarification.

Motion by Councilmember Riley, seconded by Mayor LeTourneau, to Adopt Resolution #20-114 Approving Preliminary Plat for Hampton Homes with the incorporation of one turn lane.

Further discussion: Councilmember Menth asked why only one turn lane is wanted. Councilmember Riley stated that staff suggested only a northbound turn lane. Deputy City Administrator Gladhill stated that the priority of residents is the northbound turn lane. He stated that the southbound turn lane could be addressed during the CR 5 corridor study. Councilmember Musgrove stated that she would have difficulty supporting this because of the proximity to CR 5 and the issues with traffic. She stated that she would prefer to have two turn lanes funded by the developer and therefore would not support this motion.

Motion carried. Voting Yes: Mayor LeTourneau, Councilmembers Riley, Kuzma, and Menth. Voting No: Councilmembers Heinrich, Musgrove, and Specht.

7.09: Adopt Resolution #20-136 Approving Planning Framework for Highway 10 South Planning Area – Riverstone South

Deputy City Administrator Gladhill reviewed the staff report and recommendations of the Planning Commission, Park and Recreation Commission and Environmental Policy Board.

Mayor LeTourneau commented that he appreciates Capstone Homes and the landowner for their willingness to come forward with a project like this and the process that they have allowed the existing neighborhood to participate in. He welcomed comments from residents.

Matt Guck, 14583 Bowers Drive, stated that he is a Forestry Technician and spends time both cutting and planting trees. He stated that a piece of forest like this is very valuable. He stated that he chose his home deliberately to live next to old growth woods. He stated that the wooded area really is a remarkable ecosystem and recognized how valuable it is in an intangible way. He stated that wooded ecosystems are easy to destroy but take a long time to build. He commented that there are so few of these wooded ecosystems left and they are exceedingly rare and should be preserved. He stated that this area has already been manipulated to a significant degree and hoped that the remaining ecosystem could be preserved. He stated that he hopes that the City also places value on that as well.

Councilmember Heinrich stated that the Park and Recreation Commission recently reviewed a consideration for a park in the area and asked Mr. Guck's preference on whether he would like the wooded area preserved or whether a park would be preferable.

Mr. Guck stated that he supports an active use park in the woods, as it would establish a place for children to connect to nature. He stated that he also recognizes value of non-active use land and the benefits that it provides. He did not believe the entire wood lot should be made accessible.

Councilmember Heinrich stated that at the Park and Recreation Commission the question was not asked on whether the tree canopy should be preserved rather than an active use playground.

Councilmember Menth referenced a wooded area in San Francisco that is world renowned and stated that Mr. Guck's comments remind him of that.

Sam Sjostrom, 14623 Bowers Drive, echoed the comments of Mr. Guck related to the motivation behind moving to this area. He stated that the tree coverage was a motivating factor as it is not common to suburban residential areas. He stated that if some of trees were lost to the east that would be unfortunate. He appreciated the open discussion and bringing the options to the table as he felt that was encouraging. He stated that he would prefer option two. He asked if the data could be shared related to the precedent for Bowers Drive to have a second access.

Police Captain Frankfurth stated that they always desire a second access into a neighborhood. He commented that there is a good chance that trees could come down in a storm and if there is only one access, it would take longer for emergency services to access the properties. He also provided input on fire safety and circulation of those vehicles. He stated that police can get through trails while fire trucks are larger and have larger turning radius requirements.

Deputy City Administrator Gladhill stated that some complaint data was pulled over the past ten years.

Mayor LeTourneau commented that he lives on Bowers Drive and has enjoyed the tree canopy and unique characteristics of the neighborhood. He stated that he always thought that there would

be development at some point and therefore is not struggling as much as some residents may. He stated that across the neighborhood people are resistant of change but accepting that this is going to happen and are working collaboratively through this process. He stated that everyone loves the tree canopy and would like that characteristic to remain. He stated that the neighborhood has embraced the 12 homes that Capstone brought through the last development. He stated that the existing residents would like the characteristic to remain to the extent possible. He stated that related to the second access, the general consensus is that if the second access has to be there, they would accept it, but no one really wants it. He stated that the overwhelming resistance is against a full access road as they would like Bowers Drive to remain secluded. He stated that the two versions presented today seem to be acceptable. He stated that the most favorable orientation for Riverdale Drive would be to have the eastern most option. He stated that the residents do not want Riverdale Drive to come into Bowers Drive and change addresses. He appreciated Mr. Guck's comments related to tree preservation. He noted that 30 years ago that forest looked much different and continued to change. He commented that the inventory that was completed yielded some great information with very old growth trees that are a valuable amenity for the community. He stated that he would like to see as much of the tree canopy protected as possible, beyond a one-acre park.

Councilmember Specht stated that this is a beautiful area of Ramsey and wants people to be able to enjoy that in a way that respects the residents and the forested area there. He agreed that the forest should be preserved to the extent possible and believed a play area would also be nice.

Councilmember Heinrich stated that she supports the higher density being located near the solar farm as that is not the most desirable view. She stated that she supports the full connection, although she understands the sensitivities to the residents. She commented that public safety is the most important to her. She stated that if the City is going to ask the developer to preserve more trees, would the City then still ask them to build a park. She stated that she would lean towards leaving it as a natural area. She referenced the plan which has a change to the Highway 10 access point and asked if there is concern with the right-in/right-out option if the full connection is provided on the other end.

Police Captain Frankfurth stated that there would be some concerns with a right-in/right-out option depending where it is on Highway 10. He stated that they would at least want a right in for public safety.

City Engineer Westby commented that any time you can remove a median crossover would be a good thing and would be supported by MnDOT. He stated that a right-in/right-out typically does not prove to be a safety issue if there are not accesses in close proximity.

Councilmember Riley stated that he favors larger lots, especially around the edge of existing homes. He commented that this would seem to be a good fit for smaller lots as well. He stated that in terms of street connection, a full street connection is preferable. He stated that whenever there is a discussion related to long cul-de-sacs, Bowers Drive is always mentioned. He stated that creating the second access would be an important connection and did not believe it would open up Bowers Drive as a cut through for the new neighborhood. He stated that there is already a 75-foot buffer discussed, which is larger than many of the lots that would be created. He stated that he is supportive of the direction that this is moving.

Councilmember Kuzma stated that he would support the tiered lot sizes as discussed. He stated that he also agrees with the issue of safety and would support a full connection that could support a fire truck. He stated that he would also be open to exploring preservation of additional wooded acres as that is a great asset to the community.

Mayor LeTourneau stated that the residents of Bowers Drive accept that a second access will most likely be required and are now focusing on how that could be designed to not infringe upon the existing neighborhood but still provide access to fire trucks and emergency vehicles.

Councilmember Musgrove asked if any changes are being made to the land use.

Deputy City Administrator Gladhill explained that this framework would guide those conversations, noting that at some point a rezoning would be necessary. He stated that this is a nonbinding document that provided policy direction that would be implemented in future steps.

Councilmember Musgrove stated that she would like to see what could be done to preserve the tree canopy area but also understands that this is private land and has the ability to develop. She stated that she also likes option two.

Steve Bona, Capstone, stated that the Pearsons own the trees on the property. He stated that Capstone has had success in Ramsey and appreciates working with City staff. He stated that the Riverdale connection to Highway 10 needs to be more known so that they can design their concept with the knowledge of how it connects to Highway 10. He stated that they would propose full park fees and dedication of two acres of trees to be preserved through the park and buffer. He stated that there have been a lot of comments related to tree preservation. He noted that another option would be heavy on park dedication land and lighter on the park fees. He stated that there are 79 acres and they could dedicate eight acres of park that could be all-natural trees. He stated that Capstone also suggested a bonus for the smaller lots which could equate to another two acres, which would be a total of ten acres of park land. He noted that option would not involve park fees but would provide the opportunity to preserve those trees. He stated that if they preserve that ten acres, they lose development area which loses economy of scale to make the development work. He noted that the total tree canopy area is 23 acres. He stated that if they go beyond that ten acres, they cannot make the development work financially because they could not pay for Riverdale Drive and could not pay for landscaping and common areas. He asked for feedback on that tonight so that they could work that into the concept plan and continue to move forward. He stated that they provided the first alignment for Riverdale with access to the west of the buildings.

John Dobbs stated that he has helped the Pearsons for some time and was the developer of Pearson Place. He stated that when Pearson Place was developed there was a joint effort between the neighborhood, planning staff, property owner and developer to finish off Bowers Drive. He explained that the 50-foot buffer was provided as a buffer and acknowledgement that there would be density on the other side of the trees compared to the unique Bowers Drive neighborhood. He stated that he understands the desire to save trees but noted that this is not a new dialogue. He stated that this is about the Pearsons property and their tenure in the City. He stated that the Pearsons are fond of the existing residents and have provided that buffer. He stated that when he

first got involved, they were given an alignment from the City. He commented that Ms. Pearson commented that she did not want Riverdale Drive to go through her living room and staff was great with providing alternative ideas for the alignment that do not go through the Pearson's home or Bowers Drive. He stated that there were neighborhood meetings for Pearson Place which brought forward Riverdale Drive alternative one. He stated that the road alignment could be moved to the east, which would be almost a football field from Bowers Drive. He explained that the Pearsons prefer that alignment because the road impacts the Pearsons and their home along with their businesses. He stated that the Pearsons do not want to have a service road.

Mayor LeTourneau stated that the additional feedback is important as it tells the City there are many things still on the table. He stated that there is flexibility in those topics.

Councilmember Riley noted that each member of the Council had different ideas on some elements and asked for input from staff, as he was unsure the draft motion captures those ideas.

Mayor LeTourneau commented that the framework allows for all of those discussion points to come forward. He stated that the framework was not very clear about the idea of extended tree preservation and suggested that be added.

Deputy City Administrator Gladhill stated that everyone agrees that Riverdale Drive is important and both alternatives should be explored deeper. He commented that the second connection between Riverdale Drive and Bowers Drive needs to happen, whether that is a public road or just for public safety. He provided details on the possible tree preservation options as well. He noted that the framework would provide direction and limit some options compared to the things that have been on the table thus far.

Motion by Councilmember Menth, seconded by Councilmember Kuzma, to Adopt Resolution #20-136 Approving Planning Framework Document for Riverstone South, including the discussion related to tree preservation.

Further discussion: Councilmember Heinrich asked what the language would be related to tree preservation. Councilmember Menth confirmed that he would suggest the language as proposed by staff. Councilmember Specht stated that he likes the idea of no park fees with the higher acreage of preserved trees. Councilmember Heinrich stated that she struggles because one of the options is continuing to explore 20 plus acres of tree preservation. She stated that she would like to work with the developer on a tree preservation plan but was unsure that acquisition of 20 plus acres would be feasible. She commented that there are a lot of variables included in the language provided by staff. Mayor LeTourneau stated that the intent is to provide direction and to let staff and the developer work out those details. He stated that full acquisition of the trees would most likely fall off the discussion pretty quickly as this moves forward. Councilmember Heinrich stated that she cannot support the motion as drafted which includes the full acquisition of the 20 plus acres of wooded area. Councilmember Menth stated that he understands that this would provide direction to the staff to negotiate and work with the developer. He commented that anything between one acre and 23 acres would be on the table for discussion and simply provides flexibility. Deputy City Administrator Gladhill offered an amendment to move this along. He stated that unless the Council is willing to bring cash, the full acquisition would not happen and therefore

suggested that be left off. He stated that the language could be the option shown now and anything more than that. Councilmember Riley stated that he would feel more comfortable removing the full acquisition option. It was the consensus of the Council to remove the full acquisition option of 20 plus acres. The last option should be corrected to reduce park dedication fees in return for additional preserved acres of trees.

Motion carried. Voting Yes: Mayor LeTourneau, Councilmembers Menth, Kuzma, Heinrich, Musgrove, Riley, and Specht. Voting No: None.

7.10: Adopt Resolution #20-134 Accepting Resignation of the Ward 1 Council Member, Declaring a Vacancy in the Office of Council Member Ward 1 and Calling for a Special Election to Fill the Vacancy

City Administrator Ulrich reviewed the staff report and recommendation to adopt Resolution #20-134 to proceed with the Special Election Process.

Councilmember Heinrich stated that she has enjoyed serving the community, meeting residents, and having them express their comments to the Council. She highlighted some of the projects and activities that she participated in during her time on the Council. She thanked the residents for the opportunity to serve on the Council, which has been a rewarding experience. She stated that she will be resigning her position effective July 14th, which is difficult. She explained that her husband's new job will take them out of the state and therefore she will not be able to serve Ramsey. She thanked the other members of the Council for their continued service to the community.

Mayor LeTourneau extended his gratitude for Councilmember Heinrich's service and everything she has done for the City.

Councilmember Specht stated that it has been an honor to work with Councilmember Heinrich and noted that she has been a great role model on how to serve the residents.

Councilmember Riley commented that he will miss Councilmember Heinrich and Ward 1 will lose an advocate.

Councilmember Musgrove stated that Councilmember Heinrich has been an inspiration and it has been awesome to see her creative thinking.

Motion by Councilmember Heinrich, seconded by Mayor LeTourneau, to Adopt Resolution #20-134 Accepting Resignation of the Ward 1 Councilmember, Declaring a Vacancy in the Office of the Ward 1 Councilmember and Calling for a Special Election to Fill the Vacancy.

Further discussion: Councilmember Menth commented that Councilmember Heinrich is a class act and it has been great working with her. Councilmember Kuzma wished Councilmember Heinrich good luck in her future.

Commissioner Anderson	aye
Commissioner Gengler	aye
Commissioner VanScoy	aye
Chairperson Bauer	aye

Motion Carried.

7. COMMISSION BUSINESS

7.01: Review Sketch Plan for Riverstone South; Case of Capstone Homes

Presentation

Deputy City Administrator Gladhill presented the Staff Report stating that the City has broad policy discretion as the request requires the approval of a Zoning Amendment (and possibly Comprehensive Plan amendment) due to lot sizes and densities. She encouraged the Commission to provide feedback to the developer as part of the plan development for the next stage in the process known as Preliminary Plat.

Commission Business

Councilmember Musgrove asked if there would be buffering on the east, adjacent to the solar farm.

Deputy City Administrator Gladhill replied that additional density transitioning buffering is not proposed as it is not required.

Councilmember Musgrove asked if there would be a connection to the ponds under the proposed road.

Deputy City Administrator Gladhill stated that he is unsure if there would be a connection point. He stated that there may be connections between one of the proposed ponds and the infiltration basin. He noted that additional details will be developed as this moves forward.

Commissioner Anderson asked if there are hydrants on Bowers Drive.

Deputy City Administrator Gladhill replied that the closest sewer and water is currently at Lazydays RV, therefore there is not a hydrant on Bowers Drive currently. He stated that this project would bring water to the development site and would bring in hydrants. He noted that a water line would be brought through this corridor and connected to Bowers Drive. He stated that there are no plans to extend sewer and water down Bowers Drive.

Commissioner Anderson asked how wide the streets will be in the development.

Deputy City Administrator Gladhill replied that the at minimum, Pearson Boulevard or Drive should be a typical standard size while the rest of the internal streets would be 29 feet wide, similar to Riverstone North, with parking allowed only on one side.

Commissioner Anderson asked if the entire project would be connected to sewer and water.

Deputy City Administrator Gladhill confirmed that the entire development would be connected to those utilities.

Commissioner Anderson asked if the townhome product would be similar to other homes in Ramsey.

Deputy City Administrator Gladhill stated that this would be similar to the Centra Homes project. He stated that Capstone is currently building this product in the current phase of its existing development.

Commissioner Anderson asked if sidewalks would be required.

Deputy City Administrator Gladhill confirmed that there would be sidewalks on one side of the street.

Chairperson Bauer commented that he lives in Riverstone North and has for two years. He stated that this is the first step in a three-step process, noting that they attempt to address questions and concerns at this step before additional time and funds are invested in the Preliminary Plat step. He noted that a public hearing would be held when the Commission reviews the Preliminary Plat.

Commissioner VanScoy referenced the access, noting that there was a concern for safety and connection. He stated that a full connection was discussed, and he believed was agreed upon. He stated that he sees a trail/vehicle access that is reduced in width and asked for details.

Deputy City Administrator stated that staff acknowledges that it is a sensitive topic and there is concern from the existing residents on Bowers Drive. He stated that the City allowed this situation to occur in years past and is trying to work through that. He stated that they are open to allowing something that accommodates the largest fire department vehicle but would not be open for full traffic.

Commissioner Anderson stated that he agrees that connection should be a public street. He stated that people from the development would not go down that to exit from Bowers Drive. He commented that Bowers Drive is not a private development and is a City street. He stated that he respects those properties and their properties but believes that a secondary access should be provided for emergency vehicles. He commented that should be a City street connection. He stated that the 65-foot-wide lots should be 80-foot lots to meet the R-1 standard.

Chairperson Bauer commented that although this is not a public hearing, he would still provide an opportunity for the developer to come forward to address concerns that were expressed at the open house prior to tonight's meeting.

Tom Bakritges, Capstone, thanked the Pearson family who has entrusted this team to create a special development on their farm homestead. He also expressed appreciation to the staff, advisory

Boards and City Council for their input and cooperation. He identified the existing uses and future guiding on the adjacent properties. He commented that Riverstone South is to mirror Riverstone North. He commented that there will be larger lots would be adjacent the exiting residential with the lot sizes reduced on the other side of the development, adjacent the solar farm. He stated that they will continue to work with the City and Pearson family on the design and connectivity to Highway 10 and the extension of Riverdale Drive. He stated that they will provide a 30-foot buffer area along Riverdale Drive that will be landscaped. He stated that there will be a one-acre neighborhood park with open space and a stand of existing Oak trees. He stated that there will be seven acres of trees preserved and dedicated to the City which will combine with the existing tree buffer. He stated that there will be an additional nine acres of open space, ponding, and basin area. He stated that the Bowers Drive connection is still be discussed and they will support the option agreed upon by the City and residents. He stated that the Capstone customer is typically a first- or second-time home buyer and there is a high demand of this type of product in the market. He stated that this Concept Plan is a result of much communication and coordination between Capstone, City Staff and input from residents, advisory Boards, and the City Council.

Chairperson Bauer asked for a comparison between Riverstone North and South on the mix of housing products and also for input on the demand from homebuyers at this time.

Mr. Bakritges stated that the sales this year within Riverstone North have exceeded their expectations, especially during the pandemic. He commented that interest rates are low and the variety of products within the development provides options for many different homebuyers. He stated that the difference between North and South would be that in Riverstone South, the lots against the preserved trees would be a premium style but would otherwise be similar in product. He stated that the only product that exists in the North that would not be included in the South would be the villas.

Chairperson Bauer commented that the older residents typically live in the villas and young families tend to choose the larger lot homes.

Mr. Bakritges stated that the Capstone developments thrive because they have a mix of buyers and residents. He stated that the design their developments to have people walking around, using the sidewalks and trails.

Commissioner Anderson asked if the 55 foot lots would be detached villas.

Mr. Bakritges clarified that those would be single-family homes as the villa product will not be included in the South.

Josh Fuerick, 14573 Bowers Drive, stated that the tree preservation area is an extremely ecologically unique area and feels that the developer has done a great job of considering that. He believed that it made sense to have the 65 foot lots in that area. He stated that he manages HOAs for townhomes and believed that the Commission should be asking where snow storage would occur. He commented that should be a consideration for all developments that are HOA maintained which would prevent snow from having to be hauled offsite.

Chairperson Bauer asked if these streets would be publicly maintained.

Deputy City Administrator Gladhill commented that as of now all the streets are proposed to be public, but that could change for the detached townhome section of the development as this moves forward.

Mr. Fuerick explained that his comment was related to driveway snow removal and storage for that snow. He encouraged the Commission to think about that element in all development projects.

Chairperson Bauer stated that in his development the snow from his driveway is piled into his yard.

Commissioner Anderson asked if Mr. Fuerick would support the 65-foot lots instead of the 80-foot lots.

Mr. Fuerick confirmed that he supports the 65-foot lots as he believes it makes sense and that the developer has taken the tree preservation into consideration. He believed that additional preserved trees are a sufficient tradeoff for the 65-foot lots.

Jeff Johnson, 4540 Bowers Drive, stated that when there was first discussion about Capstone building the 12 additional homes, there was never a mention of the piece of City owned land. He stated that there was never discussion of a roadway connection and believed that is fixing a problem that does not exist. He stated that he does not need the Commission or the City to review his calculated risk. He stated that he lives in the floodplain and pays higher insurance rate for that and because of the distance from a fire hydrant. He stated that everyone that purchased on Bowers Drive took that risk willingly and to be isolated from other development. He stated that Bowers Drive was able to support the 12 additional homes and did not want to see the City attempting to fix a problem that does not exist. He stated that there is not one incident where an emergency situation occurred, and the City services were not able to access. He stated that 95 percent of the residents on Bowers Drive reject the road connection and asked the City to take that off the table.

Chairperson Bauer commented that the decision to obtain the property for a roadway connection was obtained when the 12 homes were constructed. He stated that they are now discussing whether that connection is necessary.

Deputy City Administrator Gladhill stated that in 2016 they were attempting to be flexible with the design and should have been more specific in the plan set as to the potential future street connection. He noted that the information was disclosed in the 2016 presentation.

Mr. Fuerick stated that the concern of the Bowers Drive residents is not with traffic from the new development. He invited the Commissioners to come down Bowers Drive and see the pedestrian activity from the Bowers Drive residents. He stated that the entire road is tree lined and therefore if there is a storm that causes a tree to go down, they will deal with it as many residents have chainsaws. He stated that if the developments are connected, that will significantly increase the pedestrian traffic, which will impede the enjoyment of the Bowers Drive residents and their ability to drive down the road safely.

Mr. Johnson stated that there are no streetlights on Bowers Drive and therefore if the pedestrian traffic is increased that will cause a safety issue. He stated that one thing will lead to another, beginning with fixing a problem that does not exist that will cause other problems.

James Wadey, 14447 Bowers Drive, stated that there have been many studies that show crime rates increase when a cul-de-sac is opened as it provides criminals with increased opportunity to leave the neighborhood. He stated that he would be concerned with having a road that comes along the side of his property that would allow others to access his property.

Chairperson Bauer urged the residents to continue to raise their concerns over the roadway connection with City staff, as the decision will be made prior to the Preliminary Plat step. He stated that there should be additional input from public safety staff as to why they pushed for that connection.

Senior Planner McGuire Brigl stated that a written comment was provided from the property owner at 14435 Bowers Drive, noting that the property owner was not made aware of the potential road when they purchased their property.

Councilmember Musgrove asked the plans for Bowers Drive and whether there would be a connection planned to 142nd Ave NW.

Deputy City Administrator Gladhill stated that there is another dead-end road and therefore it would seem a logical solution to connection those roads, but City staff is aware that would cause more objection. He stated that City staff has heard loud and clear of the unique character of Bowers Drive and therefore public safety felt that this connection would be a good compromise.

Mr. Bakritges explained that at the June meetings it was agreed upon to preserve about 10 percent of the wooded area, which they did, by switching out the 80 foot lots with 65-foot lots. He noted that has been supported by the Bowers Drive residents and the Council because of the additional tree preservation that would be provided.

7.02: Consider Resolution #20-164 Granting a Conditional Use Permit (CUP) for Team Packaging at 14799 Jackal St Suite 400 in Bunker Lake Industrial Park (Project No. 20-123)

Presentation

Chairperson Bauer noted that there was not sufficient time to provide notice for a public hearing and therefore the Planning Commission was asked to review and provide input with the public hearing to be held at the City Council meeting.

Senior Planner McGuire Brigl presented the Staff Report stating that staff recommends that the Commission recommend approval of the Conditional Use Permit for Team Packaging for outdoor storage with a public hearing at the next City Council meeting.

Riverstone South

Environmental Assessment Worksheet

Draft December 8, 2020

Responsible Governmental Unit (RGU)

City of Ramsey
Community Development
7550 Sunwood Drive NW
Ramsey, Minnesota 55303
http://www.cityoframsey.com/

7550 Sunwood Drive NW • Ramsey, MN 55303
City Hall: 763.427.1410 • Fax: 763.427.5543
www.cityoframsey.com

Memorandum

To: Minnesota Environmental Quality Board
Environmental Review Distribution List

From: Tim Gladhill, Community Development Director

Date: December X, 2020

Subject: Riverstone South EAW

As the Responsible Governmental Unit (RGU), the City of Ramsey is issuing this Environmental Assessment Worksheet (EAW) for Riverstone South. The public comment period on this EAW begins when the public notice is published in the Minnesota Environmental Quality Board (EQB) Monitor on December X, 2020. A press release and public notice has been submitted for publication in the Anoka County Union Herald. Public comments on this EAW will be accepted by the City of Ramsey until 4:30pm on January X, 2021.

Environmental Assessment Worksheet (EAW)

Riverstone South

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Environmental Assessment Worksheet (EAW)

Riverstone South

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project Title: **Riverstone South**

2. Proposer:	Riverstone Development, LLC	**RGU:**	City of Ramsey
Contact person:	Tom Bakritges	Contact person:	Tim Gladhill
Title:	Land Project Manager	Title:	Community Development Dir.
Address:	14015 Sunfish Lake Blvd.	Address:	7550 Sunwood Drive NW
	Ramsey, MN 55303		Ramsey, MN 55303
Phone:	(763) 450-1213	Phone:	(763) 433-9826
Fax:	(763) 712-9060	Fax:	(763) 433-9848
Email	tbakritges@capstonehomes-mn.com	Email	tgladhill@cityoframsey.com

4. Reason for EAW Preparation

Required:
- ☐ EIS Scoping
- ☐ Mandatory EAW

Discretionary:
- ☐ Citizen petition
- ☑ RGU discretion
- ☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
The EAW is Not Mandatory, MN Rules Part 4410.4300, Subp. 19.D. (Residential development)

5. Project Location

County: Anoka County, Minnesota
City/Township: City of Ramsey
PLS Location (¼, ¼, Section, Township, Range): part of W ½ of Section 29 and part of the E ½ of Section 30, T32N, R25W
Watershed (81 major watershed scale): Mississippi River Twin Cities (20)
GPS Coordinates: 45.236147, -93.489185
Tax Parcel Number(s): part of 30-32-25-11-0032, part of 29-32-25-22-0003, and all of 29-32-25-23-0004

At a minimum attach each of the following to the EAW:

- *County map showing the general location of the project;*
- *U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and*
- *Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.*

6. Project Description

a. Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

Riverstone South is proposed on 78.63 acres of land in southwestern Anoka County. The project will include 165 detached single-family homes, 78 detached townhomes, and parkland with tree preservation. Site development will include installation of municipal sewer and water, mass grading, and stormwater management practices.

b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

Riverstone South is proposed on 78.63 acres of land in the southwestern part of the City of Ramsey, Anoka County, Minnesota (**Figure 1**). The project area is about 70% cropland and 30% woodland. The site is located in the West ½ of Section 29 and part of the E ½ of Section 30, Township 32 North, Range 25 West (**Figure 2**). The project area is bordered on the south and west by residential lots and Bowers Drive NW, on north by cropland, and on the east by cropland and a Connexus Energy solar farm. The Mississippi River is located 650 to 780 feet southwest of the site and the U.S. Highway 10 is located 530 feet north of the site. The cropland immediately north of the site is planned for extension of Riverdale Drive and commercial development.

The project will include 165 detached single-family homes, 78 detached townhomes, installation of municipal sewer and water, mass grading, and stormwater management practices. The proposed Site Plan is shown in **Figure 3**. The Site Plan and Grading Plan are shown in **Appendix A**. The project will convert about 54.14 acres of cropland and 16.17 acres of woodland to streets, homes, lawns, landscaping, and stormwater features. The balance of the site will include about 7.73 acres of tree preservation and about 0.59 acre of grassland preservation. The project will include about 17.46 acres of open space consisting of tree preservation, stormwater features, parks, and buffers. The project area does not include wetlands, but 42% of the site (33.30 acres) falls within the Mississippi River Corridor Critical Area (**Figure 4**).

The site includes sandy soils, 22 feet of topographic relief, and mostly flat to gradual slopes. The steepest slopes on the site, at 12-14%, cover only about an acre in the northwestern part of the site (**Figure 5**). This sloping area will be graded and recontoured during project construction. The development area will be mass graded to install utilities, streets, residential building pads, and stormwater basins. A 30-foot landscape buffer will be provided along the northern edge of the site

next to Riverdale Drive and the project will not affect the existing 50-foot wooded buffer behind residential lots located southwest of the site.

Single-family lots will generally range from 40 to 65 feet wide and will typically be at least 11 feet deep. Most public streets are expected to be 29 feet wide and located within 60-foot rights-of-ways. Pearson Boulevard, which will be routed through the approximate center of the site, will be slightly wider at 32 feet. A 60-foot-wide open grass strip will provide an informal and emergency access to Bowers Drive, which is located 400 feet southwest of the site. The development will operate under a homeowners' association.

Development of the project area will involve installation of public and private infrastructure, including streets, municipal water and sanitary sewer, stormwater systems, electrical lines, and telephone lines. The project area will be served by City of Ramsey fire and police services and by the Anoka-Hennepin School District.

It is anticipated that construction of the development will start in spring or summer of 2021 or 2022 and be phased over 3 to 5 years, depending on market conditions. Construction will generally be phased from the north to the south based on the extension of municipal water and sewer, which will be extended with Riverdale Drive, to be constructed along the north edge of the site. The number of phases will be determined by market demand and absorption. Infrastructure will be installed at the initiation of each construction phase. In most cases, streets, water main, and sanitary sewer will only be installed to serve the upcoming phase of construction. It may be necessary to initiate stormwater basin construction at the start of each construction phase to properly treat stormwater and minimize potential effects of stormwater runoff.

c. Project magnitude:

Table 1. Project Magnitude

Characteristic	Number of Units
Total Project Acreage	78.63
Linear project length	NA
Number and type of residential units	165 single-family detached 78 detached townhomes 243 total detached units
Number and type of residential units	0
Commercial building area (square feet)	0
Industrial building area (square feet)	0
Institutional building area (square feet)	0
Other uses – specify (acres)	NA
Structure height(s) (feet)	20-35

d. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of the Riverstone South is to provide a residential development with a variety of housing types in proximity to transportation corridors and open spaces. The project will be carried out by a private entity.

e. Are future stages of this development including development on any other property planned or likely to happen? ☐ Yes ☑ No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

Future stages are not planned or likely.

f. Is this project a subsequent stage of an earlier project? ☐ Yes ☑ No
If yes, briefly describe the past development, timeline and any past environmental review.

The project is not a subsequent stage of an earlier project.

7. Cover Types

Estimate the acreage of the site with each of the following cover types before and after development:

Table 2. Cover Types

Land Cover	Before (acres)[1]	After (acres)[2]
Cropland	54.14	0.00
Woodland	23.90	7.73
Grassland	0.59	0.95
Lawn and landscaping	0.00	39.51
Impervious surface (developed)	0.00	25.62
Stormwater basins	0.00	4.82
Totals	78.63	78.63

Existing cover types are shown on **Figure 6**.

8. Permits and Approvals Required

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

Table 3. Permits and Approvals Required

Unit of Government	Type of Application	Status
City of Ramsey	Discretionary EAW Decision	To be applied for
City of Ramsey	Comprehensive Plan Amendment	Submitted
City of Ramsey	Zoning Amendment	Submitted
City of Ramsey	Concept Plan Approval	Submitted
City of Ramsey	Preliminary and Final Plat Approval	Submitted
City of Ramsey	Grading Permit	To be applied for
City of Ramsey	Building Permit	To be applied for
City of Ramsey	Stormwater Management and Erosion Control Approval	To be applied for
City of Ramsey	Municipal Water Connection Permit	To be applied for
City of Ramsey	Sanitary Sewer Connection Permit	To be applied for
Lower Rum River WMO	Concurrence with No Wetland Determination	Approved
Lower Rum River WMO	Watershed Permit	To be applied for
Metropolitan Council	Comprehensive Plan Amendment	Submitted
Minnesota Department of Health	Water Main Extension Approval	To be applied for
Minnesota Department of Natural Resources	Water Appropriation Permit	To be applied for if needed
Minnesota Pollution Control Agency	NPDES/SDS General Permit	To be applied for
Minnesota Pollution Control Agency	Sanitary Sewer Extension Approval	To be applied for
U. S. Army Corps of Engineers	Concurrence with No Wetlands/Waters Delineation	Approved

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. Land Use

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.

About 70% of the project area has been in agricultural use since at least the 1930s and the remaining 30% has been in woodland and grassland. Surrounding land use is residential to the south and west, agricultural (future commercial) to the north, and agricultural (future residential) and solar to the east (**Figure 4**).

Farmland ratings for soils mapped in the project area are listed in **Table 4** under **Item 10b** of this EAW. Of the seven soil map units present in the project area, one soil type covering 9.5% of the site is prime farmland, two soils covering 50% of the site are farmland of statewide importance, and four soils covering 40.5% of the site are not prime farmland.

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The City of Ramsey 2040 Comprehensive Plan guides the site for Low Density Residential (LDR, generally 3-4 lots/net acre). The net density of the site, after factoring out open space, is 3.95 lots/acre. The part of the site planned for 40-foot-wide lots will exceed a net density of 4 lots/acre and will require a Comprehensive Plan Amendment to Medium Density Residential (MDR, average of 7 units/acre). The City of Ramsey Comprehensive Parks and Recreation Plan shows the Mississippi Regional Trail, to be constructed on property north of the site near the U.S. Highway 10 corridor. Mapping prepared by the Minnesota DNR shows Metro Conservation Corridors in the vicinity of the project.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

Zoning Overview

The City of Ramsey Zoning Map shows the project area zoned for R-1 (Low-Density Residential [MUSA]). The City of Ramsey is in the process of a Zoning Amendment for consistency with the 2040 Comprehensive Plan. The proposed 65- to 40-foot-wide residential lots will be allowed under the Zoning Amendment.

The project area does not fall in or near a wild and scenic river or an agricultural preserve.

Floodplains

The site is outside the floodplain of the Mississippi River (**Figure 5**). The site falls in FEMA (Federal Emergency Management Agency) FIRM (Flood Insurance Rate Map) Panel 27003C0280E, which shows that the floodway elevation of the Mississippi River, Flood Zone AE (1% annual

chance flood), ranges from 855 feet at the upstream end of the site to 853 feet at the downstream end of the site. The lowest elevation onsite (at the southeast corner of the site) is 858 feet. The site is outside the floodplain because the lowest part of the site is 5 feet higher than the corresponding flood elevation. The project will avoid floodplain impacts and comply with Lower Rum River Watershed Management Organization (LRRWMO) Stormwater Standards that require lowest floor elevations to be at least 3 feet above the highest anticipated groundwater table and 2 feet above the 100-year flood elevation, or 1 foot above the emergency overflow, whichever is greater.

Shorelands

The site is outside the shoreland overlay district of the Mississippi River (**Figure 5**). The shoreland overlay district extends 300 feet from the edge of the bank of the river channel, or to the landward extent of the floodplain, whichever is greater. The site is setback about 666 feet from the Mississippi River and is located entirely outside the floodplain, so the shoreland overlay district does not affect the proposed project.

Mississippi River Corridor Critical Area (MRCCA)

About 42% of the site (33.30 acres) falls in the Mississippi River Corridor Critical Area (MRCCA) (**Figure 4**) and the Mississippi National River and Recreation Area (MNRRA). The MRCCA is administered by the City of Ramsey, with oversight by the Minnesota DNR, and sets standards for land development. The MNRRA is overseen by the National Park Service and does not regulate development on private lands. Land use in the MRCCA is regulated under three documents:

1. Section 117-144 to 117-148 (Environmental Protection Overlay Districts) of the City of Ramsey City Code;
2. Chapter 6 Mississippi River Corridor Critical Area Plan, of the City of Ramsey 2040 Comprehensive Plan; and
3. Minnesota Rules Chapter 6106 (Mississippi River Corridor Critical Area).

Minnesota Rules Part 6106 and the City of Ramsey Comprehensive Plan designate the MRCCA within the project area as CA-SR (Critical Area, Separated from River). Land in this district is not readily visible from the river and therefore the district provides flexibility in managing development. Maximum structure height is 35 feet. Lot area and width standards must comply with requirements of the underlying zoning district. Primary conservation areas must be set aside as open areas, and the required set-aside is 10% of the parcel if the parcel includes native plant communities.

The proposed Site Plan (**Figure 3**) will preserve woodland open space over 10% of the project area and about 24% of the MRCCA area within the site (roughly 8 acres). In addition, the project design transitions from larger lots near in the southwestern part of the site within the MRCCA and near existing residential lots, to smaller lots in the northeastern part of the site near the existing solar farm and future commercial development area. The MRCCA area includes additional open space allocated to stormwater management and a grassed public safety connection to Bowers Drive.

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

The project is compatible with surrounding land uses, which include residential, agricultural, and solar energy. The City of Ramsey 2040 Comprehensive Plan guides the site for Low Density Residential (LDR, generally 3-4 lots/net acre). The net density of the site, after factoring out open space, is 3.97 lots/acre.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

The project will require a Comprehensive Plan Amendment to guide the part of the site planned for 40-foot-wide lots for Medium Density Residential (MDR, average of 7 units/acre). The project area will also fall under a rezoning amendment to allow 40-foot-wide lots. The project is designed to balance smaller lots with public open space. The project will include about 17.46 acres of open space consisting of tree preservation, stormwater basins, parks, and buffers strips that will separate the project from adjacent residential and commercial areas. The proposed project is compatible with the proposed zoning, and the surrounding land uses. Land use conflicts are not anticipated.

10. Geology, Soils and Topography / Land Forms

a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The Geologic Atlas of Anoka County, Minnesota (Minnesota Geological Survey 2013) indicates the surficial geology of the area is characterized by terrace sand and gravel. The bedrock geology of the site falls in the Tunnel City Group and consists of fine-grained sandstone, siltstone, and shale. s dominantly quartz sandstone.

The estimated depth to bedrock in the project area, based on the Geologic Atlas, generally ranges between 100 and 200 feet. As indicated under **Item 11.a.ii**, the depth to bedrock in nearby groundwater wells ranges from 95 to 180 feet and the depth to static groundwater ranges from 10 to 50 feet.

Sinkholes and karst lands are not known to occur in western Anoka County where the project is located. Minnesota Karst Lands and Sinkhole Mapping prepared by Calvin Alexander and others (2006) does not shows karst lands or sinkholes in or near the project area.

b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.

The Web Soil Survey indicates the project area includes seven soil mapping units that consist of mostly loamy sands (**Table 4** and **Figure 7**).

Table 4. Soil Classifications

Symbol	Soil Name	% of Area	% Hydric	Hydric Category	Farmland Category
Ba	Becker very fine sandy loam	9.5	7	Predominantly non-hydric	Prime farmland
D67A	Hubbard loamy sand, 0-2% slopes	20.0	1	Predominantly non-hydric	Not prime farmland
D67B	Hubbard loamy sand, 1-6% slopes	16.0	3	Predominantly non-hydric	Not prime farmland
D67C	Hubbard loamy sand, 2-12% slopes	2.8	0	Non-hydric	Not prime farmland
DnA	Dickman sandy loam, 0-2% slopes	37.6	0	Non-hydric	Farmland of statewide importance
DnB	Dickman sandy loam, 2-6% slopes	12.5	0	Non-hydric	Farmland of statewide importance
NrD	Nymore loamy coarse sand, 12-25% slopes	1.7	0	Non-hydric	Not prime farmland

Five of the seven soils do not have limitations for dwelling units and local streets. Two of the soils (Ba and NrD) have limitations due to factors such as flooding, depth to saturated zone, frost action, and slope. Soils in the project area are generally considered slightly to moderately susceptible to the sheet and rill erosion by water, as indicated by slopes and K factors that range between 0.02 and 0.37.

Grading operations for residential development construction are expected to affect about 68.0 acres and involve movement of about 350,000 cubic yards of soil to construct streets, residential building pads, and stormwater features. Grading is expected to avoid disturbance of trees that will be preserved, which cover about 7.73 acres.

Elevations in the project area range from 880 feet above mean sea level at the highest point in the northwestern part of the site to 858 feet at the lowest point in the southeastern part of the site. Review of two-foot contour mapping indicates the northwestern part of the site includes about one acre of 12-14% slopes and the site does not include any bluffs (**Figure 5**). Soils mapping classifies the steepest part of the site, about 1.33 acre, as 12-25% slopes (**Table 4, Figure 7**). As shown on the

Site Plan (**Figure 3, Appendix A**), these slopes are proposed to be developed into residential lots and a street. The area of 12-14% slopes will be graded and recontoured as part of project construction.

Development of the project area will disturb more than one acre of land and therefore will require application for coverage under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Permit administered by the Minnesota Pollution Control Agency (MPCA) prior to initiation of earthwork. In compliance with the General NPDES Permit for construction activities, the project proponent and construction contractor will need to implement Best Management Practices (BMPs) to reduce erosion and sedimentation and stabilize exposed soils after construction. Erosion and sedimentation control BMPs related to stormwater runoff are discussed in greater detail within **Item 11.b.ii**.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils *and topography/land forms and potential effects described in EAW Item 10.*

11. Water Resources

a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.

i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

The project area does not include any surface waters, wetlands, streams, or channels. The site has sandy soils and drains overland toward the Mississippi River. The National Wetlands Inventory shows one PFO1A wetland onsite (**Figure 8**) and soils mapping shows the entire site mapped as non-hydric and predominantly non-hydric soils (**Table 4, Figure 7**). Kjolhaug Environmental Services (KES) reviewed the site in the field for wetlands on October 19, 2019 and determined that the site include no wetland. At that time, the site consisted mostly of cornfield and woodland. The woodland was dominated by oak and elm trees and did not contain any depressions dominated by hydrophytic plants. Aerial photographs of the cropland were reviewed for wetland signatures using guidance from the Minnesota Board of Water and Soil Resources (BWSR) and the U.S. Army Corps of Engineers (USACE). The aerial photograph review found the cropland did not have any areas with enough wetland signatures to warrant a field review. Nevertheless, soils were sampled in two locations that showed some wetland signatures. Non-hydric sandy soils were found at both sample points and KES concluded that the site does not include any wetlands.

The Lower Rum River Watershed Management Organization (LRRWMO) concurred with the no wetland determination on November 21, 2019 and the U.S. Army Corps of Engineers (USACE) sent a letter concurring that the site does not include aquatic resources on June 15, 2020. **Appendix B** includes the site assessment for wetlands and concurrence with the no wetland determination from wetland agencies. The Mississippi River is a MN DNR public watercourse and is located about 666

feet southwest of the project area. Land use within the Mississippi River Corridor Critical Area is discussed under **Item 9**.

Impaired waters listed by the Minnesota Pollution Control Agency (MPCA) and located within 1 mile of the site include only the Mississippi River (07010206-805), which is impaired for aquatic consumption (AQC), aquatic life (AQL), and aquatic recreation (AQR) from the Crow River to Upper St. Anthony Falls.

ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Depth to groundwater varies across the project area. Depth to static groundwater levels in 41 groundwater wells located near the project area ranged from 10 to 50 feet (**Table 5** and **Appendix C**). The project area does not fall within a Minnesota Department of Health (MDH) wellhead protection area. The nearest Source Water Protection area is the Ramsey West Drinking Water Supply Management Area, located 0.5 mile east of the project area. Although several groundwater wells are located in the general vicinity of the site, the Minnesota County Well Index does not identify any wells located onsite. One unregistered well was found in the southeastern corner of the site during the land survey for the property. The project proponent is determining whether this well has been abandoned and will ensure it is abandoned prior to construction as noted under **Item 11.b.iii**.

Table 5. Nearby Field Verified Groundwater Wells

Well No.	Surface Elevation (feet)	Depth (feet)	Cased Depth (feet)	Depth to		Location (Direction from Site)	Aquifer
				Static Water Level (feet)	Bedrock (feet)		
503721	882	221	156	35	118	Northwest	St. Lawrence-Tunnel City
430232	883	338	294	30	116	Northeast	Wonewoc
511952	860	170	134	28	122	West	Tunnel City
486181	858	145	135	13	-	West	Quat. buried
227345	883	75	71	30	-	Northwest	Quat. buried
256060	863	186	130	40	112	West	St. Lawrence-Tunnel City
114352	877	176	134	40	95	Northwest	Tunnel City
124137	861	246	161	20	149	West	Tunnel City
711529	863	155	142	30	-	West	Quat. buried
516054	864	190	146	30	145	South	Tunnel City
133390	875	190	162	39	138	Northwest	Tunnel City
193778	880	186	155	18	155	Northwest	Tunnel City
672386	849	70	65	14	-	West	Quat. buried
124138	862	246	170	20	151	South	Tunnel City
242411	871	178	null	14	149	West	Tunnel City
416682	861	186	133	18	103	Northwest	Tunnel City

Table 5. Nearby Field Verified Groundwater Wells

Well No.	Surface Elevation (feet)	Depth (feet)	Cased Depth (feet)	Depth to		Location (Direction from Site)	Aquifer
				Static Water Level (feet)	Bedrock (feet)		
179361	878	210	170	35	114	Northwest	Tunnel City
541778	883	66	63	28	-	Northwest	Quat. buried
160047	865	260	215	18	143	South	Tunnel City
169236	870	82	78	40	-	Northwest	Quat. buried
155281	866	248	186	30	150	South	Tunnel City
417963	850	170	124	10	96	West	Tunnel City
162802	855	130	125	20	-	West	Quat. buried
149458	865	211	200	50	180	South	Tunnel City
431401	852	127	123	15	108	West	Tunnel City
656433	865	175	147	25	137	South	Tunnel City
126498	865	201	188	15	146	South	Tunnel City
409591	881	213	168	32	119	Northwest	Tunnel City
146087	865	160	155	20	150	South	Tunnel City
634427	862	120	110	25	120	south	Quat. buried
418904	881	170	148	45	110	Northwest	Tunnel City
425746	860	135	120	12	-	West	Quat. buried
494213	878	211	151	33	130	Northwest	Tunnel City
722207	860	200	135	23	111	West	Tunnel City
656104	853	73	68	25	-	West	Quat. buried
104707	863	225	194	26	160	South	Tunnel City
454349	850	92	87	30	-	West	Quat. buried
768697	867	185	145	21	130	South	St. Lawrence-Tunnel City
680275	853	186	149	30	125	West	Tunnel City
490097	866	250	201	22	121	West	Tunnel City
146160	863	156	151	20	-	South	Quat. buried

The project will be served by the City of Ramsey municipal water supply. The City has eight water supply wells that are all located at least one mile east of the project area.

b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

The project is expected to produce normal domestic wastewater that is typical of residential developments. The project will not include industrial wastewater production or onsite wastewater treatment.

Sanitary wastewater production for the project was estimated using methods described in the Sewer Availability Charge (SAC) Procedure Manual (Metropolitan Council 2017). Metropolitan Council has established 274 gallons per day (GPD) as the average daily wastewater production from a typical residential unit. Based on this residential equivalent, the project is expected to generate a maximum of 66,582 gallons of wastewater per day. Sanitary sewer will be extended from Riverdale Drive to serve the development area. The project will be served by a sanitary sewer lift station that will be installed along Pearson Boulevard in the southeastern part of the site. This lift station will also serve future residential development east of the site and future commercial development north of the site.

Domestic wastewater from the project will be routed through the City of Ramsey sanitary sewer system and ultimately to the Metropolitan Wastewater Treatment Plant (MWWTP) located on the Mississippi River near Pig's Eye Lake in St. Paul. With the capacity to treat 251 million gallons of wastewater per day (MGD), this is the largest wastewater treatment facility in Minnesota. The MWWTP is owned and operated by Metropolitan Council. The Metropolitan Council's 2040 Water Resources Policy Plan includes a specific plan to serve the region's projected growth through 2040 and a general plan to serve the region's growth far beyond 2040. The City of Ramsey and Metropolitan Council have planned for increased capacity to convey and treat sanitary wastewater. The proposed project is not expected to require expansion of wastewater treatment infrastructure or raise wastewater treatment capacity concerns.

2) *If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.*

Wastewater will not be discharged to subsurface sewage treatment systems.

3) *If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.*

Wastewater will be treated in the MWWTP described above and then discharged to the Mississippi River. The MWWTP is an advanced secondary wastewater treatment plant located on the east bank of the Mississippi River, approximately three miles south of downtown St. Paul. Treatment capability is maintained during times of flood by a levee and floodwall that protect the plant treatment area.

The plant uses an activated sludge process to remove phosphorus and ammonia nitrogen from wastewater prior to discharge to the Mississippi River. Sludge is processed by thickening, centrifugal dewatering, and fluidbed incineration with energy recovery (steam and electricity). These processing facilities were completed in 2004 as part of a major rehabilitation and upgrade program at the plant, which included state-of-the-art air pollution control systems and an alkaline stabilization system that produces biosolids for agricultural utilization. Ash from incineration is disposed of in a landfill.

ii. Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.

Pre-Construction Site Runoff

Soils in the project area are quite sandy and most precipitation likely infiltrates into the ground, resulting in little surface runoff. Surface runoff from the project area under existing conditions likely contains some sediment, pesticides, fertilizers, and other nutrients. Existing runoff drains overland from the north end of the site, south toward the Mississippi River. Although the area contains highly permeable soils, some surface runoff from the site may reach the Mississippi River during runoff events.

Post-Construction Site Runoff

Compliance with LRRWMO, City of Ramsey, and NPDES requirements will minimize and mitigate potential adverse effects on receiving waters. Project development will change the land use from agricultural and woodland to residential with streets and parks. This land use change is expected to have mixed effects on runoff water volume and quality. Post-development runoff water quality will be typical of suburban developments, and will likely be slightly degraded by pollutants carried in runoff from streets, roofs, and driveways. Residential development may reduce concentrations of agricultural chemicals, but may increase the loading of suspended solids during construction. Other typical components of impervious surface runoff, such as hydrocarbons and heavy metals, may also increase.

Residential project construction will add about 25.62 acres of impervious surface, consisting of streets, homes, and driveways. The increased impervious surface area is expected to increase runoff volume and urban pollutants locally during significant storm events. However, stormwater rate and volume controls that comply with City of Ramsey and LRRWMO requirements will limit increases in runoff volume and associated pollutant transport. Much of the increased runoff and pollution is expected to be associated with large infrequent storm events. The creation of stormwater ponds and infiltration basins is expected to mitigate potential adverse effects from the increased impervious surface area.

The project will include approximately 4.82 acres of stormwater and infiltration basins in compliance City of Ramsey and LRRWMO requirements (**Figure 3, Appendix A**). Potential adverse effects of runoff volume and quality will be mitigated by the construction of stormwater basins designed to manage peak runoff rates, runoff volume, and water quality.

Impervious surface runoff from storm events will be retained in two stormwater ponds and two infiltration basins. These basins will include a 3.5-acre pond or 'lake' that will be excavated to a depth of about 26 feet. This deep pond will not have an outlet, but will be designed to serve as the

end receiving water for stormwater from the site, with a water level that bounces about 6.6 feet in response to a 1% frequency storm event. The deep pond will also serve some infiltration functions.

Surface water runoff from the project will mostly infiltrate into the ground. Runoff from large storm events may also flow overland to the southeast of the project and the Mississippi River. Proposed discharge flow rates are expected to be equal to or less than the existing flow rates. Requirements for stormwater management and erosion and sediment control are expected to minimize cumulative effects of post-development runoff on downstream waters. Project construction will include other water quality BMPs such as temporary sediment basins to comply with the MPCA General Stormwater Permit for Construction Activity.

Section 117-392 of the of Ramsey City Code requires permanent stormwater pollution controls, including: (1) infiltrating or retaining the first inch of precipitation over the impervious surface of the site; (2) retaining the post-construction runoff volume onsite for the 95th percentile storm; and (3) no increase in the post-construction rate, volume, and duration of runoff over existing conditions for the one- and two-year storms. LRRWMO Stormwater Standards require stormwater basins designed to store the volume of the 100-year storm; stormwater treatment to NURP standards prior to discharge to a lake, stream, wetland, or offsite; and infiltration of a runoff volume equal to 1 inch from all impervious surfaces onsite.

Stormwater ponds designed to NURP criteria are considered effective in removing sediment, pollutants, and nutrients, as discussed in Protecting Water Quality in Urban Areas: Best Management Practices for Dealing with Storm Water Runoff from Urban, Suburban and Developing Areas of Minnesota (MPCA 2000). The NURP research projects conducted by the U.S. EPA concluded that 90% removal of total suspended solids was an attainable goal, and that significant removal of other pollutants, such as phosphorus, was also achievable. Although nutrient removal efficiency varies with site conditions, well-designed wet ponds and constructed wetland treatment systems are effective in removing sediment and associated pollutants, such as trace metals, nutrients and hydrocarbons. Stormwater basins also remove or treat oxygen-demanding substances, bacteria and dissolved nutrients.

Stormwater and Erosion Control BMPs

Because project construction will disturb more than one acre of land, the project proponent will be required to apply to the MPCA for coverage under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Permit prior to initiating earthwork on the site. BMPs will be employed during construction to reduce erosion and sediment loading of stormwater runoff. Inspection of BMPs will be required after each rainfall exceeding 0.5 inches in 24 hours, and on a routine basis every 7 days. The NPDES permit will also require perimeter sediment control maintenance and sediment removal. BMPs to be implemented during construction include:

1. Construction of temporary sediment basins in the locations proposed for stormwater ponding, and development of these basins for permanent use following construction.
2. Installation of silt fence and other perimeter erosion controls prior to initiation of earthwork and maintenance of these controls until viable turf or ground cover is established on exposed areas.

3. Periodic street cleaning and installation of a rock construction entrance to reduce tracking of dirt onto public streets.
4. Stabilization of exposed soils within the time limits specified in the General NPDES permit.
5. Energy dissipation, such as riprap, installed at storm sewer outfalls.
6. Use of cover crops, native seed mixes, sod, and landscaping to stabilize exposed surface soils after final grading.

Erosion control plans will be reviewed and accepted by the City of Ramsey and the LRRWMO prior to project construction. Potential adverse effects from construction-related sediment and erosion on water quality will be minimized by implementation of the above BMPs during and after construction.

iii. Water Appropriation. Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.

Surface/Groundwater Appropriations and Dewatering

Project construction may require temporary dewatering and groundwater appropriation to facilitate installation of sanitary sewer and excavation to construct the 3.5-acre deep pond. The project will not involve installation of new water wells. Project construction will require a MN DNR water appropriation permit if dewatering required for installation of utilities exceeds 10,000 gallons/day or 1 million gallons/year. If construction dewatering does not exceed a total of 50 million gallons and one year in duration, the project proponent will be eligible for coverage under the amended MN DNR General Permit 1997-0005 for temporary water appropriations. The extent and duration of temporary construction dewatering needed is currently unknown. Construction dewatering may be unnecessary. Groundwater appropriated for construction dewatering will be discharged to temporary sediment basins within the project area. It is not anticipated that construction dewatering will be extensive or continue long enough to affect nearby domestic water wells.

Well Abandonment

The project area does not include any existing registered wells according to the Minnesota Well Index (**Table 5, Appendix C**). However, one unregistered well was found in the southeastern corner of the site during the land survey for the property. The project proponent is determining whether this well has been abandoned, and will ensure the well is abandoned in compliance with MDH requirements prior to project construction as noted under **Item 11.a.ii**.

Connection to a Public Water Supply

The project will be connected to the City of Ramsey municipal water supply. The City of Ramsey draws its public water supply from the Tunnel City-Wonewoc aquifer. The City currently maintains eight municipal wells that are all located at least one mile east of the project area. These existing

wells have a combined permitted capacity to pump 6,800 million gallons of water per year (MGY) based on Minnesota DNR water use data (**Table 6**).

Table 6. City of Ramsey Municipal Water Appropriation Permits

Permit No.	Well No.	Permitted Volume (MGY)	Average Use 2013-2018 (MGY)	Maximum Use 2013-2018 (MGY)
1985-6005	161441	850	113.8	144.3
1985-6005	416183	850	0.9	5.5
1985-6005	580303	850	88.2	164.9
1985-6005	580313	850	124.2	194.0
1985-6005	593672	850	56.3	82.3
1985-6005	706840	850	122.9	138.1
1985-6005	743832	850	89.1	161.6
1985-6005	743833	850	51.5	129.9
Total		6,800	646.9	1,020.6

During 2013-2018, these wells used a combined average of 646.9 MGY, indicating an available unused permitted volume of over 5,000 MGY. Based on past use and permitted capacity, the existing municipal wells have sufficient surplus capacity to serve the proposed project. A trunk water main will be extended from Riverdale Drive to serve the development area. Water flow, pressure, and storage will be adequate to serve the development area. As indicated under **Item 11.a.ii**, the project is not located in or near a wellhead protection area.

iv. Surface Waters

a) Wetlands. Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.

As discussed under **Item 11.a.i.**, the project area does not include any surface waters, wetlands, streams, or channels.

Wetlands and waters near the project area are generally regulated by the Lower Rum River Watershed Management Organization (LRRWMO), which administers the Minnesota Wetland Conservation Act (WCA) in the project area; the U.S. Army Corps of Engineers (USACE), which administers Section 404 of the Federal Clean Water Act (CWA); and the MPCA, which administers Minnesota water quality standards and Section 401 of CWA.

The project will not involve physical effects on or alterations of any surface waters, wetlands, streams, or channels.

b) Other Surface Waters. Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

The proposed project is not expected to affect other surface water features such as lakes, streams, ponds, intermittent channels, or county/judicial ditches. The Mississippi River is located 650 to 780 feet southwest of the site. The project will not have physical effects on the Mississippi River, will not directly affect the number of watercraft on the river, and will treat stormwater runoff prior to discharge to the river.

12. Contamination / Hazardous Materials / Wastes

a. Pre-project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

About 70% of the project area has been in agricultural use since at least the 1930s and the remaining 30% has been in woodland and grassland. The project area does not include any known pipelines, transmission lines, or registered storage tanks. The site is not known to include environmental hazards and the agricultural land use history suggests a low potential for environmental contamination. The project area is not known to include previous building sites, disposal areas, storage tanks, pipelines, or utility corridors.

Carlson McCain completed a Phase I Environmental Site Assessment (Phase I ESA) for the property in August 2020, and did not identify evidence of recognized environmental conditions or historical recognized environmental conditions in their assessment.

The Phase I ESA reported that the site contained no buildings, and recognized that the past agricultural land use generally involved use of pesticides and herbicides, some of which can persist in the environment. However, no evidence of bulk storage or improper application of agricultural chemicals was identified. The conclusions and summary from the Phase I ESA are included in **Appendix D**.

<u>What's in My Neighborhood</u>

Review of MPCA and Minnesota Department of Agriculture (MDA) "What's in My Neighborhood" (WIMN) interactive websites did not identify any potential contamination sites, environmental

permits, or registrations located within the project area. However, within an 0.25-mile radius of the project area, the MPCA WIMN website identified 10 sites, including six construction stormwater permit sites, two hazardous waste sites, one petroleum brownfield site, and one petroleum leak site (**Table 7**). The MDA website did not identify any spills, incidents, or contingency areas within 0.25 mile of the project area.

The construction stormwater permit sites relate to recent or ongoing construction projects approved in the vicinity of the proposed project. The MPCA file on the brownfield site has been closed since 2007. One of the hazardous waste sites is a very small quantity generator and the MPCA file on this other is hazardous waste site is inactive. None of these sites are known to pose an environmental contamination threat to the project area.

The MPCA's WIMN database identified the Dave Nathe Farm as a nearby petroleum Leak Site. This Leak Site is located about 320 feet north of the northwest corner of the project area (**Figure 7**). The MPCA lists it as Leak Site 6487. The Leak Site is described in the Phase I ESA (**Appendix D**) and listed in **Table 7**. The site was discovered on June 28, 1993, reported to the MPCA on June 30, 1993. The leak site file was listed as closed by the MPCA on April 24, 1996. Contaminated soils remaining are listed as unknown, offsite contamination is listed as unknown, groundwater contamination is listed as not reported and product released is listed as diesel. The Phase I ESA did not consider the site to be a recognized environmental condition because the site is separated from the project area by distance and a hydraulic side-gradient.

Table 7. What's in My Neighborhood MPCA Sites near Project Area

Site ID	Type	Name	Status[1]	Direction from Project
196399	Petroleum Remediation, Leak Site LS0006487	Dave Nathe Farm	Inactive	North
217523	Construction Stormwater	Riverstone	Active	North
225576	Construction Stormwater	Bunker Lake Blvd and Puma Str. Improv	Active	North
217643	Construction Stormwater	Bunker Lake Blvd Utilities Extension	Active	North
190937	Brownfields, Petroleum Brownfield PB3473	Hi-Ten Sports Center	Inactive	East
19731	Hazardous Waste, very small quantity generator MNR000054841	Lazydays of Minneapolis	Active	East
20905	Hazardous Waste MNR000059618	Shorewood Rv Center	Inactive	East
223243	Construction Stormwater	Anoka Solar	Active	East
217605	Construction Stormwater	Bunker Lake Industrial Park	Active	East
221392	Construction Stormwater	Pearson Place	Active	South

[1]Status is according to information available on the MPCA website.

b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

Project construction will generate wastes typical of residential development operations. Most solid waste is expected to include organics, paper, other waste, and plastic (**Table 8**).

Neither the construction process nor the proposed residential development is expected to generate substantial solid or hazardous wastes, solid animal manure, sludge, or ash. Construction contractors will be required to dispose of wastes generated at the site during construction using approved methods and facilities. Contractor will be expected to minimize and mitigate adverse effects from solid waste generation and storage by recycling construction waste to the degree practicable. Brush and tree waste generated by construction will likely be chipped or otherwise recycled rather than burned on site.

Residents of the Riverstone South will contract individually with waste haulers for solid waste collection and recycling services under the City's open trash and recycling collection system, which uses eight licensed waste haulers. Curbside recycling, including paper, plastics, glass, and metals is available to City of Ramsey residents through solid waste collectors. Participation in the recycling program by future residents of the project area is expected to reduce the volume of solid waste generated by the project.

Table 8. Estimated Solid Waste Composition

Waste Type	Estimated %
Organic	31.0
Paper	24.5
Other	18.3
Plastic	17.9
Hazardous	0.4
Metal	4.5
Glass	2.2
Electronics	1.2
Total	100.0

Source: 2013 Statewide Waste Characterization
(Burns & McDonnell for MPCA 2013).

Solid waste generated in the City of Ramsey that is not recycled or hazardous is trucked to a nearby landfill such as the Elk River Landfill.

c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

Development of the project area is not expected to generate or require storage of substantial amounts of hazardous wastes or materials. Future residential development is expected to result in the storage or generation of small amounts of typical household cleaners, paints, lubricants, and small engine fuels over time. Petroleum storage tanks and commercial petroleum-based businesses are not proposed in the project area.

d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

Normal construction and household hazardous wastes are anticipated. Toxic or hazardous materials such as fuel for construction equipment and materials used in the construction of homes (paint, adhesives, stains, contaminated rags, acids, bases, herbicides, and pesticides) will likely be used during site preparation and home construction. Spills of these materials are not likely to occur, but a substantial spill could require notification of the Minnesota Duty Officer. Contractors and builders will be responsible for proper management and disposal of wastes generated during construction. Homeowners will be responsible for management and disposal of hazardous waste thereafter. Homeowners will be able to dispose of household hazardous waste at the Anoka County Household Hazardous Waste Facility.

13. Fish, Wildlife, Plant Communities and Sensitive Ecological Resources (Rare Features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

Fish and wildlife resources on and near the site are related to the composition, quality, size, and connectivity of plant communities such as cultivated cropland, wetlands, woodlands, and grasslands. Vegetative cover types on the project area were mapped based on aerial photography, the wetland delineation, and field reviews (**Figure 6**). The project area is about 70% cropland and 30% woodland, with less than one acre of grassland. Habitats in the project area are likely used by wildlife adapted to agricultural and suburban environments, such as white-tailed deer, songbirds, small mammals, and amphibians.

The project area falls in the Anoka Sandplain Ecological Subsection of the MN DNR Ecological Classification System and the Anoka Sand Plain and Mississippi Valley Outwash of the Level IV Ecoregion of the U.S. EPA. This area consists of a flat, sandy lake plain and terraces along the

Mississippi River. Land use in the area includes row crops, small grains, suburban development, wetlands, woodlands.

Much of the project area has limited wildlife habitat value because it has been occupied by annually tilled agricultural crops for years. Cropland consisted of corn, soybeans, wheat, pumpkins, and cabbage during field surveys in 2020. Kjolhaug Environmental Services completed a survey of significant trees on the site during April 13-16, 2020. Significant trees included oaks and evergreens measuring at least 4 inches DBH (diameter breast height) and all other tree species measuring at least 8 inches DBH. The tree survey identified 2,305 significant trees of 28 species. The Tree Survey Memorandum is included in **Appendix E**. Elm and oak trees accounted for 72% of the significant trees, and hackberry trees were subdominant, with 12% of the trees. Together, all other tree species accounted for 16% of the significant trees. Dominant shrubs in the woodland included honeysuckle, prickly ash, gooseberry, and raspberry. Grassy field edges were dominated by smooth brome, and Kentucky bluegrass.

*b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (**LA-989**) and/or correspondence number (**ERDB [none assigned]**) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.*

State

A Natural Heritage Inventory System (NHIS) data request was submitted to the MN DNR to assess whether known locations of rare plant or animal species or other significant natural features are known to occur within an approximate 1-mile radius of the project area. A response had not yet been obtained from the MN DNR at the time this EAW was approved for distribution. In lieu of an MN DNR NHIS database search, Kjolhaug Environmental Services queried a licensed copy of the NHIS database to assess rare species and natural features.

The NHIS review identified records of one state special concern species and one state threatened species recorded within a 1-mile radius of the project area. Neither of these species is on the Federal threatened and endangered species list.

Observations of Blanding's turtles (*Emydoidea blandingii*), a state threatened reptile, were recorded about 1 mile north and northeast of the project area. These observations occurred in areas near Itasca Park, cropland, suburban development, and wetland. Blanding's turtles prefer calm shallow water, rich aquatic vegetation, and select open grassy uplands with sandy soils for nesting. The project area includes potential Blanding's turtle nesting habitat, but Blanding's turtles do not typically lay eggs under forest cover. The site does not include any wetlands. The best Blanding's turtle habitat includes wetland complexes larger than 10 acres surrounded by open sandy uplands.

Other rare features within a 1-mile radius of the site include records of the black sandshell mussel (*Ligumia recta*), and a silver maple floodplain forest. These features were found in and near the Mississippi River, outside of the project area. The black sandshell is a state-listed special concern species.

Federal

Online information on rare species information maintained by the U.S. Fish and Wildlife Service (USFWS) was also reviewed for the project area. The U.S. Fish and Wildlife Service (USFWS) listed the northern long-eared bat (*Myotis septentrionalis*) as federally threatened on May 4, 2015. On February 2, 2017, the USFWS listed the rusty patched bumble bee (*Bombus affinis*) as federally endangered.

Review of the USFWS Information for Planning and Consultation (IPaC) website with a polygon encompassing the project area identified the northern long-eared bat as the only threatened or endangered species that may potentially be affected by activities at the project location. The IPaC website also noted that there are no critical habitats at this location.

The northern long-eared bat hibernates in caves during winter and establishes maternity roosting colonies under the loose bark of trees during the summer. The project area is not known to include caves and includes limited tree cover. As of June 3, 2020, MN DNR data showed no documented maternity roost trees or hibernacula entrances of the northern long-eared bat in the project vicinity.

Review of the USFWS Rusty Patched Bumble Bee Map indicates the project area falls within a Low Potential Zone. This means that the rusty patched bumble bee is not likely to be present in the project area. The nearest High Potential Zone, where rusty patched bumble bees are likely to occupy suitable habitat, is located about 3.5 miles southeast of the project and is associated with the Elm Creek Park Reserve in Hennepin County. Most habitats suitable for rusty patched bumble bees in the Upper Midwest have been converted by agriculture or other land uses. Bumble bees need areas that provide nectar and pollen from flowers, nesting sites (underground and abandoned rodent cavities or clumps of grasses), and overwintering sites for hibernating queens (undisturbed soil). Site reviews have not identified native prairie plantings or diverse areas of native wildflowers in the project area, indicating a lack of highly suitable bumble bee habitat.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Project development is expected to convert about 54.14 acres of cropland and 16.17 acres of woodland to streets, homes, lawns, landscaping, and stormwater features. The balance of the site will include about 7.73 acres of tree preservation and about 0.59 acre of grassland preservation. The project will include about 17.46 acres of open space consisting of tree preservation, stormwater features, parks, and buffers. Of the 23.90 acres of woodland, the project will remove about 16.17 acres and preserve about 7.73 acres (**Figure 9**).

The project may affect the number and type of wildlife species in the area, but changes in wildlife abundance are not expected to be regionally significant. The existing croplands provide wildlife food, but have limited value as wildlife cover. Wildlife species that depend on agricultural cropland will be displaced by the project. The project will likely have short-term negative effects and long-

term positive effects on species adapted to suburban habitats. Non-migratory species with small home ranges such as small mammals may experience adverse effects such as mortality during project construction.

The project is not expected to adversely affect the black sandshell mussel and the silver maple floodplain forest because they were located outside the project area. The project will implement stormwater and erosion control practices to minimized potential indirect effects on the Mississippi River and species like the black sandshell mussel.

The project may have effects on Blanding's turtles that may occur in the area. To minimize potential adverse effects on turtles and their mobility, the project will avoid wetlands, implement sediment and erosion controls, consider use of surmountable curbs on roadways, and consider using erosion control materials constructed of organic fibers rather than plastic.

The project involves removal of woodland that may be suitable for northern long-eared bat roosting, but the federally threatened bat has not been documented on the site and the over half the construction area is cropland devoid of potential roost trees. To the extent practicable, potential effects on northern long-eared bats can be further minimized by clearing trees during October to April when bats roost in hibernaculum rather than woodlands, and by avoiding tree clearing during June 1 to August 15 when bats are rearing young.

Although project construction could be expected to slightly increase the potential for spread of invasive and weedy species, much of the project area has been disturbed by agricultural use for decades. BMPs may include the cleaning of construction equipment before transport, which might reduce the potential spread of invasive species.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Measures to minimize and mitigate adverse effects on wildlife include the preservation of 8.43 acres of woodland, creation of 4.82 acres of stormwater basins, and setting aside a total of 17.46 acres of open space, including parks and buffers. Specific measures to minimize potential effects on Blanding's turtles are listed above.

14. Historic Properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

The project area includes cropland and woodland that slopes gradually toward the south and the Mississippi River, which is located 650 to 780 feet from the site. In light of the site's proximity to the Mississippi River, Nienow Cultural Consultants was retained to complete a Phase I Archaeological Survey of the project area.

Field work was conducted during October 14-15, 2020, under the direction of Principal Investigator Jeremy Nienow, PhD., RPA, and licensed archaeological surveyor. Fieldwork consisted of surface surveying corn fields, a cabbage, and pumpkin patch, and shovel testing the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on four to five-meter intervals. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep.

No prehistoric cultural material or archaeological features were identified during the field survey. Shovel test profiles documented consistent ancient floodplain soils. Based on these results, no additional archaeological work was recommended. The Phase I Archaeological Survey Report is included in **Appendix F**.

15. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

There are no scenic views or vistas located on or adjacent to the project area. The project area is near the Mississippi River, but the site has relatively gradual topography and does provide any views that overlook the river. Substantial effects on visual resources are not anticipated in conjunction with project development. Project development is expected to result in routine effects on visual resources. The main visual effect will be the transition of views of the project area from mostly open agricultural land to residential development. The project will not involve installation of intense lights that would cause glare, nor will it include industries that would emit vapor plumes.

16. Air

a. Stationary source emissions. Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.

The proposed project does not include heavy industrial facilities, but the project will still involve some stationary source air emissions. New residences and commercial buildings are expected to include heating and cooling systems operated by natural gas and electricity, which will result in direct or indirect sources of stationary greenhouse gas (GHG) emissions. Emissions from heating and cooling systems are expected to be similar to those from other homes in the surrounding area.

The Minnesota Environmental Quality Board is working on a framework for integrating greenhouse gas (GHG) quantification and assessment requirements into the Environmental Review Program. However, standard requirements and assessment methods are not yet complete. In light of this constraint and in the absence of official guidance, the GHG assessment presented here is qualitative.

Common GHG greenhouse gas emissions include CO2, CH4, N2O. GHG emissions are customarily converted to carbon dioxide equivalents (CO2e) using global warming conversion factors to represent the global warming potential over 100 years, equivalent to one ton of CO2 derived from fossil fuel.

GHG emissions are expected to result from:

1. Operation of petroleum fueled equipment during project construction;
2. Use of natural gas and other fossil fuels used for heating homes;
3. Fossil fuels burned to generate electricity used at the project during construction and operation;
4. Vehicle and air transportation related to project construction and operation;
5. Transport, treatment, and storage of solid waste and wastewater produced onsite;
6. Loss of carbon sequestration due to conversion of natural vegetation to developed and paved surfaces; and
7. Refrigeration, air conditioning, and the related manufacturing, service, and leakage of equipment.

GHG emissions from this project, while unquantified, are not expected to cause potential for significant environmental effects because this is a discretionary EAW, the project does not trip any other mandatory EAW thresholds, and there are no available GHG emission estimates that show a comparably sized Minnesota project with potential to exceed the mandatory EAW threshold of 100,000 tons of CO2e per year (Minnesota Rules Part 4410.4300, Subp. 15.B.).

Mitigation and adaption measures could help the project lessen the impacts of climate change and GHG emissions. Such measures may include:

1. Use energy efficient building materials that reduce needs for home heating and cooling.
2. Install energy star appliances and programable thermostats (already assumed).
3. Install smart irrigation, or no irrigation at all, to reduce outdoor water use (many Minnesota lawns now stay green all summer long without irrigation).
4. Encourage residents to sign up for utility-sponsored renewable energy programs, such as renewable connect or windsource.
5. Install high-albedo (reflective) roofing materials that reflect the sun’s UV rays and save energy needed to cool buildings.
6. Plant some turf to no-mow fine fescue mixes or native prairie/pollinator gardens to decrease mowing and increase carbon sequestration.
7. Encourage residents to sign up for utility-sponsored renewable energy programs, such as renewable connect or windsource.

8. Consider rooftop solar, electric vehicle charging stations, and/or battery storage in new homes to make them more energy autonomous and EV-ready.
9. Consider a community compost program for organic solid waste to reduce the burden on and future methane emissions from local solid waste landfills.
10. Consider a microgrid for efficient, automated distribution of energy among participants.
11. Install ground-source or air-source geothermal heat pumps during initial construction when most cost-effective.

b. Vehicle emissions. Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

The proposed project will generate increased traffic, which will result in a relatively small corresponding increase in carbon monoxide, carbon dioxide and other vehicle-related air emissions. Project development is expected to have a minor effect on air quality. GHG emissions related to traffic and transportation are listed under **Item 16.a** above. The project does not include air quality monitoring or modeling.

c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.

The project is not expected to generate dust or odors at levels considered unusual for suburban development construction practices. Dust and odors produced during construction is expected to be consistent with applicable regulations of the MPCA and local governments. Dust and odor levels are expected to be slightly higher during project construction than project operation.

The construction process is expected to generate some fugitive dust, but dust is not expected to be generated in objectionable quantities. The dust receptors near the project area include the single-family homes along Bowers Drive, west and south of the site. Odors routinely generated during construction will be typical of those associated with construction activity, such as exhaust from diesel and gasoline powered construction equipment.

Consideration will be given to suppression of airborne dust by application of water if fugitive dust generation during site grading exceeds levels typically expected during normal construction practices.

17. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

It is anticipated that local noise levels will temporarily increase during project construction, but noise levels are expected to be at or near existing levels after construction is complete. Noise levels on and adjacent to the project area will vary considerably during construction, depending on the amount of construction that occurs simultaneously, the time of operation, and the distance between construction equipment and receptors.

Noise receptors near the project area include the single-family homes along Bowers Drive, west and south of the site. Residences near the project site will experience elevated noise levels at various times during construction compared to existing noise levels. Grading and excavation will require heavy equipment, such as scrapers, bulldozers, and other excavating equipment.

The project is expected to minimize disturbances caused by construction noise and conform to Minnesota noise rules and standards. These rules require noise to stay within specified levels depending on the land use and the time of day or night.

Noise generated by construction equipment and building construction will be limited primarily to daylight hours when noise levels are commonly higher than at night. Contractors will be required to minimize noise impacts by maintaining equipment properly, including the use of mufflers and other noise controls as specified by manufacturers.

18. Transportation

a. Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

Spack Solutions completed a Traffic Impact Study to estimate the trips generated by the proposed residential development and evaluate the potential need for transportation or roadway improvements. The complete Traffic Impact Study is included in **Appendix G**.

Existing and Proposed Parking Spaces

The project area does not include any parking stalls under existing conditions. The proposed 165 detached single-family homes and 78 detached townhomes will include off-street parking and garages to accommodate parking for the residential units.

Estimated Traffic Generation

Trip generation was estimated using the methodology outlined in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. Spack Solutions used locally collected data to estimate trip generation for this project as it is more representative of the specific traffic patterns of the development area and presented similar trip generation results when compared to ITE.

As the project area is vacant under existing conditions, there are no existing trips to or from the development area and the existing trip generation is zero. The residential development is expected to generate a total of 1,912 estimated daily trips. A breakdown of the expected trip generation is shown in **Table 9**. Peak hour traffic generation was estimated at 140 trips during the existing AM peak hour and 186 trips during the PM peak hour under future conditions. The AM peak hour is estimated to occur between 7:00 and 8:00 AM, and the PM peak hour is estimated to occur between 4:00 and 5:00 PM. The Traffic Impact Study included in **Appendix G** provides a full description and analysis of the peak hour traffic and traffic recommendations.

Table 9. Project Trip Generation Estimates

Land Use	Source	No. of Units	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
Single-family detached housing	Local	165	1,488	29	75	104	83	62	145
Detached townhomes	Local	78	424	9	27	36	26	15	41
Total		243	1,912	38	102	140	109	77	186

Availability of Transit and Alternative Transportation

The Ramsey Metro Transit Station is located about 1.25 miles east of the project area on the north side of Highway 10/169. The station includes a park and ride lot and access to the Northstar Commuter Rail Line. The Northstar Line offers service between Big Lake and downtown Minneapolis, stopping at stations in Elk River, Ramsey, Anoka, Coon Rapids and Fridley.

b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.

Effects on Traffic and Roadways

The Traffic Impact Study concluded that the proposed project will have minimal effects on adjacent public roads and that nearby intersections will continue to operate at acceptable levels, except for the future Highway 10/Riverdale Drive intersection, which will be relocated and reconstructed to replace the existing Highway 10/Bowers Drive intersection.

The northbound left-turning movement at the new Highway 10/Riverdale Drive intersection will experience future delays with and without the traffic generated by the proposed project. The cross-street traffic volumes predicted at this location do not meet signal warrants, so an at-grade, ¾-access intersection is recommended. All other intersections are predicted to continue to operate acceptably through the 2040 build scenario.

The Highway 10/Riverdale Drive intersection experiences excessive delays and queueing under the proposed side-street stop control operations during both AM and PM peak hours. All other intersections operate within acceptable bounds with no delays or queueing concerns arising through the 2040 build scenario. Additionally, all site corridors operate with volumes within their planning level capacities through the 2040 build scenario.

c. Identify measures that will be taken to minimize or mitigate project related transportation effects.

The Traffic Impact Study recommends construction of the Highway 10/Riverdale Drive intersection to a ¾-access (**Appendix G**). This configuration removes the cross-street left turning movement (northbound left) from the intersection and improves the traffic operations to acceptable timing. This reduction in queueing and delay is a result of rerouting the highest delayed movement (northbound left turning movement) away from the Highway 10/Riverdale Drive intersection to alternative routes.

Vehicles that would normally navigate northbound to westbound at this intersection would instead travel east on Riverdale Drive to the Armstrong Boulevard/Northern Highway 10 Ramps, where they would take a northbound left to proceed westbound. In total, roughly 2.25 miles would be added to their commute with this change. Very few trips are affected by the northbound left turning movement at this location. Existing traffic counts estimate that fewer than 60 vehicles complete this movement each day.

Additionally, pedestrian and bicycle infrastructure upgrades are recommended with trail connections to existing facilities along Riverdale Drive east of Llama Street and the existing trail south of Highway 10 by Bowers Drive.

19. Cumulative Potential Effects

Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items.

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

It is anticipated that the project area will develop over the next 3 to 5 years, but the actual timing of development could vary depending on the demand for housing and market conditions. Seven other projects proposed in the City of Ramsey are expected to develop during this time period. These projects and their geographic locations are described under **Item 19.b** below.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The City of Ramsey is reviewing and has recently approved other development projects that are located 0.2 to 3.8 miles from the Riverstone South development site (**Table 10**). These projects are all residential developments. Projects in close proximity to Riverstone South could potentially interact to result in cumulative effects.

Table 10. Other Projects in the City of Ramsey

Name	Description	Status	Distance/Direction from Riverstone South
Garden View Villas	18 single-family homes	Under review	1.5 miles east-northeast
Hunt Property	76 single-family homes	Under review	3.8 miles northeast
Hampton Townhomes	26 townhomes	Under review	3.8 miles east
River Walk Village	14 single-family homes	Under construction	3.1 miles east-southeast
The Preserve at Northfork	73 single-family homes	Under review	0.5 mile north
Lennar Subdivision	57 single-family homes	Under review	3.4 miles northeast
Riverstone Addition	246 single-family homes and 98 detached townhomes	Under construction	0.2 mile north

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Reasonably foreseeable future projects may combine with the proposed project to result in cumulative effects on municipal infrastructure and natural resources. The potential for cumulative effects varies with the type of resource affected and the geographic area of impact. Geographic separation between projects serves to reduce the potential for cumulative effects. The six projects listed in **Table 10** are an average of 2.5 miles from the Riverstone South.

Potential cumulative effects on public infrastructure relate to municipal water supply systems, sanitary sewer conveyance and treatment systems, stormwater management systems, and traffic and transportation systems. The City of Ramsey has planned for continued growth and expanded infrastructure system capacity to address these effects and serve anticipated future projects. The City of Ramsey will consider the timing and staging of other development proposals within the context of the Comprehensive Plan and related growth management tools. Cumulative effects on public infrastructure are not expected to be significant.

Potential cumulative effects of anticipated future projects on natural resources depend on the type, density, and location of future developments. Effects on natural resources such as wetlands and wildlife habitat vary with project location and biological diversity. Project effects on natural resources may combine with effects of nearby concurrent projects to result in subtle local cumulative effects, such as habitat fragmentation. Surface water runoff from the project will mostly infiltrate into the ground. Runoff from large storm events may also flow overland to the southeast and the Mississippi River. Requirements for stormwater management and erosion and sediment control are expected to minimize cumulative effects of post-development runoff on downstream waters. Policies and regulations of the City of Ramsey, the Lower Rum River Watershed Management Organization, and other government agencies require the stormwater mitigation measures discussed in this EAW. These mitigation measures will help ensure minimization of cumulative effects on the environment.

The project will contribute to and be affected by cumulative effects related to climate change. In Minnesota, climate change has already caused increased extreme heat, large precipitation events, flooding, annual precipitation, and growing season days. These trends will continue and increase until climate change is reversed. Effects of climate change on future project area residents could include flooding; increased maintenance of roadways, storm sewers, and drainage routes; increased human heat stress and health issues, high pollen counts; and decreased need for irrigation. Increased heat could also affect construction practices such as roofing and outdoor activities such as summer and winter sports. Snow skiing and snowmobiling could be impacted due to lack of snow and warmer temperatures. Undesirable pests such as deer ticks and fungal infections could increase as a result of climate change. Some climate change impacts, such as extreme drought, coastal flooding, and shortages of food and water, are expected to affect other parts of the planet more severely than the project area.

Climate change impacts are incremental and cumulative in nature. Just as the project will be impacted by climate change, the project will also make an incremental contribution to climate change impacts through the emission of greenhouse gases.

20. Other Potential Environmental Effects

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

No other additional environmental effects are anticipated as a result of development of the project area. Potential environmental effects have been addressed in **Items 1** through **19**.

RGU CERTIFICATION.

(The Environmental Quality Board will only accept SIGNED Environmental Assessment Worksheets for public notice in the EQB Monitor.)

I hereby certify that:

- *The information contained in this document is accurate and complete to the best of my knowledge.*
- *The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.*
- *Copies of this EAW are being sent to the entire EQB distribution list.*

Signature _____ Date _____

Title _____

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Figures 1 – 9

Riverstone South EAW

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Figure 1 - Site Location

N

0 665 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: ESRI Streets and NatGeo Basemaps, Carlson McCain

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

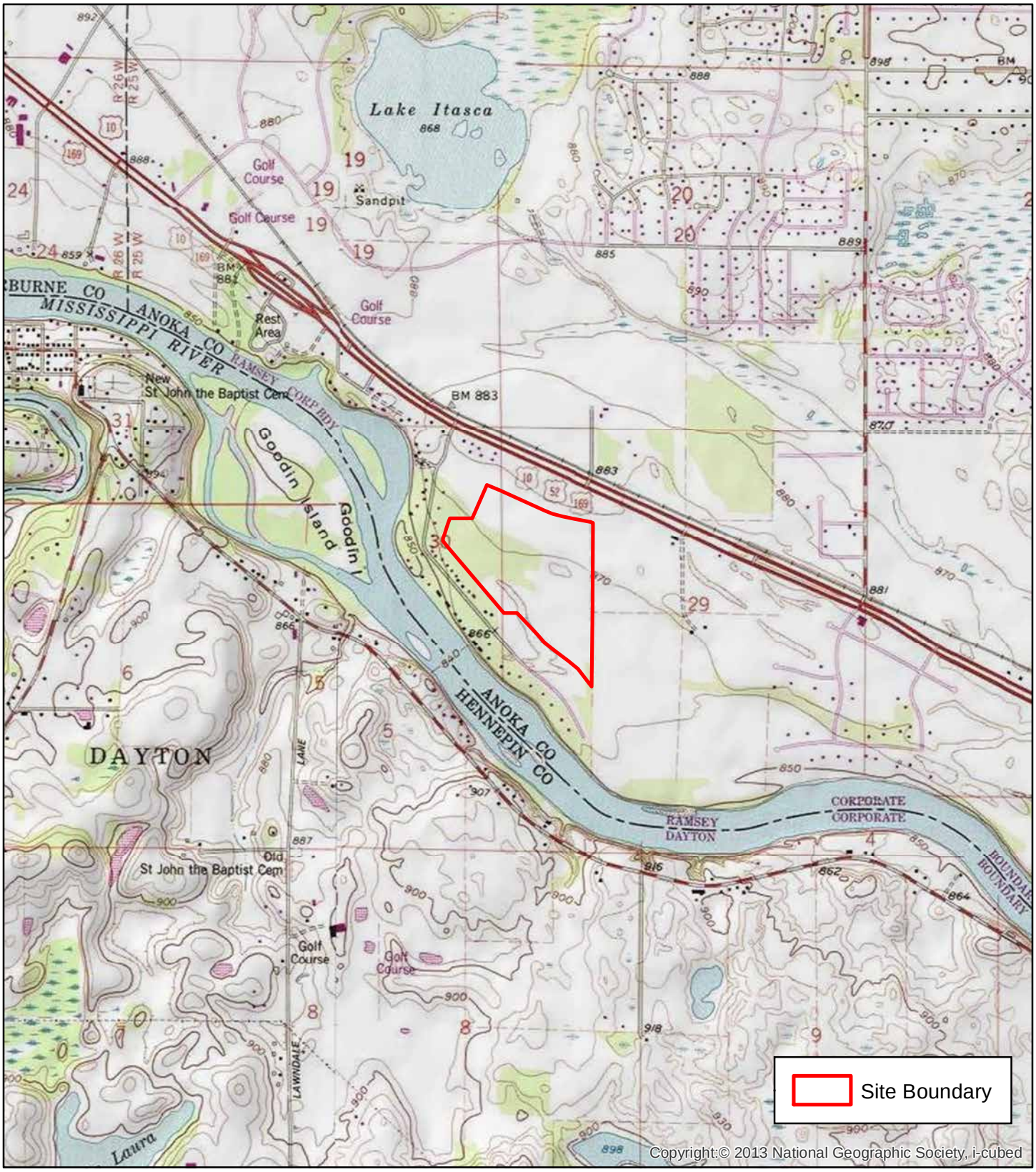

Figure 2 - USGS Topography

N

0 2,000 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: USGS

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Figure 3 - Proposed Site Plan

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Carlson McCain

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

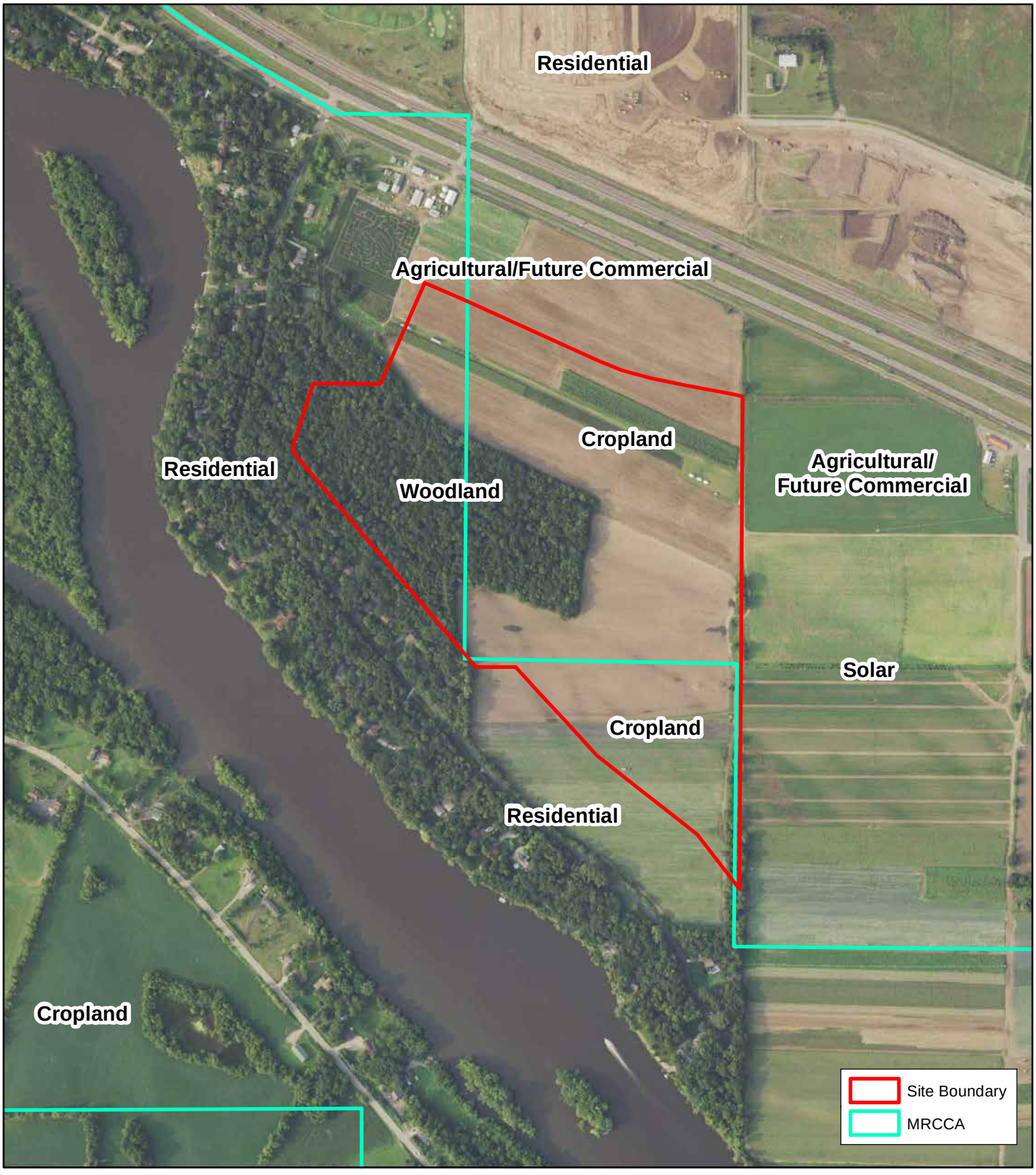

Figure 4 - Existing Land Use and Mississippi River Critical Corridor Area

N

0 665 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

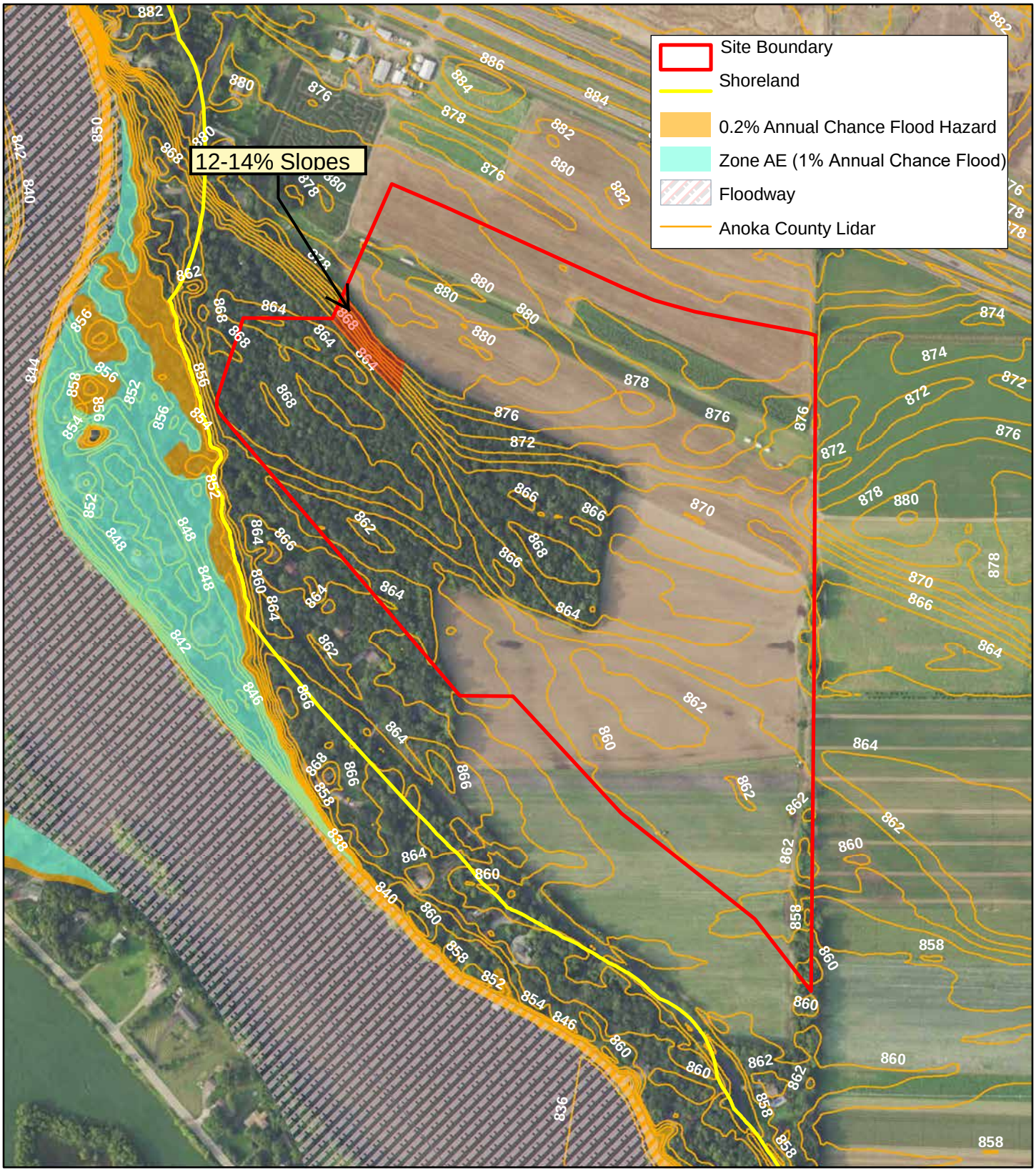

Figure 5 - Floodplains, Shorelands, and Slopes

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, FEMA

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

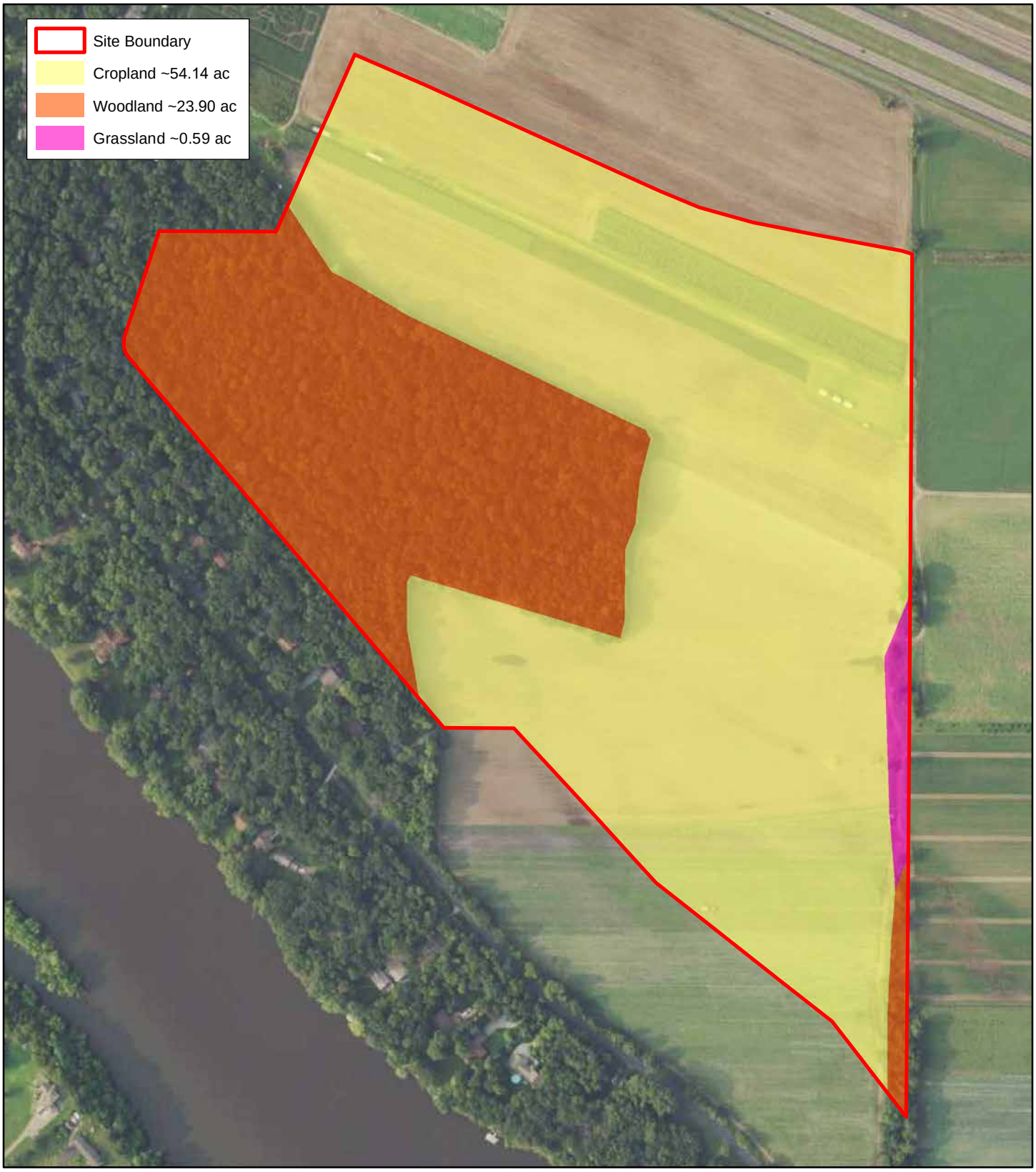

Figure 6 - Existing Cover Types

N

0 380 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

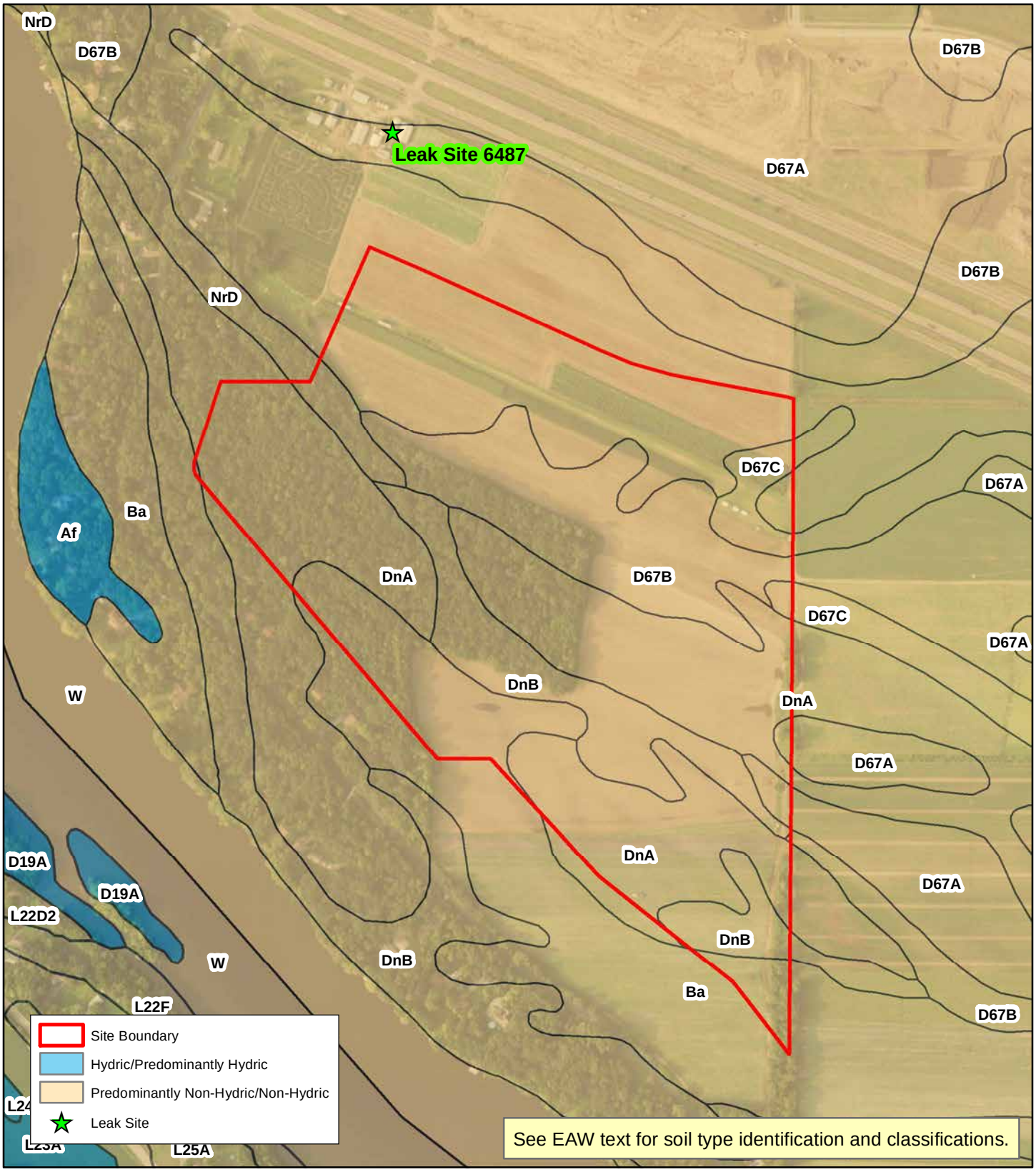

Figure 7 - Soil Types and Location of Leak Site

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, MPCA

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

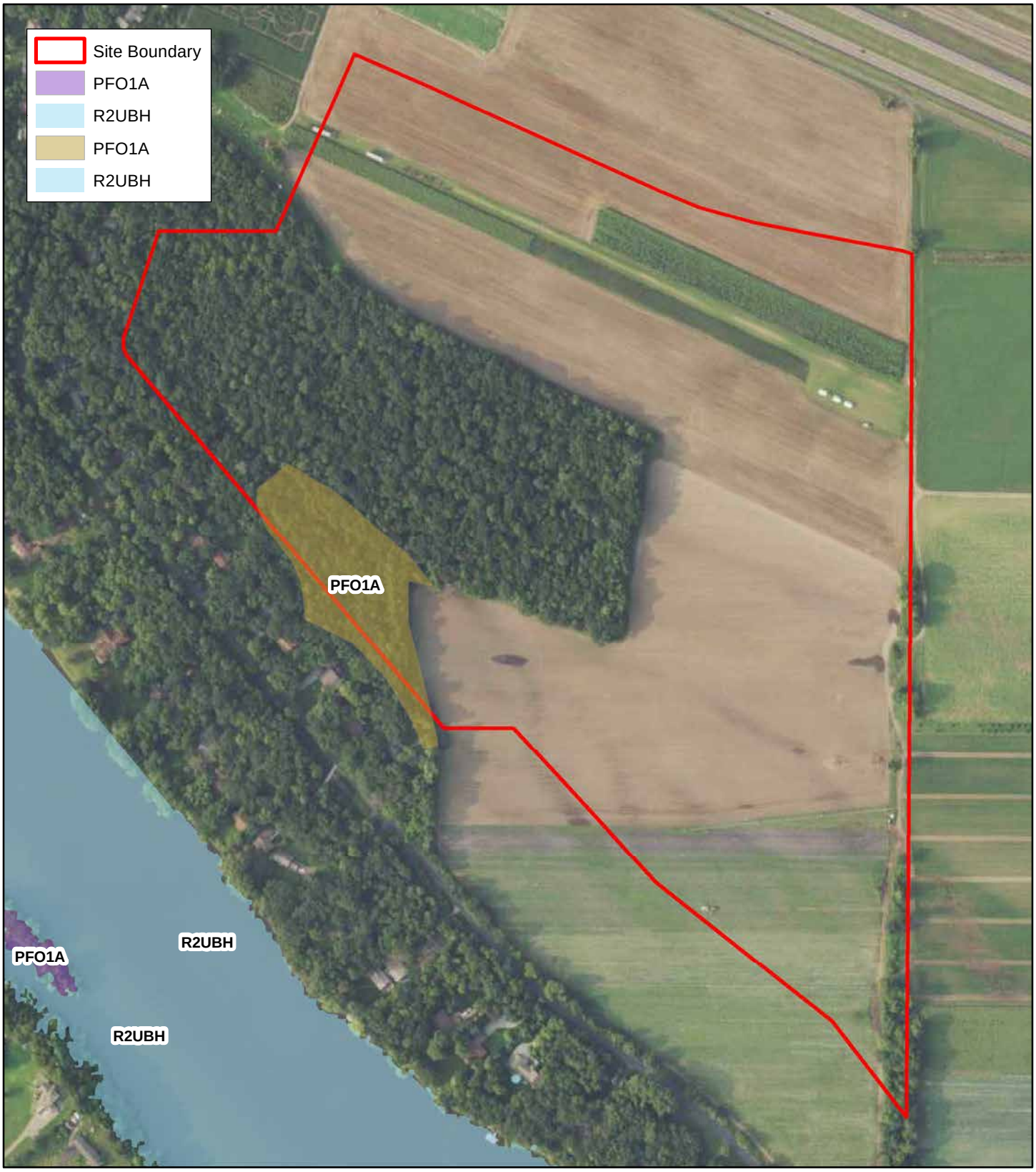

Figure 8 - National Wetlands Inventory

N

0 380 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, USFWS

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

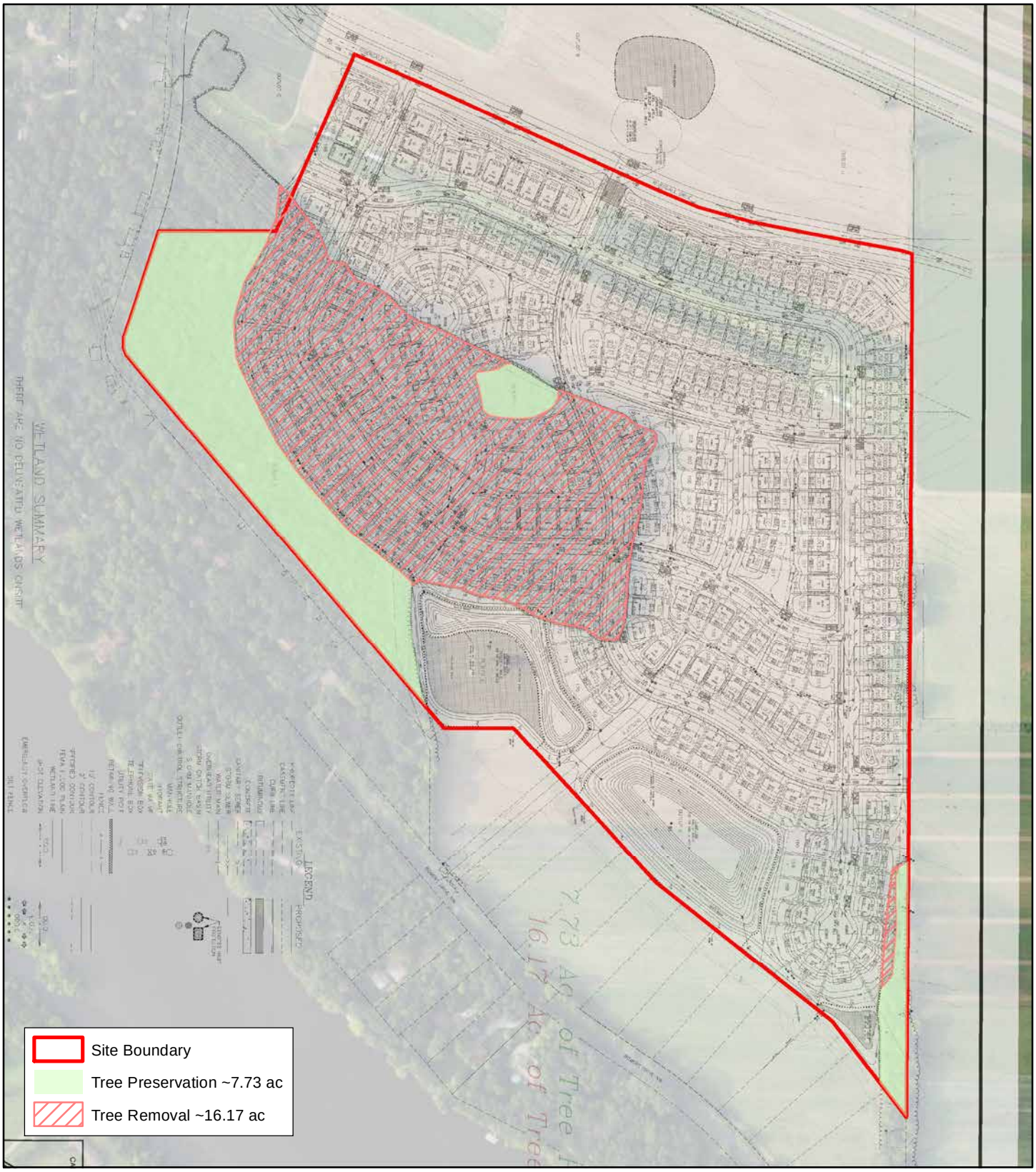

Figure 9 - Tree Removal and Preservation

N

0 380 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, Carlson McCain

Riverstone South (KES 2020-162)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

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Appendix A
Site Plan and Grading Plan

Riverstone South EAW

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LEGAL DESCRIPTION

PARCEL DESCRIPTION: (Per Schedule A of Title Commitment File No. 2651, with a commitment date of October 17, 2019 at 7:00 am, prepared Twin City Title Company, LLC as issuing agent for Old Republic National Title Insurance Company)

Parcel A: Outlot B, Pearson Place, Anoka County, Minnesota.

Parcel B: That part of the Northwest Quarter of the Northwest Quarter of Section 29, Township 32, Range 25, Anoka County, Minnesota, lying southerly of U.S. Highway 10 and 169.

Parcel C: Lot 2, Block 3, Pearson Place, Anoka County, Minnesota.

Parcel D: Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

LEGEND

- OPEN SPACE
- OPEN SPACE – WOODED
- STORMWATER POND
- INFILTRATION BASIN

U.S. HIGHWAY NO. 10 & 169

COMMERCIAL DEVELOPMENT 21.96 AC

S66°01'47"E 1951.85

S00°08'36"W 1705.32

LIFT STATION AREA 0.22 AC

S00°17'33"W 1093.62

LIFT STATION

STREET A

STREET B

STREET C

STREET D

STREET E

PEARSON BLVD

RESIDENTIAL DEV. 78.63 AC

8' TRAIL

PUBLIC PARK 1.0 AC

RIVERDALE DRIVE

BUFFER AREA 1.05 AC

LAKE

POND

INFILTRATION BENCH

OPEN SPACE / PONDING AREA - 8.08 AC

INF. BASIN

S34.66°37'59"W

S81.89 S42°51'14"E

620.99 N51°55'40"W

193.74 N89°47'35"W

BOWERS DRIVE NW

MISSISSIPPI RIVER

AREA RETAINED BY LANDOWNER 9.70 AC

TREE PRESERVATION AREA 7.0 AC

EXISTING 50 TREE BUFFER

50.00 N76°47'15"W

270.04 Δ=077°12'00" R=200.00

451.73 N22°50'16"E

205.79 N67°09'59"W

159.73 Δ=12°58'27" R=706.37

76.30 S00°14'16"W

395.06 Δ=17°40'00" R=1281.25

322.61 N17°54'18"E

1349.11 N40°39'13"W

100.41 Δ=06°01'20" R=955.37

61.69 Δ=58°33'37" R=60.36

SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
PUBLIC PARK AREA	1.0
TREE PRESERVATION AREA	7.0
OPEN SPACE / PONDING AREA	8.08
RIVERDALE BUFFER AREA	1.05
ROW AREA	15.37
LIFT STATION AREA	0.22
COMMERCIAL DEVELOPMENT AREA	21.96
AREA RETAINED BY LANDOWNER	9.70

N

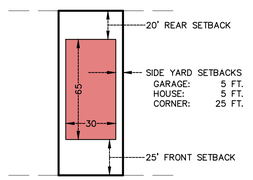
0 60 120 240

(SCALE IN FEET)

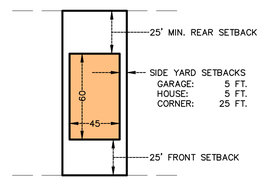
RESIDENTIAL DEVELOPMENT DATA

TOTAL NUMBER OF LOTS	243
GROSS DENSITY	3.1 U/AC
DETACHED TOWNHOMES	78
55' SINGLE FAMILY	116
65' SINGLE FAMILY	49

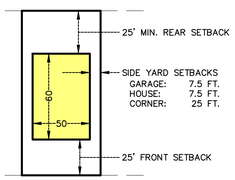
40' DETACHED TOWNHOME LOT DETAIL



55' SINGLE FAMILY LOT DETAIL



65' SINGLE FAMILY LOT DETAIL



CARLSON McCAIN
ENGINEERING SURVEYING ENVIRONMENTAL
3890 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.489.7900
FAX 763.489.7959
CARLSONMCCAIN.COM

DRAWN BY: C#/RR
ISSUE DATE: 12/3/20
Revisions:

CAPSTONE HOMES, INC.
14015 Sunfish Lake Blvd. NW, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

SKETCH PLAN W/AERIAL

1 of 1

[Save Date: 12/03/20] F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\layouts\8494_sketch plan.dwg

WETLAND SUMMARY

THERE ARE NO DELINEATED WETLANDS ONSITE.

LEGEND

	EXISTING	PROPOSED
PROPERTY LINE		
EASEMENT LINE		
CURB LINE		
BITUMINOUS		
CONCRETE		
SANITARY SEWER		
STORM SEWER		
WATER MAIN		
OVERHEAD UTILITY	ohe	
STORM CATCH BASIN		
STORM MANHOLE		
OUTLET CONTROL STRUCTURE		
MANHOLE	MH SAN	
HYDRANT		
GATE VALVE	GV	
TELEVISION BOX	TV	
TELEPHONE BOX	TB	
UTILITY POLE		
RETAINING WALL		
FENCE	x x	
10' CONTOUR		
2' CONTOUR		
SPECIFIED CONTOUR		
FEMA FLOOD PLAIN		
WETLAND LINE		
SPOT ELEVATION	00.0 x	00.0 x
EMERGENCY OVERFLOW		E.O.F. x 000.0
SILT FENCE		
TREE FENCE		
GRADING LIMITS		
TREELINE		
SOIL BORING		TP

DENOTES INLET PROTECTION

N

0 75 150 300

(IN FEET)

BENCHMARKS

1. Minnesota Department of Transportation GSID Station #66054 (Name: PUMA MNDT RM 1). Elev.= 884.89 ft.
2. Minnesota Department of Transportation GSID Station #802 (Name: H 257). Elev.= 882.78 ft.

CALL BEFORE YOU DIG

811 Know what's below. Call before you dig.

The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the guidelines of CI/ASCE 38-02, entitled "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."

CARLSON McCAIN ENGINEERING SURVEYING ENVIRONMENTAL
3880 PHEASANT RIDGE DR NE
SUITE 100
BLAINE, MN 55449
TEL 763.488.7800
FAX 763.488.7888
CARLSONMCCAIN.COM

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Print Name: Brian J. Krystofiak, P.E.
Signature:
Date: 11/25/20 License #: 25063

Drawn: ADB
Designed: BJK
Date: 11/25/20

Revisions:
1.

RIVERSTONE DEVELOPMENT, LLC
14015 Sunfish Lake B, Suite 400
Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, MN

GRADING INDEX

14 of 25

Save Date: 11/24/20 F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\engineering\prelim plans\8494_ind.dwg

#8494

Appendix B

No Wetlands Determination and Agency Concurrence

Riverstone South EAW

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KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Providing Sound, Balanced, Comprehensive Natural Resource Solutions

Memorandum

Date: October 14, 2019

To: Karen Wold, Barr Engineering
Project Manager, U.S. Army Corps of Engineers (USACE)

CC: Steve Bona, Capstone Homes

From: Melissa Barrett, Kjolhaug Environmental Services Company (KES)

Re: Site Assessment for Wetlands – Pearson Farm South, Ramsey, MN
KES#2019-154

The Pearson Farm South site was examined on October 9, 2019 for the presence and extent of wetland. The site was located in Sections 29 & 30, Township 32N, Range 25W, City of Ramsey, Anoka County, Minnesota. More specifically, the site was located approximately three-fourths mile to the west of the intersection of Highway 10 and County Road 83 (Armstrong BLVD NW) (**Figure 1**). The site boundaries corresponded to Anoka County PIDs 30-32-25-11-0032 (8846 Highway 10 NW; 16.69-ac), 29-32-25-22-0003 (no address; 20.16-ac), and 29-32-25-23-0004 (no address; 70.87-ac).

The 107.72-acre site was comprised primarily of cornfield and woodland, with a pumpkin patch in the northwest portion of the site. A grass airstrip bisected the north half of the site, and a farm/business with numerous outbuildings was located in the very northwest corner of the site (**Figure 2**).

Attachment A of this memo includes a Joint Application Form for Activities Affecting Water Resources in Minnesota, which is submitted in request for: (1) concurrence with the no wetland determination from the Lower Rum River Watershed Management Organization under the Minnesota Wetland Conservation Act (WCA), and (2) concurrence from the U.S. Army Corps of Engineers (USACE) that the site lacks waters of the U.S. for Section 404 of the Federal Clean Water Act.

Review of NWI, Soils, DNR, and NHD Information

The National Wetlands Inventory (NWI) (Minnesota Geospatial Commons 2009-2014 and U.S. Fish and Wildlife Service) showed one PFO1A wetland in the south portion of the onsite woodland (**Figure 3**).

The Soil Survey (USDA NRCS 2015) did not show any mapped hydric soil types within or near site boundaries. Soil types mapped on the property are listed in **Table 1** and a map showing soil types is included in **Figure 4**.

Table 1. Soil types mapped on the Pearson Farm South site.

Symbol	Soil Name	Approx. Acres AOI	Approx. % of AOI	% Hydric	Hydric Category
Ba	Becker very fine sandy loam	23.7	16.60%	7	Predominantly Non-Hydric
D67A	Hubbard loamy sand, 0 to 2 percent slopes	42	29.30%	1	Predominantly Non-Hydric
D67B	Hubbard loamy sand, 1 to 6 percent slopes	21.2	14.80%	3	Predominantly Non-Hydric
D67C	Hubbard loamy sand, 2 to 12 percent slopes	2.3	1.60%	0	Non-Hydric
DnA	Dickman sandy loam, 0 to 2 percent slopes	36.7	25.60%	0	Non-Hydric
DnB	Dickman sandy loam, 2 to 6 percent slopes	14.2	9.90%	0	Non-Hydric
NrD	Nymore loamy coarse sand, 12 to 25 percent slopes	3	2.10%	0	Non-Hydric

The Minnesota DNR Public Waters Inventory (Minnesota Department of Natural Resources 2015) showed a DNR Public Watercourse (Mississippi River) more than 300-feet from the south and west site boundaries (**Figure 5**).

The National Hydrography Dataset (U.S. Geological Survey 2015) showed one Stream/River more than 300-feet from the south and west site boundaries (**Figure 6**).

No Wetland Determination

The site was examined on October 9, 2019 for the presence and extent of wetlands. At the time of the site visit, select corn crop fields had already been harvested and climatic conditions were wet (atypical) based on the gridded database method. Additionally, climatic conditions were wetter than the normal range for most of the 2019 growing season based on 30-day rolling precipitation totals (**Attachment B**).

Woodland Investigation

The entire woodland was investigated for depressional areas with hydrophytic vegetation, including the area identified as PFO1A wetland on the NWI map. No depressional areas with a dominant hydrophytic plant community or drowned out vegetation/no vegetation were observed. Woodland (which was formerly used as cattle pasture according to the landowner) was comprised of the following species:

Woodland Species Observed

Common Name	Latin Name	Ind Status	Common Name	Latin Name	Ind Status
Bur oak (trees, seedlings)	*Quercus macrocarpa*	FACU	Sweet cicely	*Osmorhiza claytonii*	FACU
Boxelder	*Acer negundo*	FACU	Avens	*Geum canadense*	FAC
American elm (trees, saplings, seedlings)	*Ulmus americana*	FACW	Wood aster	*Symphyotrichum cordifolium*	none
Hackberry	*Celtis occidentalis*	FAC	Prickley ash (shrubs)	*Zanthoxylum americanum*	FACU
Honeysuckle	*Lonicera tatarica*	FACU	Virginia creeper	*Parthenocissus quinquefolia*	FACU
Gooseberry	*Ribes cynosbati*	FACU	Violet	*Viola sororia*	FAC
Raspberry	*Rubus idaeus*	FAC	Wood sedge	*Carex blanda*	FAC
White snakeroot	*Ageratina altissima*	FACU	Pennsylvania sedge	*Viola sororia*	none
Clearweed	*Pilea pumila*	FACW	Stickseed	*Hackelia virginiana*	FACU
Creeping Charlie	*Glechoma hederacea*	FACU	American plum (seedling)	*Prunus americana*	UPL
Canada moonseed	*Menispermum canadense*	FAC	Stinging nettle	*Urtica dioica*	FAC
Motherwort	*Leonurus cardiaca*	none			

Due to the absence of depressional areas and the lack of dominant hydrophytic plant communities, no wetlands were delineated within the woodland area including that area identified as PFO1A wetland on the NWI map.

Cropland Investigation - Aerial Review for Offsite Hydrology Determinations

Method

Areas in agricultural cropland that exhibited potential wetland signatures on aerial photography and with low or depressional topography were reviewed generally following methods described in Using Aerial Imagery to Assess Wetland Hydrology (Minnesota Board of Water and Soil Resources (BWSR) 2010) and Guidance for Submittal of Delineation Reports to the St. Paul District Corps of Engineers and Wetland Conservation Act Local Governmental Units in Minnesota, Version 2.0 (USACE 2015). These methods use aerial photography and antecedent precipitation conditions to identify areas that have wetland hydrology signatures during periods of typical precipitation.

Available years of Farm Service Agency (FSA) aerial photography were reviewed for the site to determine long-term hydrology. In cases where additional aerial photography was relevant, available, and necessary to make hydrology determinations, we reviewed aerial photography from other sources such as the Minnesota Geospatial Information Office (MnGEO) and Google Earth.

Signatures at locations of potential wetlands on aerial photographs were interpreted and classified using seven codes (**Table 2**).

Table 2. Aerial photograph interpretation codes

Code	Classification
CS	Crop stress
DO	Drowned out
NC	Not cropped
SW	Standing water
WS	Wetland signature
AP	Altered pattern
NV	Normal vegetation

This analysis used only aerial photographs taken following periods of precipitation within the normal range as determined using the Wetland Delineation Precipitation Data Retrieval tool (Minnesota Climatology Office 2015). This tool classifies antecedent precipitation as Normal (N), Wet (W) or Dry (D) by comparing precipitation during the three months preceding the estimated date of aerial photography to the 30-year average from 1981-2010.

Results

Available aerial FSA photographs from the 5 most recent and available normal years (1995, 1996, 2008, 2010, and 2015) were assessed. Photo years were assessed for wet/normal/dry climatic conditions using the Wetland Delineation Precipitation Data Retrieval tool using a date of July 1. Areas showing at least a wetland signature for a recent Wet year (2013) were included in the aerial review. The review areas are shown on **Figure 7**. The Wetland Hydrology Recording from Aerial Imagery - Recording Form, photos of each Review Area, and FSA photographs for each year of review are included in **Attachment C**.

Based on the results of the offsite hydrology review, none of the areas warranted field review.

However, sample points (**Attachment D**) were taken in Areas A and C for documentation of field conditions. Both soil points lacked hydric soils and contained high amounts of sand throughout the soil profile which likely precludes these areas from ponding/holding water for more than 14 consecutive days. Area B was not observable in the field (no observable depression, standing water, or drowned out vegetation).

Based on the lack of sufficient hydrology signatures in normal climatic years, plus additional soil information confirming the lack of hydric soil, no wetlands were identified within cropped portions of the site.

Summary

No other depressional areas were observed onsite. No other areas were shown as wetland on the NWI-map, and no areas were mapped with hydric soil on the soil survey. No wetlands were delineated on the Pearson Farm South site in Ramsey.

Attachment A of this memo includes a Joint Application Form for Activities Affecting Water Resources in Minnesota, which is submitted in request for: (1) concurrence with the no wetland determination from the Lower Rum River Watershed Management Organization under the Minnesota Wetland Conservation Act (WCA), and (2) concurrence from the U.S. Army Corps of Engineers (USACE) that the site lacks waters of the U.S. for Section 404 of the Federal Clean Water Act.

Pearson Farm South, Ramsey, MN

Site Assessment for Wetlands

FIGURES

1. Site Location
2. Existing Conditions
3. National Wetlands Inventory
4. Soil Survey
5. DNR Public Waters Inventory
6. National Hydrography Dataset

Figure 1 - Site Location

N

0 1,500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: ESRI Streets Basemap

Pearson Farm South (KES 2019-154)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

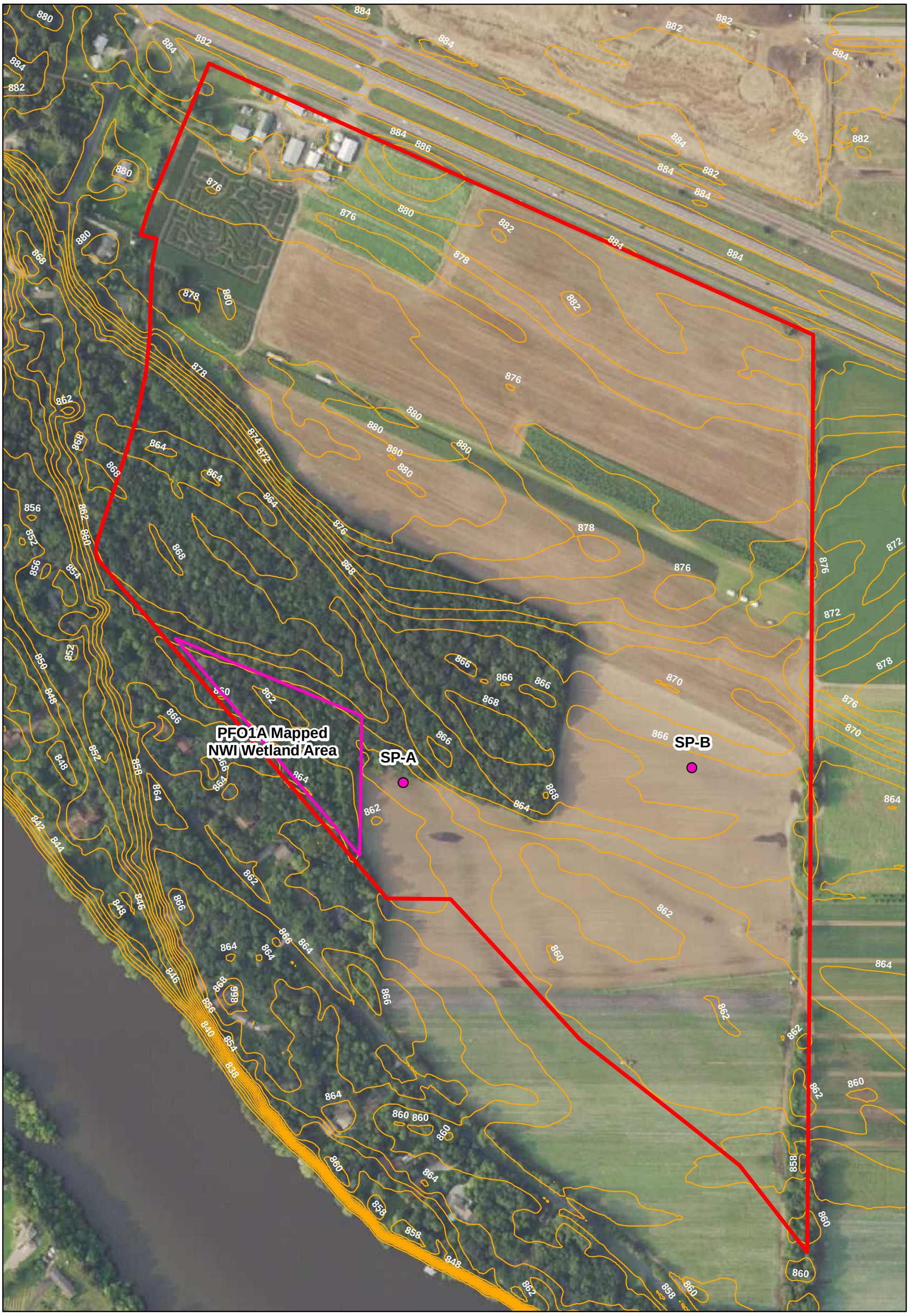

Figure 2 - Existing Conditions (2017 FSA Photo - Wet Year)

N

0 500 Feet

Legend

Site Boundary

Sample pt

Anoka County Lidar

Pearson Farm South (KES 2019-154)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

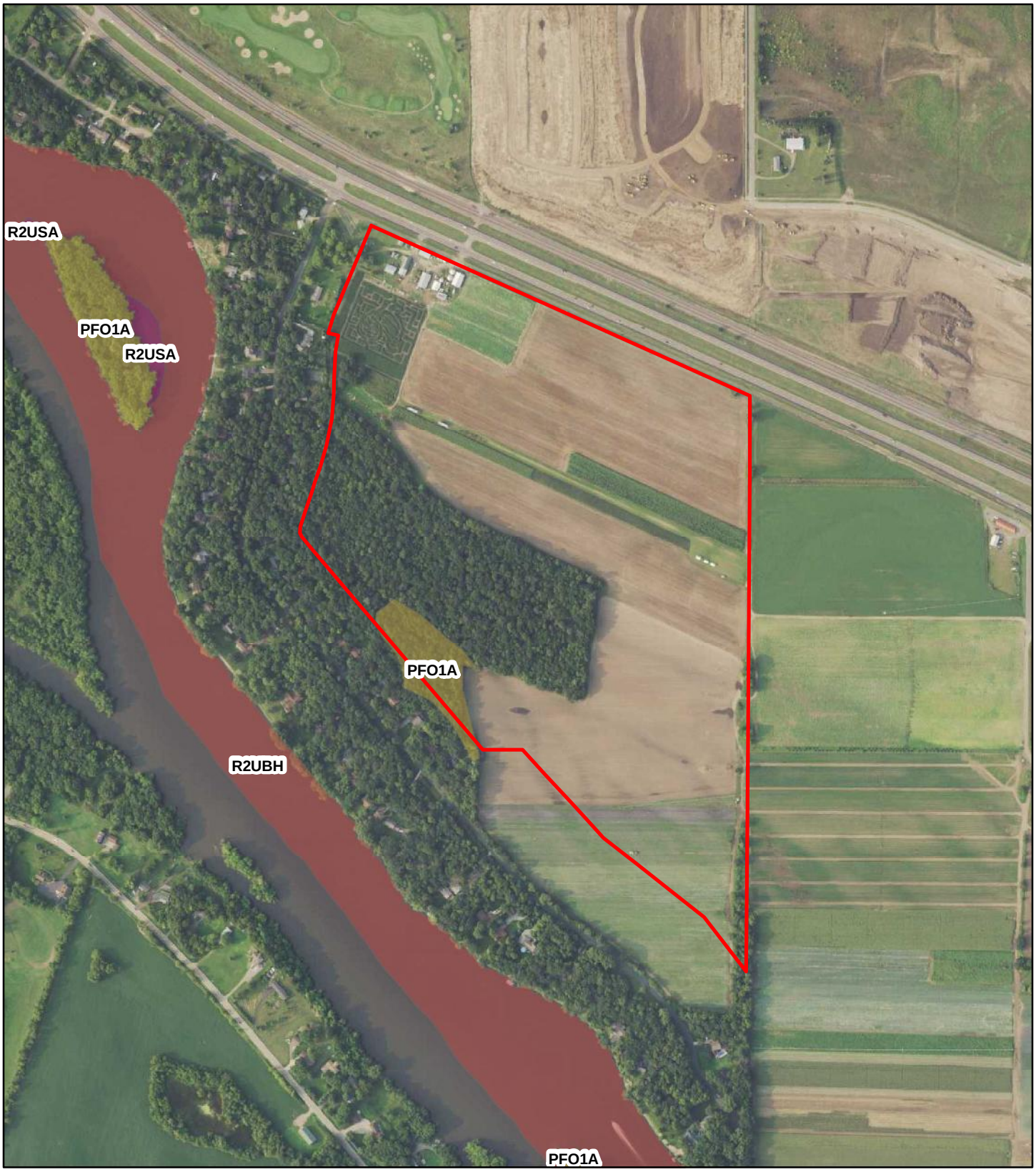

Figure 3 - National Wetlands Inventory

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, USFWS

Pearson Farm South (KES 2019-154)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

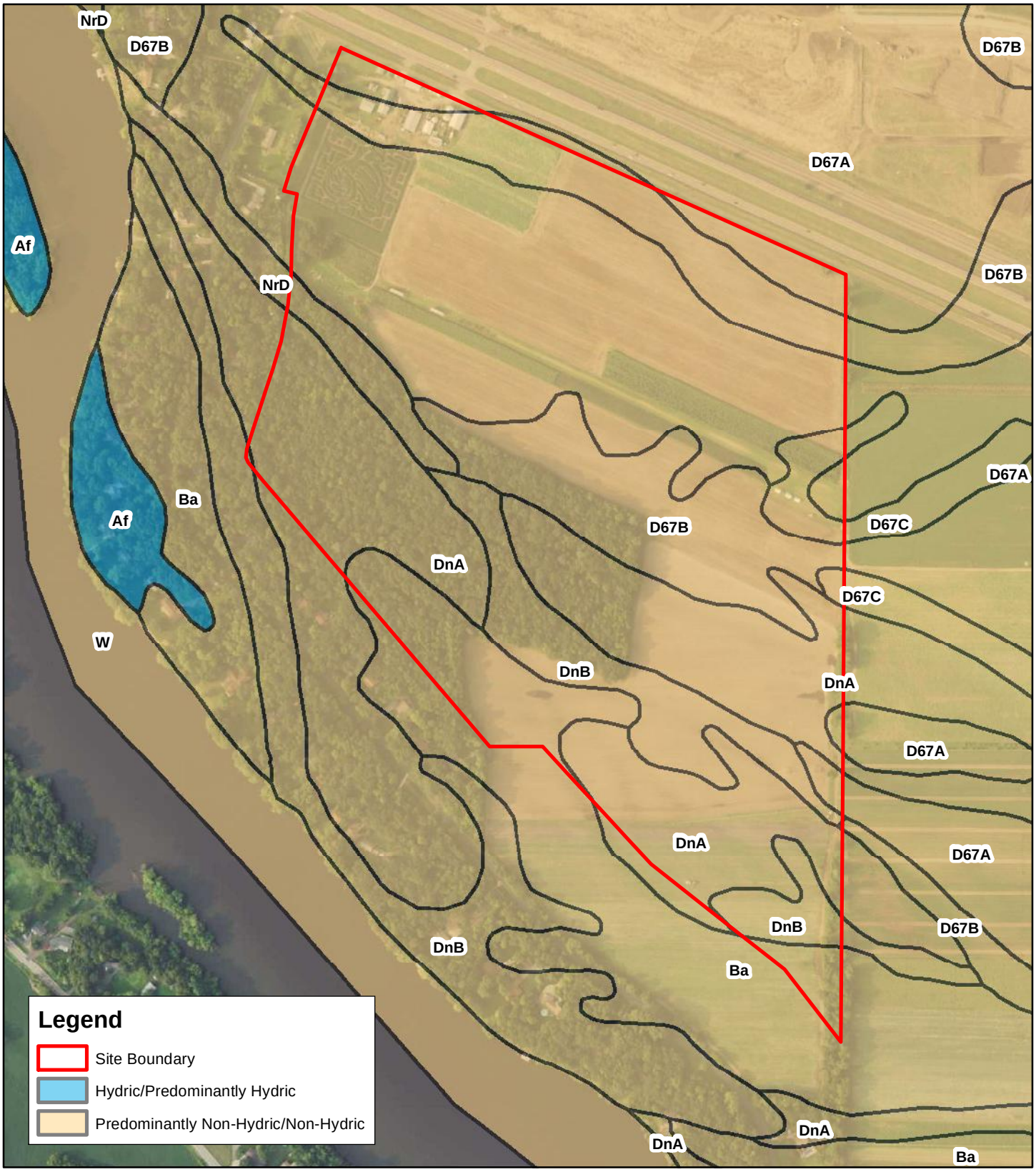

Figure 4 - Soil Survey

N

0 500 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, USDA, NRCS

Pearson Farm South (KES 2019-154)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

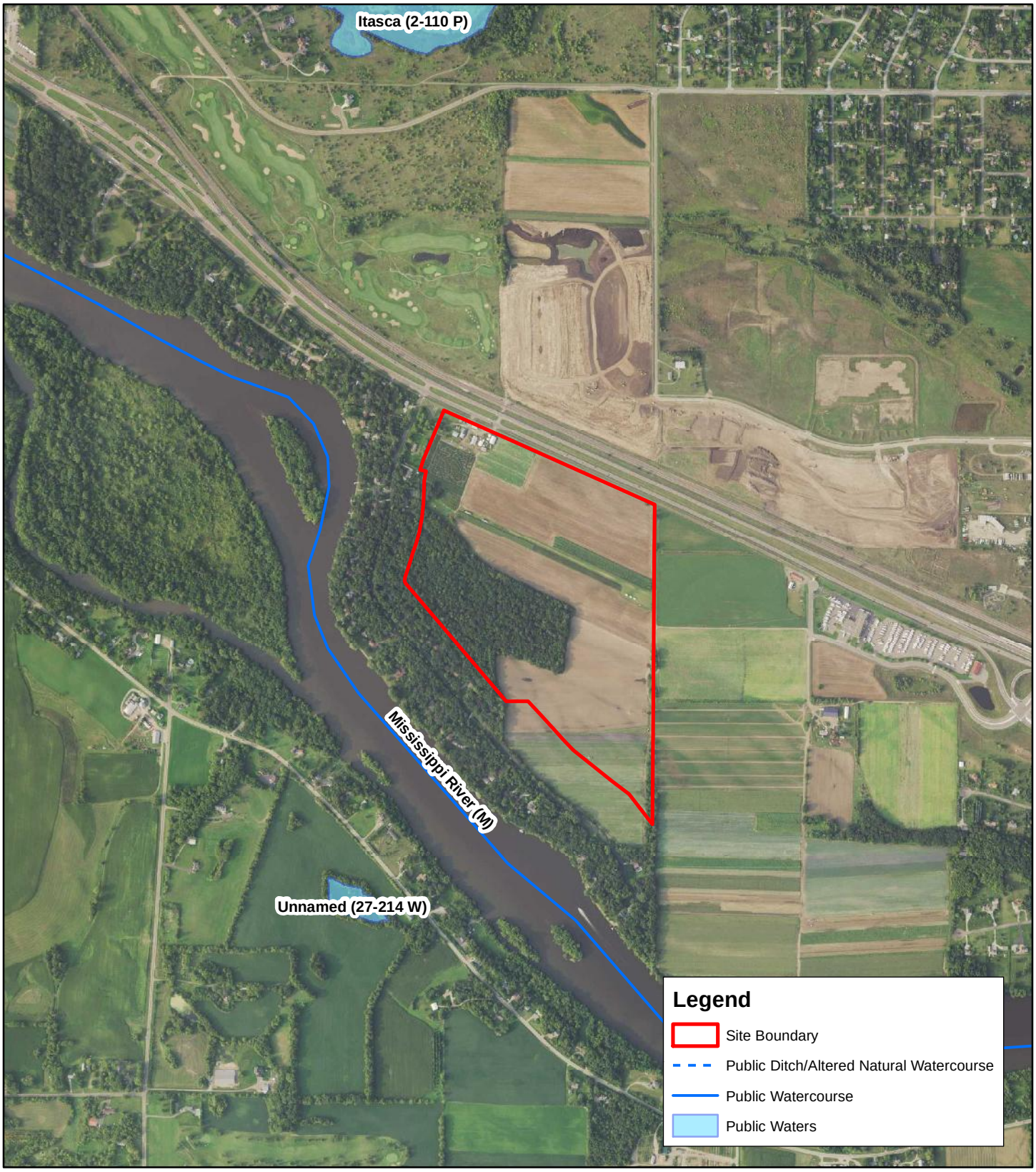

Figure 5 - DNR Public Waters Inventory

N

0 2,000 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, MN DNR

Pearson Farm South (KES 2019-154)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

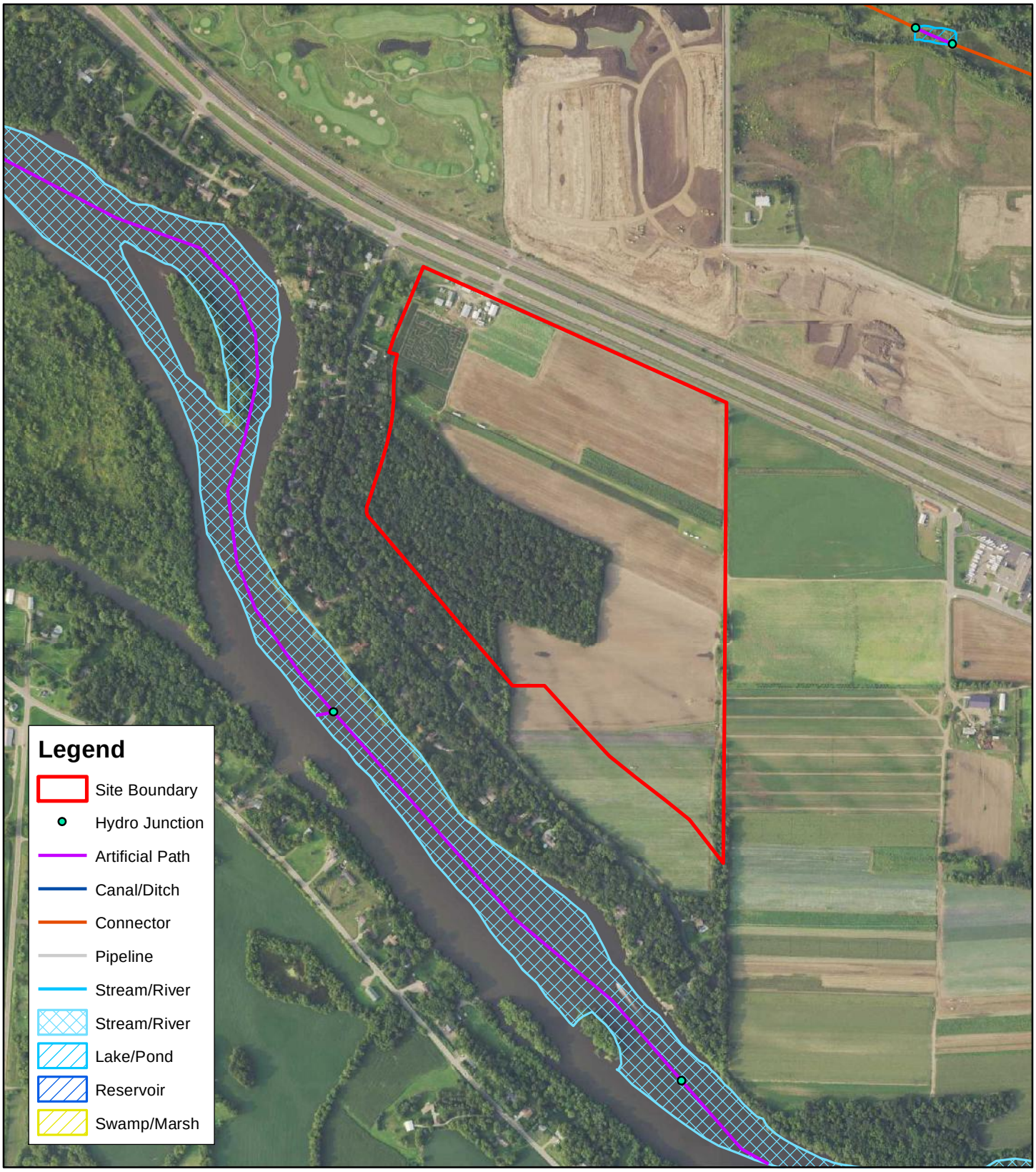

Figure 6 - National Hydrography Dataset

N

0 1,000 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, USGS

Pearson Farm South (KES 2019-154)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

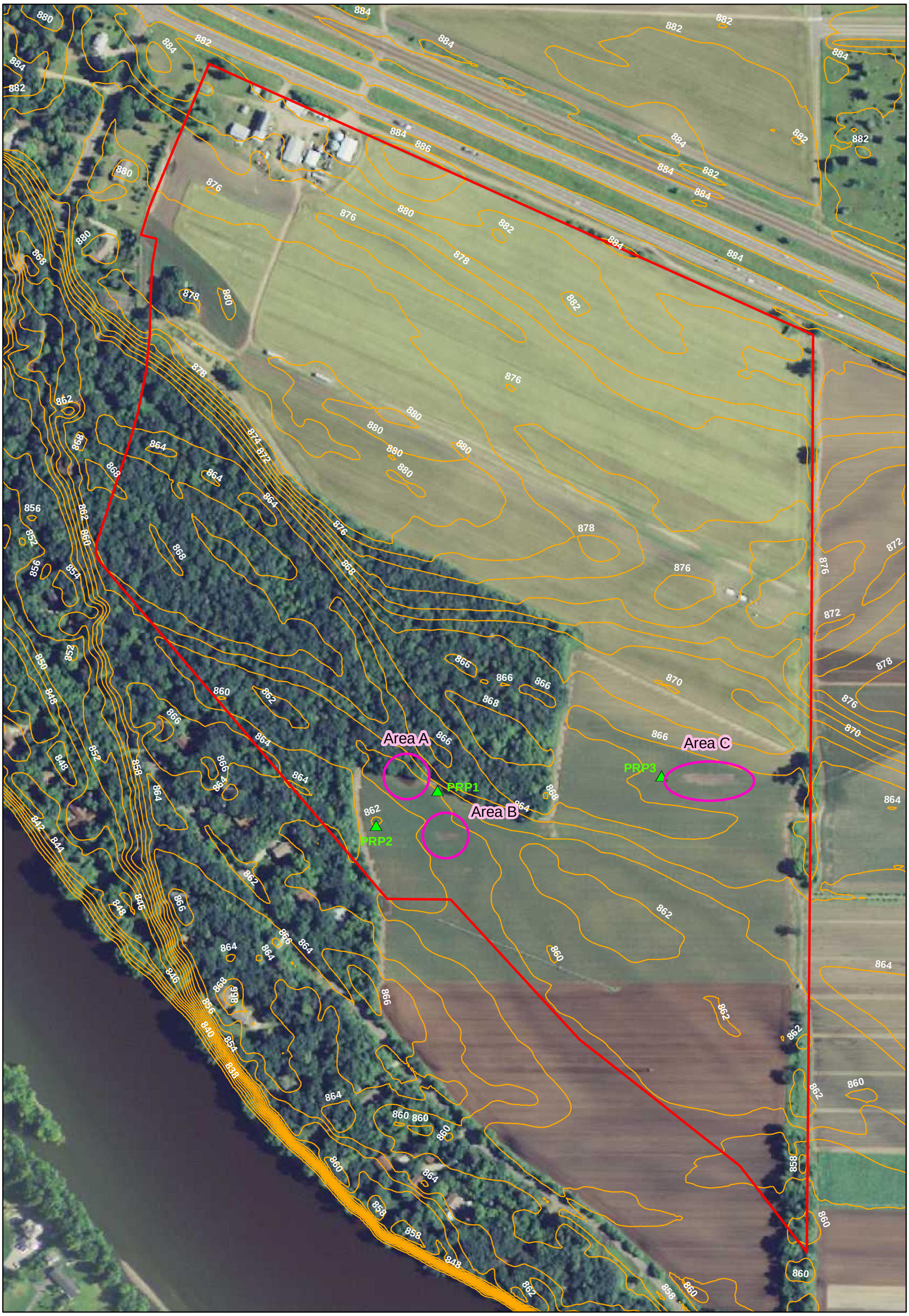

Figure 7 - Offsite Hydrology Review Areas (2013 FSA Photo - Wet Year)

Lower
Rum River
WMO

November 25, 2019

Mr. Steve Bona: stephen@capstonehomes-mn.com
Capstone Homes
14015 Sunfish Lake Blvd.
Suite 400
Ramsey, MN 55303

Subject: LRRWMO Permit #2019-23 ~ Pearson Farm South ~ Ramsey

Dear Mr. Bona:

The LRRWMO, at its November 21, 2019 meeting, addressed the permit indicated above.

The LRRWMO Board as administrator for the Minnesota Wetland Conservation Act has taken action to approve the no-wetland determination as detailed on the attached Barr Engineering memorandum dated November 15, 2019.

If you have any questions regarding this process, please contact Ms. Karen Wold of Barr Engineering.

Sincerely,

Todd Haas
Chair

Attachments: Barr Engineering Memo
Minnesota Wetland Conservation Act Notice of Decision
Approved Permit 2019-23

cc: Melissa Barrett, Kjolhaug Environmental: melissa@kjolhaugenv.com
Bruce Westby, City of Ramsey
Leonard Linton, City of Ramsey
Leslie Parris, MnDNR Div. of Ecological & Water Resources
Becky Wozney, Anoka Conservation District
Ben Meyer, MN Board of Water & Soil Resources
Marissa Merriman, U.S. Army Corps of Engineers
LRRWMO
Bob Obermeyer, Barr Engineering Co.

resourceful. naturally.
engineering and environmental consultants

BARR

Memorandum

To: Lower Rum River Watershed Management Organization (LRRWMO)
From: Karen Wold, Barr Engineering Co.
Subject: Pearson Farm South ~ Ramsey
Date: November 15, 2019
Barr Project: 23020047.00 RJB 1923
LRRWMO Permit: 2019-23

c: Bob Obermeyer, Barr Engineering Co.
Carla Wirth, TimeSaver, LRRWMO Recording Secretary

On October 14, 2019, Barr received a wetland delineation report and request for concurrence with a no-wetland determination from Kjolhaug Environmental for the Pearson Farm South site.
On October 21, 2019, we were notified that a LRRWMO permit application had been received.
We determined the application to be complete and submitted a Minnesota Wetland Conservation Act Notice of Application on October 30, 2019.
A Technical Evaluation Panel (TEP) site review was conducted on October 25, 2019.
The comment period ends on November 21, 2019.

If no comments are received between now and the end of the comment period on November 21st, which is also the date of the LRRWMO meeting, we recommend that the LRRWMO approve the no-wetland determination as described in the attached draft Minnesota Wetland Conservation Act Notice of Decision.

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit (LGU): Lower Rum River Watershed Management Organization (LRRWMO) **County:** Anoka
Applicant Name: Capstone Homes **Applicant Representative:** Steve Bona
Project Name: Pearson Farm South **LGU Project No. (if any):** 2019-23
Date Application Received by LGU: 10/21/2019
Date of LGU Decision: 11/21/2019
Date this Notice was Sent: 11/25/2019

Minnesota Wetland Conservation Act (WCA) Decision Type - check all that apply

☒Wetland Boundary/Type ☐Sequencing ☐Replacement Plan ☐Bank Plan (not credit purchase) ☐No-Loss (8420.0415) ☐Exemption (8420.0420) Part: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H Subpart: ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9

Replacement Plan Impacts (replacement plan decisions only)

Total WCA Wetland Impact Area:
Wetland Replacement Type: ☐ Project Specific Credits: ☐ Bank Credits:
Bank Account Number(s):

Technical Evaluation Panel (TEP) Findings and Recommendations (attach if any)

☐ Approve ☐ Approve w/Conditions ☐ Deny ☒ No TEP Findings Report, see TEP involvement and communication described below.

LGU Decision

☐ Approved with Conditions (specify below)[1] List Conditions:	☒ Approved[1]	☐ Denied
Decision-Maker for this Application: ☐ Staff ☒ Governing Board/Council ☐ Other: **Decision is valid for:** ☒ 5 years (default) ☐ Other (specify):		

[1] *Wetland Replacement Plan approval is not valid until BWSR confirms the withdrawal of any required wetland bank credits. For project-specific replacement a financial assurance per MN Rule 8420.0522, Subp. 9 and evidence that all required forms have been recorded on the title of the property on which the replacement wetland is located must be provided to the LGU for the approval to be valid.*

LGU Findings – Attach document(s) and/or insert narrative providing the basis for the LGU decision[1].

☒ Attachment(s) (specify): **site maps** ☒ Summary: **On behalf of Capstone Homes, Kjolhaug Environmental submitted a wetland delineation report and joint application form requesting concurrence with a no-wetland determination for the Pearson Farm South site located in the City of Ramsey (Section 30, Township 32N, Range 25W) within Anoka County.** **The report included a Level II site wetland delineation and a Level I off site aerial imagery review to assess wetland hydrology in agricultural cropland. The report concluded that no wetlands are present within the wetland evaluation area.**

A site review was conducted on 10/25/2019 with Ben Meyer (Minnesota Board of Water and Soil Resources), Karen Wold (Barr Engineering for the LRRWMO), and Adam Cameron (Kjolhaug Environmental).
The wetland delineation report and a WCA Notice of Application were provided to TEP members on 10/30/2019.
The comment period ended on 11/21/2019 and no comments were received.
The no-wetland determination is accurate based on the requirements of the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, the 2010 Midwest Regional Supplement, and the 2015 Guidance for Submittal of Delineation Reports to the USACE and WCA LGU in Minnesota, Version 2.0.

[1] *Findings must consider any TEP recommendations.*

Attached Project Documents

☒ Site Location Map ☐ Project Plan(s)/Descriptions/Reports (specify):

Appeals of LGU Decisions

If you wish to appeal this decision, you must provide a written request within 30 calendar days of the date you received the notice. All appeals must be submitted to the Board of Water and Soil Resources Executive Director along with a check payable to BWSR for $500 *unless* the LGU has adopted a local appeal process as identified below. The check must be sent by mail and the written request to appeal can be submitted by mail or e-mail. The appeal should include a copy of this notice, name and contact information of appellant(s) and their representatives (if applicable), a statement clarifying the intent to appeal and supporting information as to why the decision is in error. Send to:

Appeals & Regulatory Compliance Coordinator
Minnesota Board of Water & Soils Resources
520 Lafayette Road North
St. Paul, MN 55155
travis.germundson@state.mn.us

Does the LGU have a local appeal process applicable to this decision?

☐ Yes[1] ☒ No

[1]*If yes, all appeals must first be considered via the local appeals process.*

Local Appeals Submittal Requirements (LGU must describe how to appeal, submittal requirements, fees, etc. as applicable)

Notice Distribution (include name)

Required on all notices:

☒ SWCD TEP Member: Becky Wozney	☒ BWSR TEP Member: Ben Meyer
☐ LGU TEP Member (if different than LGU contact):	
☒ DNR Representative: Leslie Parris	
☒ Watershed District or Watershed Mgmt. Org.: Todd Haas (LRRWMO), Bob Obermeyer (Barr Engineering Co.)	
☒ City Contact for LRRWMO permitting: Bruce Westby and Leonard Linton (City of Ramsey)	
☒ Applicant (notice only): Steve Bona (Capstone Homes)	☒ Agent/Consultant (notice only): Melissa Barrett (Kjolhaug Environmental)

Optional or As Applicable:

☒ Corps of Engineers:	
☐ BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
☐ Members of the Public (notice only):	☐ Other:

Signature:	Date:
	11/21/2019

This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.

Lower Rum River Watershed Management Organization ("LRRWMO")

Andover—Anoka—Ramsey

2015 First Avenue • Anoka, MN 55303

PERMIT APPLICATION

Permit # 19-23

The $100.00 application fee and the $700.00 escrow deposit must accompany this permit application. Applications for projects involving wetlands and/or involving a Wetland Replacement Plans must include an additional $75 application fee plus an escrow deposit as determined in accordance with LRRWMO Attachment C.

Permits are to be processed at the same time as the site plan, preliminary plat or other city land use or building application submitted to the city in which the work or project is located.

The permit and supporting documentation must be submitted to the LRRWMO by the THIRD THURSDAY OF THE MONTH TO BE ON THE FOLLOWING REGULARLY SCHEDULED MONTHLY LRRWMO MEETING AGENDA. A PERMIT NUMBER WILL NOT BE ASSIGNED UNTIL CITY AUTHORIZATION IS RECEIVED.

Project Name: Pearson Farm South

Address/Location: 8846 Hwy 10 NW

Project Description/Purpose: residential development

Steve Bona, Capstone Homes	Melissa Barrett, Kjolhaug Env.
Name of Applicant (Site Owner or Property Owner)	Applicant's Contact / Organization Name
14015 Sunfish Lk Blvd, Ste 400	2500 Shadywood Rd, Ste 130
Address	Address
Ramsey, MN 55303	Orono, MN 55331
City, State, Zip	City, State, Zip
651-271-4951	952-401-8757
Phone / Fax	Phone / Fax
Stephen@CapstoneHomes-mn.com	mElissa@Kjolhaug-env.com
Email	Email

Submittal Requirements

Complete applications are to be submitted as per LRRWMO attachments A (Permit Requirements), B (Office Procedure), C (Fees, Deposit, and Sureties for Wetland Conservation Act). Projects involving wetlands and/or involving a Wetland Replacement Plan have special notice requirements and require submittal of four copies (4) and an electronic copy of all wetland-related submittal materials.

PROJECT SUBMITTALS (check all that apply):

- ☐ **GRADING PLAN:** Including existing and proposed contours and boundaries of all wetlands and surface waters.
- ☐ **STORM SEWER/ DRAINAGE PLAN:** Including all permanent drainage features and all permanent water quality features.
- ☐ **STORM DRAINAGE CALCULATIONS:** Design computations as required by the LRRWMO.
- ☐ **EROSION CONTROL PLAN:** Including all temporary measures proposed to retain all sediment on site.
- ☒ **MITIGATION PLAN*/WETLAND DETERMINATION:** Quality level of mitigated wetland(s) shall be determined by the LRRWMO.
- ☐ **REQUEST FOR EXEMPTION UNDER THE WETLAND CONSERVATION ACT (WCA)**
- ☐ **OTHER**

NOTE: Four copies of permit submittals are required for projects involving wetland replacement plans.

Lower Rum River Watershed Management Organization ("LRRWMO")

Andover—Anoka—Ramsey

2015 First Avenue • Anoka, MN 55303

START OF PROJECT: _____ EST. COMPLETION DATE: _____ APPROVAL DATE: 11/21/19

By signing this Permit Application, the undersigned consents and agrees on behalf of the Applicant that:

1. The permit application fee is non-refundable. Escrow deposits will be held by the LRRWMO until the project has been completed and all conditions of issuance of the permit are satisfied. The Applicant is responsible for all expenses incurred by the LRRWMO in the processing, administration and enforcement of the permit application and permit. The escrow deposit will be used to reimburse the LRRWMO for all expenses incurred by the LRRWMO in processing, administering and enforcing the permit application and permit, including engineering, legal and other consultant costs. If such expenses exceed the escrow deposit, the LRRWMO will bill the Applicant or Permittee for such excess amount and payment will be due within twenty (20) days of mailing the invoice. Timely payment of such invoices is a condition of all permits and work may be stopped on the project for failure to make payments when due.
2. The undersigned, its agents, principal, assigns and/or representatives (hereinafter "Permittee") shall abide by all the standard conditions and special terms and conditions of the LRRWMO.
3. Any work that violates the terms of the permit may result in the LRRWMO or the City in which the work is being done immediately causing the work on the project relating to the permit to cease and desist. All work on the project shall cease until the permit conditions are met and approved by the LRRWMO and/or the City in which the work is being done.
4. The Permittee agrees to be bound by the terms of the LRRWMO permit requirements, final permit, standard conditions, and special conditions required by the LRRWMO for approval of the permit. The undersigned has the authority to bind the permit holder, the owner of the property and/or any entity performing work on the property pursuant to the terms of LRRWMO permit, and shall be responsible for complying with terms of the LRRWMO permit.

"I certify that I have thoroughly read and understand the above information."

Signature of property owner or designated Agent (no agent without a letter of authority)	Date	Signature of applicant if different from property owner	Date
		Tom Barreiges	10-14-19
Print Signer's name		Print Signer's name	

Application Acknowledged by City: Leonard Linton (Name of City Official) Ramsey (City) 10-18-19 (Date)

SIGNATURE OF LRRWMO CHAIRMAN: ** _____

NOTE: Subject to conditions recommended by Bob Obermeyer, Barr Engineering (see attached).

PERMIT IS NOT VALID IF PROJECT HAS NOT STARTED WITHIN ONE YEAR FROM DATE OF APPROVAL

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

June 15, 2020

Regulatory File No. 2019-02513-SSC

Capstone Homes
Steve Bona
14015 Sunfish Lake Boulevard, Suite 400
Ramsey, Minnesota 55303

Dear Mr. Bona:

We are responding to your request, submitted by Melissa Barrett (Kjolhaug Environmental Services) on your behalf, for Corps of Engineers (Corps) concurrence with the delineation of aquatic resources completed on the Pearson Farm South site. The project site is in Sections 29 and 30, Township 32 North, Range 25 West, Anoka County, Minnesota.

We have reviewed the aquatic resource delineation memorandum, dated October 14, 2019 and concur that no aquatic resources are present within review area. Therefore, you are not required to obtain Department of the Army authorization to discharge dredged or fill material within this area. This concurrence is only valid for the review area shown on the enclosed figures labeled MVP-2019-02513-SSC Page 1 of 2 through 2 of 2.

This letter does not eliminate the need for state, local, or other authorizations, such as those of the Department of Natural Resources or county.

No jurisdictional determination was prepared for this project, nor is one required to support this concurrence. This concurrence may generally be relied upon for five years from the date of this letter. However, we reserve the right to review and revise our concurrence in response to changing site conditions, information that was not considered during our initial review, or off-site activities that could indirectly alter the extent of aquatic resources on-site. Our concurrence may be renewed at the end of this period provided you submit a written request and our staff are able to verify that the determination is still valid.

If you have any questions, please contact me in our St. Paul office at (651) 290-5268 or Samantha.S.Coungeris@usace.army.mil. In any correspondence or inquiries, please refer to the Regulatory file number shown above.

Sincerely,

Samantha Coungeris

Samantha Coungeris
Project Manager

Enclosure

cc:
Melissa Barrett (Agent)
Karen Wold (LGU)
Ben Meyer (BWSR)

Appendix C

Groundwater Well Map and Well Logs

Riverstone South EAW

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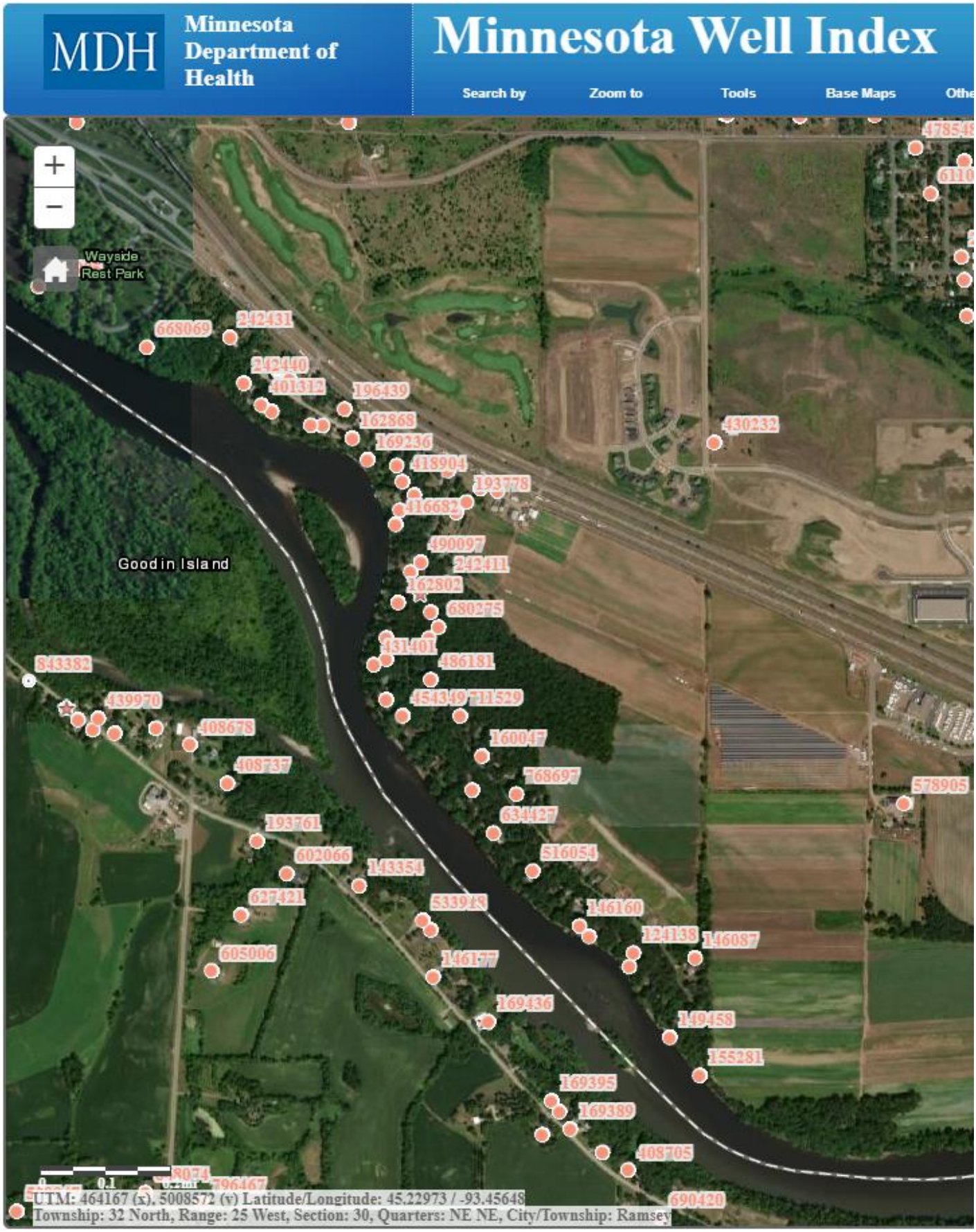
MDH
Minnesota Department of Health
Minnesota Well Index
Search by
Zoom to
Tools
Base Maps
Othe
Wayside Rest Park
Good in Island
668069
242431
242440
401312
196439
162868
169236
418904
193778
416682
490097
242411
162802
680275
431401
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454349
711529
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439970
408678
408737
160047
768697
634427
578905
193761
602066
143354
516054
627421
533949
146160
124138
146087
605006
146177
169436
149458
155281
169395
169389
408705
690420
796467
UTM: 464167 (x), 5008572 (y) Latitude/Longitude: 45.22973 / -93.45648
Township: 32 North, Range: 25 West, Section: 30, Quarters: NE NE, City/Township: Ramsey

Minnesota Unique Well Number

503721

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date 10/12/1989

Well Name	Township	Range	Dir	Section	Subsection
OLSON,	32	25	W	30	AABABA

Elevation 882 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14840 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
DIRT	0	5	BLACK	SOFT
SAND & GRAVEL	5	37		SOFT
CLAY	37	62	GRAY	MEDIUM
GRAVEL	62	73		HARD
CLAY	73	98	GRAY	MEDIUM
GRAVEL	98	103		HARD
CLAY	103	118	GRAY	MEDIUM
SHALE & SANDROCK	118	221	VARIED	HARD

Remarks

SECTION MAP.

Well Depth 221 ft. **Depth Completed** 221 ft. **Date Well Completed** 08/05/1989

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 156 ft.	11 lbs./ft.	6.2 in. To 156 ft.
		4 in. To 221 ft.

Open Hole From 156 ft. To 221 ft.

Screen? ☐ **Type** **Make**

Static Water Level

35 ft. land surface Measure 08/05/1989

Pumping Level (below land surface)

100 ft. 2.5 hrs. Pumping at 40 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model 8PL41UC1

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		ft.	ft.
bentonite		ft.	ft.

Nearest Known Source of Contamination

63 feet South Direction Sewer Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/10/1989

Manufacturer's name LOWARA

Model Number 11AM07412 HP 0.75 Volt 230

Length of drop pipe 60 ft Capacity 15 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock St.Lawrence-Tunnel City Aquifer St.Lawrence-
Last Strat St.Lawrence-Tunnel City Depth to Bedrock 118 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461225 Y 5009846
Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Mork Well Co.	02133	AESHLIMAN, S.
Licensee Business	Lic. or Reg. No.	Name of Driller

Minnesota Unique Well Number

430232

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
MCINNIS, DAN	32	25	W	20	CDCCCA

Elevation 883 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14915 PUMA ST NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	27	BROWN	SOFT
CLAY	27	30	BROWN	SOFT
SAND & GRAVEL	30	51	BROWN	SOFT
CLAY & GRAVEL	51	93	BROWN	HARD
CLAY	93	116	GRAY	MEDIUM
SANDROCK & SHALE	116	131	YEL/BRN	HARD
SHALE & SANDROCK	131	140	WHITE	SOFT
SANDROCK & SHALE	140	176	PNK/GRN	SOFT
SANDROCK & SHALE	176	276	GREEN	SOFT
SANDROCK & SHALE	276	338	BRN/GRN	HARD

Remarks

Well Depth	Depth Completed	Date Well Completed
338 ft.	338 ft.	03/17/1988

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 294 ft.	11 lbs./ft.	6.2 in. To 294 ft.
		4 in. To 338 ft.

Open Hole From 294 ft. To 338 ft.

Screen? ☐ **Type** **Make**

Static Water Level
30 ft. land surface Measure 03/17/1988

Pumping Level (below land surface)
100 ft. 3 hrs. Pumping at 50 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model 8PL41UCI
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		0 ft.	194 ft.

Nearest Known Source of Contamination
75 feet East Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/21/1988
Manufacturer's name MEYERS
Model Number B352BM- HP 0.5 Volt 230
Length of drop pipe 60 ft Capacity 10 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer Wonewoc
Last Strat Wonewoc Sandstone Depth to Bedrock 116 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461892 Y 5009911
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Mork Well Co.	02133	LAWRENCE, R.

Minnesota Unique Well Number

511952

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date 01/18/1990

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ADBBAD

Elevation 860 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14691 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	42	BROWN	SOFT
CLAY	42	122	BROWN	MEDIUM
SAND ROCK W/SHALE	122	170	GRAY	HARD

Remarks

SECTION MAP.

Well Depth 170 ft. **Depth Completed** 170 ft. **Date Well Completed** 11/07/1989

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 134 ft.	11 lbs./ft.	6.2 in. To 134 ft.
		4 in. To 170 ft.

Open Hole From 134 ft. To 170 ft.

Screen? ☐ **Type** **Make**

Static Water Level

28 ft. land surface Measure 11/07/1989

Pumping Level (below land surface)

40 ft. 3 hrs. Pumping at 35 g.p.m.

Wellhead Completion

Pitless adapter manufacturer WHITEWATER Model

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		ft.	ft.
bentonite		ft. 134	ft.

Nearest Known Source of Contamination

75 feet Southwes Direction Septic tank/drain field Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/08/1989

Manufacturer's name GOULDS

Model Number HP 0.5 Volt 220

Length of drop pipe 60 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 122 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461173 Y 5009427

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Ruppert & Son 27086 RUPPERT, C.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

486181

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 12/12/1991
Update Date 02/14/2014
Received Date 09/13/1991

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ADBCAD

Elevation 858 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14623 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY & GRAVEL	0	135	BROWN	MEDIUM
GRAVEL	135	145		SOFT

Remarks

SECTION MAP.

Well Depth 145 ft. **Depth Completed** 145 ft. **Date Well Completed** 06/14/1991

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 135 ft.	lbs./ft.	6 in. To 145 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
2 in.	15	12.3 ft.	135 ft. 145 ft.

Static Water Level

13 ft. land surface Measure 06/14/1991

Pumping Level (below land surface)

130 ft. 1 hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model 8PL41UC1

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
neat cement	0	0 ft.	30 ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 07/01/1991

Manufacturer's name MYERS

Model Number 23242D700 HP 0.5 Volt 230

Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat gravel (+larger) Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461177 Y 5009324

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Mork Well Co. 02133 AESHLIMAN, S.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report **486181**

Printed on 10/13/2020

HE-01205-15

Minnesota Unique Well Number

227345

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
PEARSON,	32	25	W	30	AAABCA

Elevation 883 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 8846 10 HY NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	10	BROWN	
GRAVEL & SAND	10	15	YELLOW	
CLAY & GRAVEL	15	60	BROWN	
GRAVEL	60	75	BROWN	

Remarks

WELL LOCATION: SOUTH SIDE OF HIGHWAY 10 & EAST OF PUMA

Well Depth 75 ft. **Depth Completed** 75 ft. **Date Well Completed** 12/13/1972

Drill Method **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**
4 in. To 71 ft. lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
4 in.	20	4 ft.	ft. ft.

Static Water Level
30 ft. land surface Measure 12/13/1972

Pumping Level (below land surface)
40 ft. hrs. Pumping at 17 g.p.m.

Wellhead Completion
Pitless adapter manufacturer BAKER Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 12/00/1972
Manufacturer's name AERMOTOR
Model Number HP 0.75 Volt
Length of drop pipe 50 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat gravel (+larger)-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461304 Y 5009799
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Renner E.H. & Sons	27015	LEDBETTER, B.

Minnesota Unique Well Number

256060

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 11/25/2008
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
LAWRENCE, JIM	32	25	W	30	ACBABA

Elevation 863 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14720 BOWERS DR NW RAMSEY MN

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	50		
HARD PAN	50	112		
CLAY & ROCKS	112	186		

Remarks

LOT 39 E. V. BUILDERS JOB # 68

Well Depth 186 ft. **Depth Completed** 186 ft. **Date Well Completed** 00/00/1972

Drill Method **Drill Fluid** Bentonite

Use unknown **Status** Active

Well Hydrofractured? **Yes** ☐ **No** ☐ **From** **To**

Casing Type **Joint**

Drive Shoe? **Yes** ☐ **No** ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 130 ft.	10.7 lbs./ft.	6.2 in. To 130 ft.
		4 in. To 186 ft.

Open Hole From 130 ft. To 186 ft.

Screen? ☐ **Type** **Make**

Static Water Level

40 ft. land surface Measure 00/00/1972

Pumping Level (below land surface)

Wellhead Completion

Pitless adapter manufacturer WHITEWATER Model

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination

50 feet West Direction Septic tank/drain field Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 00/00/1972

Manufacturer's name AY MCDONALD

Model Number HP 0.5 Volt 230

Length of drop pipe 63 ft Capacity 10 g.p. Typ

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock St.Lawrence-Tunnel City Aquifer St.Lawrence-

Last Strat St.Lawrence-Tunnel City Depth to Bedrock 112 ft

Located by Minnesota Geological Survey

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 461150 Y 5009540

Unique Number Verification Address verification Input Date 01/04/2010

Angled Drill Hole

Well Contractor

Torgerson Well Co. 27056

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report | **256060** | Printed on 10/13/2020

HE-01205-15

Minnesota Unique Well Number

114352

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
PEARSON,	32	25	W	19	DDCCBD

Elevation 877 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 8964 10 HY NW ANOKA MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	55	BROWN	
SAND	55	88	GRAY	
GRAVEL	88	95	BROWN	
SANDSTONE	95	136	YELLOW	SOFT
SANDSTONE	136	155	WHITE	HARD
SANDSTONE & SHALE	155	176	BLUE	

Remarks

SCREEN SET AT 95 FT. PRODUCED 3 GPM.

Well Depth 176 ft. **Depth Completed** 176 ft. **Date Well Completed** 12/09/1975

Drill Method Cable Tool **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Welded

Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter **Weight**

4 in. To 134 ft. 10.7 lbs./ft.

Open Hole From 134 ft. To 176 ft.

Screen? ☐ **Type** **Make**

Static Water Level

40 ft. land surface Measure 09/12/1975

Pumping Level (below land surface)

50 ft. 3 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer BAKER Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☐ Not Specified

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 12/10/1975

Manufacturer's name RED JACKET

Model Number BVC 751 HP 0.75 Volt 230

Length of drop pipe 63 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 95 ft

Located by Minnesota Geological Survey

Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)

System UTM - NAD83, Zone 15, Meters X 461100 Y 5009915

Unique Number Verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Renner E.H. & Sons 27015

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

124137

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
SWEDAL,	32	25	W	30	ACBCAB

Elevation 861 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14723 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	50	BROWN	SOFT
CLAY	50	72	BROWN	SOFT
ROCKS	72	106	BROWN	HARD
CLAY	106	121	BROWN	HARD
SAND	121	149	BROWN	HARD
SANDROCK	149	161	YELLOW	SOFT
SANDROCK	161	246	YELLOW	HARD

Remarks

Well Depth 246 ft. **Depth Completed** 246 ft. **Date Well Completed** 01/24/1976

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1.5 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 161 ft.	11 lbs./ft.	4 in. To 246 ft.

Open Hole From 161 ft. To 246 ft.

Screen? ☐ **Type** **Make**

Static Water Level
20 ft. land surface Measure 01/24/1976

Pumping Level (below land surface)
42 ft. 2 hrs. Pumping at 50 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination
75 feet West Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/02/1976
Manufacturer's name STA-RITE
Model Number GP8C2 HP 0.5 Volt 230
Length of drop pipe 36 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Tunnel City Group Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 149 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461179 Y 5009493
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Torgerson, Art & Son	02203	OTTEN, D.

Minnesota Unique Well Number

711529

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 01/11/2005
Update Date 07/29/2008
Received Date 08/13/2004

Well Name	Township	Range	Dir	Section	Subsection
MORAVETZ,	32	25	W	30	ADCAAC

Elevation 863 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14593 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND & GRAVEL	0	32	BROWN	SOFT
CLAY & GRAVEL	32	35	BROWN	SOFT
SAND	35	48	BROWN	SOFT
CLAY & GRAVEL	48	92	BROWN	HARD
SAND & SILT	92	102	BROWN	SOFT
SAND & CLAY	102	134	BROWN	SOFT
CLAY & GRAVEL	134	140	BROWN	SOFT
SAND	140	155	BROWN	SOFT

Remarks

SECTION MAP.

Well Depth 155 ft. **Depth Completed** 153 ft. **Date Well Completed** 07/12/2004

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Glued

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 142 ft.	lbs./ft.	8.5 in. To 30 ft.
		6.5 in. To 155 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	10	8 ft.	142 ft.	153 ft.

Static Water Level

30 ft. land surface Measure 07/12/2004

Pumping Level (below land surface)

ft. 3 hrs. Pumping at 25 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	5 Sacks	0 ft.	30 ft.
cuttings		30 ft.	142 ft.

Nearest Known Source of Contamination

51 feet South Direction Other Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 07/19/2004

Manufacturer's name RED JACKET

Model Number 75F211 HP 0.75 Volt 230

Length of drop pipe 60 ft Capacity 15 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461251 Y 5009233

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Mork Well Co., Inc. 02730 BECKWORTH, D.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report | **711529** | Printed on 10/13/2020

HE-01205-15

Minnesota Unique Well Number

516054

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 11/17/1992
Update Date 08/18/2014
Received Date 10/08/1992

Well Name	Township	Range	Dir	Section	Subsection
ANDERSON,	32	25	W	30	DADAAC

Elevation 864 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14440 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY FIRM	0	10	BROWN	
FINE SAND	10	50	BROWN	SOFT
CLAY & ROCKS FIRM	50	90	BROWN	
SANDY CLAY	90	130	BROWN	SOFT
SAND & GRAVEL	130	138	BROWN	SOFT
CLAY & ROCKS FIRM	138	145	BROWN	
FRANCONIA SS	145	147	TAN	SOFT
FRANCONIA SS FIRM	147	157	LT. GRN	
FRANCONIA SS FIRM	157	190	GREEN	

Remarks

SECTION MAP.

Well Depth 190 ft. **Depth Completed** 190 ft. **Date Well Completed** 09/18/1992

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 146 ft.	10.7 lbs./ft.	6.2 in. To 146 ft.
		4 in. To 190 ft.

Open Hole From 146 ft. To 190 ft.

Screen? ☐ **Type** **Make**

Static Water Level

30 ft. land surface Measure 09/18/1992

Pumping Level (below land surface)

55 ft. 3 hrs. Pumping at 35 g.p.m.

Wellhead Completion

Pitless adapter manufacturer BAKER Model SNAPPY

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	0.9 Cubic yards	ft.	146 ft.

Nearest Known Source of Contamination

100 feet South Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/23/1992

Manufacturer's name GRUNDFOS

Model Number 16S07-8 HP 0.75 Volt 230

Length of drop pipe 63 ft Capacity 16 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 145 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461430 Y 5008845

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Renner E.H. Well 71015 PRAUGHT, V.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

133390

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
GANDRUD,	32	25	W	30	AABCBA

Elevation 875 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14820 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
GRAVEL	0	69	DARK	
CLAY & GRAVEL	69	138	RED	
SHALE & SANDSTONE	138	154	VARIED	
SHALE & SANDSTONE	154	190	VARIED	

Remarks

Well Depth 190 ft. **Depth Completed** 190 ft. **Date Well Completed** 03/17/1978

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☒ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 162 ft.	10.7 lbs./ft.	4 in. To 190 ft.

Open Hole From 162 ft. To 190 ft.

Screen? ☐ **Type** **Make**

Static Water Level

39 ft. land surface Measure 03/17/1978

Pumping Level (below land surface)

ft. 3 hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/17/1978

Manufacturer's name JACUZZI

Model Number 7S4M12-S/2 HP 0.75 Volt 230

Length of drop pipe 72 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 138 ft

Located by Minnesota Geological Survey

Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)

System UTM - NAD83, Zone 15, Meters X 461103 Y 5009747

Unique Number Verification Name on mailbox Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Renner E.H. & Sons	27015	WOLTERS, P.

Minnesota Unique Well Number

193778

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ABADAD

Elevation 880 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14821 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	8	BROWN	SOFT
WATERSAND	8	18	BROWN	SOFT
ROCKS & GRAVEL	18	60	BROWN	HARD
CLAY	60	66	BROWN	HARD
ROCKS & GRAVEL	66	72	BROWN	HARD
SAND	72	80	BROWN	HARD
DRY GRAVEL	80	155	BROWN	HARD
SHALE	155	170	BLUE	HARD
SANDROCK	170	186	YELLOW	HARD

Remarks

Well Depth 186 ft. **Depth Completed** 186 ft. **Date Well Completed** 09/30/1983

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1.5 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 155 ft.	11 lbs./ft.	6 in. To 155 ft.
		4 in. To 186 ft.

Open Hole From 155 ft. To 186 ft.

Screen? ☐ **Type** **Make**

Static Water Level
18 ft. land surface Measure 09/30/1983

Pumping Level (below land surface)
60 ft. 2 hrs. Pumping at 40 g.p.m.

Wellhead Completion
Pitless adapter manufacturer WHITEWATER Model SU4X5.5
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☐ Not Specified

Nearest Known Source of Contamination
75 feet Southwes Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/06/1983
Manufacturer's name STA-RITE
Model Number 8P4C025 HP 0.5 Volt 230
Length of drop pipe 54 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Tunnel City Group Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 155 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461269 Y 5009766
Unique Number Verification Information from Input Date 01/01/1990

Angled Drill Hole

Well Contractor
Torgerson, Art & Son 02203 TORGERSON, S.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

672386

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 12/30/2002
Update Date 07/29/2008
Received Date

Well Name	Township	Range	Dir	Section	Subsection
KLABOUGH,	32	25	W	30	ACAADD

Elevation 849 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14660 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	8	BROWN	SOFT
GRAVEL, ROCKS	8	52	BROWN	SOFT
CLAY	52	54	BROWN	MEDIUM
GRAVEL, ROCKS	54	70	BROWN	SOFT
CLAY	70	70	GRAY	MEDIUM

Remarks

SECTION MAP.

Well Depth 70 ft. **Depth Completed** 70 ft. **Date Well Completed** 05/20/2002

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 65 ft.	1.9 lbs./ft.	6.5 in. To 70 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
2 in.	12	5 ft.	65 ft. 70 ft.

Static Water Level

14 ft. land surface Measure 05/20/2002

Pumping Level (below land surface)

65 ft. 2 hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	0.17 Cubic yards	0 ft.	30 ft.
cuttings		30 ft.	65 ft.

Nearest Known Source of Contamination

40 feet East Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/04/2002

Manufacturer's name AERMOTOR

Model Number T12-75 HP 0.75 Volt 230

Length of drop pipe 40 ft Capacity 15 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. Water

Last Strat clay-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461066 Y 5009376

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Mc Alpine Brothers 27636 MCALPINE, B.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

124138

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
HOLLAND	32	25	W	29	CCABBB

Elevation 862 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14350 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	50	BROWN	SOFT
CLAY	50	79	BROWN	SOFT
SAND	79	92	BROWN	HARD
ROCKS	92	111	BROWN	HARD
CLAY	111	136	BROWN	HARD
SAND	136	151	BROWN	HARD
SANDROCK	151	170	YELLOW	SOFT
SANDROCK	170	246	YELLOW	HARD

Remarks

FORMER OWNER ROBERT DREWS.

Well Depth 246 ft. **Depth Completed** 246 ft. **Date Well Completed** 01/23/1976

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1.5 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 170 ft.	11 lbs./ft.	4 in. To 246 ft.

Open Hole From 170 ft. To 246 ft.

Screen? ☐ **Type** **Make**

Static Water Level

20 ft. land surface Measure 01/23/1976

Pumping Level (below land surface)

60 ft. 2 hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination

75 feet East Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 01/23/1976

Manufacturer's name STA-RITE

Model Number GP8C2 HP 0.5 Volt 230

Length of drop pipe 54 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 151 ft

Located by Minnesota Geological Survey

Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)

System UTM - NAD83, Zone 15, Meters X 461681 Y 5008639

Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Torgerson, Art & Son 02203 OTTEN, D.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

242411

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 12/10/1999
Update Date 01/06/2017
Received Date 12/09/1999

Well Name	Township	Range	Dir	Section	Subsection
WALDOWSKI,	32	25	W	30	AACDBA

Elevation 871 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14743 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	50		
CLAY	50	72		
CLAY & ROCKS	72	106		
CLAY	106	121		
SAND	121	149		
FRANCONIA	149	178		

Remarks

GEOLOGY TAKEN FROM NEIGHBOR'S WELL RECORD.
SECTION MAP.
WELL DRILLED BY WOODROW TORGERSON.
RECORD PREPARED BY RAYMOND T. RENNER.

Well Depth 178 ft. **Depth Completed** 178 ft. **Date Well Completed** 08/26/1969

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To ft.	10.7 lbs./ft.	4 in. To 178 ft.

Open Hole From 0 ft. To 178 ft.

Screen? ☐ **Type** **Make**

Static Water Level
14 ft. land surface Measure 11/17/1999

Pumping Level (below land surface)
40 ft. 3 hrs. Pumping at 10 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model WELL SEAL
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☐ Yes ☐ No ☒ Not Specified

Nearest Known Source of Contamination
50 feet West Direction Septic tank/drain field Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/17/1999
Manufacturer's name GRUNDFOS
Model Number 10S05-9 HP 0.5 Volt 230
Length of drop pipe 52 ft Capacity 10 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Tunnel City Group Aquifer
Last Strat Tunnel City Group Depth to Bedrock 149 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461217 Y 5009565
Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor
TORGERSON, W.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

416682

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
GUY, HAROLD	32	25	W	30	AABCCA

Elevation 861 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14760 BOWER DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	69		
HARDPAN	69	103		
SHALE	103	168		
SANDROCK	168	186		

Remarks

Well Depth	Depth Completed	Date Well Completed
186 ft.	186 ft.	12/12/1985

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight
4 in. To 133 ft.	lbs./ft.

Open Hole From 133 ft. To 186 ft.

Screen? ☐ **Type** **Make**

Static Water Level
18 ft. land surface Measure 12/12/1985

Pumping Level (below land surface)
ft. hrs. Pumping at 25 g.p.m.

Wellhead Completion
Pitless adapter manufacturer WHITEWATER Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
neat cement		ft.	ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 12/13/1985
Manufacturer's name RED JACKET
Model Number HP 0.5 Volt
Length of drop pipe 21 ft Capacity g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 103 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461092 Y 5009712
Unique Number Verification Information from Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Torgerson Well Co.	27056	TORGERSON, R.

Minnesota Unique Well Number

179361

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	AABBBA

Elevation 878 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14830 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOP SOIL	0	6	TAN	SOFT
SAND & GRAVEL	6	68	TAN	SOFT
CLAY	68	78	RED	HARD
CLAY & ROCKS	78	114	GRAY	HARD
SHALE	114	160	GREEN	MEDIUM
SHALE & SANDSTONE	160	170	GREEN	HARD
SANDSTONE	170	210	GRAY	HARD

Remarks

Well Depth 210 ft. **Depth Completed** 210 ft. **Date Well Completed** 03/05/1981

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter		Weight		Hole Diameter	
4 in. To 170 ft.		10.7 lbs./ft.		4 in. To 210 ft.	

Open Hole From 170 ft. To 210 ft.

Screen? ☐ **Type** **Make**

Static Water Level
35 ft. land surface Measure 03/05/1981

Pumping Level (below land surface)
45 ft. 3 hrs. Pumping at 50 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	20 ft.

Nearest Known Source of Contamination
50 feet West Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/10/1981
Manufacturer's name AERMOTOR
Model Number SD 12-50 HP 0.5 Volt 230
Length of drop pipe 54 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 114 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461095 Y 5009858
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor
Hadden Well Co. 02164 HADDEN, R.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

541778

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 08/05/1997
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
PEARSON,	32	25	W	30	AABACD

Elevation 883 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 8846 10 SH W RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	23	BROWN	SOFT
CLAY & ROCKS	23	43	BROWN	SOFT
SAND	43	66	GRAY	SOFT
CLAY FIRM	66	66	GRAY	

Remarks

Well Depth 66 ft. **Depth Completed** 66 ft. **Date Well Completed** 08/24/1994

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 63 ft.	10.7 lbs./ft.	8.7 in. To 30 ft.
		6.2 in. To 66 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON 304

Diameter	Slot/Gauze	Length	Set	
4.5 in.	18	4 ft.	62 ft.	66 ft.

Static Water Level

28 ft. land surface Measure 08/24/1994

Pumping Level (below land surface)

48 ft. 3 hrs. Pumping at 40 g.p.m.

Wellhead Completion

Pitless adapter manufacturer BAKER Model SNAPPY

☒ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	0.8 Cubic yards	ft.	60 ft.

Nearest Known Source of Contamination

50 feet South Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 01/10/1994

Manufacturer's name RED JACKET

Model Number 100CNS1- HP 1 Volt 230

Length of drop pipe 42 ft Capacity 18 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat clay-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461347 Y 5009793

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Renner E.H. Well	71015	SCHAFFER, R.

Minnesota Well Index Report | **541778** | Printed on 10/13/2020

HE-01205-15

Minnesota Unique Well Number

160047

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
BEBEAU, LYLE	32	25	W	30	ADDCAC

Elevation 865 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14543 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	10	BROWN	
COARSE GRAVEL	10	60	DARK	
CLAY & GRAVEL &	60	121	RED	
GRAVEL	121	143	DK. BRN	
LAYERED SHALE &	143	185	GREEN	HARD
LAYERED SHALE &	185	205	RED	SOFT
LAYERED SHALE &	205	260	GRN/RED	HARD

Remarks

Well Depth 260 ft. **Depth Completed** 260 ft. **Date Well Completed** 06/04/1979

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 215 ft.	10.7 lbs./ft.	4 in. To 260 ft.

Open Hole From 215 ft. To 260 ft.

Screen? ☐ **Type** **Make**

Static Water Level
18 ft. land surface Measure 06/04/1979

Pumping Level (below land surface)
ft. 3 hrs. Pumping at 45 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/07/1979
Manufacturer's name JACUZZI
Model Number 7S4M12-S2 HP 0.75 Volt 230
Length of drop pipe 42 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Tunnel City Group Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 143 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461305 Y 5009133
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Renner E.H. & Sons	02015	SHIMMING, D.

Minnesota Unique Well Number

169236

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
PETERSON,	32	25	W	19	DCDDDC

Elevation 870 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 9002 10 HY W RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	82	BROWN	SOFT

Remarks

Well Depth	Depth Completed	Date Well Completed
82 ft.	82 ft.	12/29/1980

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☒ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 78 ft.	11 lbs./ft.	6.2 in. To 78 ft.
		4 in. To 82 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
4 in.	15	4 ft.	78 ft.	82 ft.

Static Water Level

40 ft. land surface Measure 12/29/1980

Pumping Level (below land surface)

47 ft. 3 hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
cuttings		ft.	ft.
bentonite		ft. 78	ft.

Nearest Known Source of Contamination

50 feet East Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 01/02/1981

Manufacturer's name RED JACKET

Model Number 75V19BC HP 0.75 Volt 230

Length of drop pipe 54 ft Capacity 14 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. Water

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461023 Y 5009874

Unique Number Verification Information from Input Date 08/19/2008

Angled Drill Hole

Well Contractor

Ruppert & Son 27086 RUPPERT, G.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report | **169236** | Printed on 10/13/2020 HE-01205-15

Minnesota Unique Well Number

155281

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
LUKE, TERRY	32	25	W	29	CCCDDD

Elevation 866 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14200 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	80		
GRAVEL	80	130		
CLAY	130	150		
SANDROCK	150	186		
ROCK	186	248		

Remarks

BOWERS MISS. ACRES BLK 1 LOT 8. SOUTH 0.5 SECT.

Well Depth	Depth Completed	Date Well Completed
248 ft.	248 ft.	10/24/1978

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 186 ft.	lbs./ft.	4 in. To 248 ft.

Open Hole From 186 ft. To 248 ft.

Screen? ☐ **Type** **Make**

Static Water Level

30 ft. land surface Measure 10/24/1978

Pumping Level (below land surface)

40 ft. 3 hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/27/1978

Manufacturer's name AERMOTOR

Model Number HP 0.5 Volt

Length of drop pipe 54 ft Capacity g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 150 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461846 Y 5008333

Unique Number Verification Address verification Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Torgerson Well Co. 27056 OTTEN, D.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report | **155281** | Printed on 10/13/2020

HE-01205-15

Minnesota Unique Well Number

417963

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ADBBBC

Elevation 850 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14670 BOWERS DR NW ANOKA MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
TOP SOIL	0	6	BLK/BRN	SOFT
SAND & GRAVEL	6	40	BROWN	MEDIUM
SILTY SAND	40	58	BROWN	SOFT
CLAY & ROCK	58	96	BROWN	HARD
SHALE & SANDROCK	96	122	GRN/WHT	MEDIUM
SHALE & SANDROCK	122	147	GRN/RED	HARD
SANDROCK	147	170	WHITE	HARD

Remarks

Well Depth 170 ft. **Depth Completed** 170 ft. **Date Well Completed** 01/13/1986

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 124 ft.	12 lbs./ft.	6 in. To 124 ft.
		4 in. To 170 ft.

Open Hole From 124 ft. To 170 ft.

Screen? ☐ **Type** **Make**

Static Water Level
10 ft. land surface Measure 01/13/1986

Pumping Level (below land surface)
10 ft. 2 hrs. Pumping at 40 g.p.m.

Wellhead Completion
Pitless adapter manufacturer WHITEWATER Model SU6.5
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	124 ft.

Nearest Known Source of Contamination
75 feet East Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 01/15/1986
Manufacturer's name AERMOTOR
Model Number SD1250 HP 0.5 Volt 230
Length of drop pipe 40 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 96 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461067 Y 5009429
Unique Number Verification Information from Input Date 01/01/1990

Angled Drill Hole

Well Contractor
Mc Alpine's Well Co. 27186 MCALPINE, T.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

162802

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
KUSS, GENE	32	25	W	30	AACCCA

Elevation 855 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14710 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	15	BROWN	SOFT
CLAY & ROCK	15	70	BROWN	MEDIUM
CLAY	70	105	GRAY	HARD
FINE SAND	105	120	RED	SOFT
COARSE SAND	120	130	YELLOW	MEDIUM

Remarks

Well Depth 130 ft. **Depth Completed** 130 ft. **Date Well Completed** 08/03/1979

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 125 ft.	12 lbs./ft.	6 in. To 125 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
2 in.		5 ft.	125 ft. 130 ft.

Static Water Level
20 ft. land surface Measure 08/03/1979

Pumping Level (below land surface)
20 ft. 3 hrs. Pumping at 20 g.p.m.

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	125 ft.

Nearest Known Source of Contamination
50 feet Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/06/1979
Manufacturer's name AERMOTOR
Model Number SD 1250 HP 0.5 Volt 230
Length of drop pipe 42 ft Capacity 20 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat sand-yellow Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461097 Y 5009517
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Mc Alpine's Well Co.	27186	MCALPINE, G.

Minnesota Unique Well Number

149458

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
LUKE, TERRY	32	25	W	29	CCCDBB

Elevation 865 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14250 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	150	BLUE	
SAND	150	180	BROWN	
ROCK	180	211	WHITE	

Remarks

SOUTH 0.5 SECTION

Well Depth	Depth Completed	Date Well Completed
211 ft.	211 ft.	08/00/1976

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 200 ft.	lbs./ft.	4 in. To 211 ft.

Open Hole From 200 ft. To 211 ft.

Screen? ☐ **Type** **Make**

Static Water Level

50 ft. land surface Measure 08/00/1976

Pumping Level (below land surface)

60 ft. 3 hrs. Pumping at 40 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
well grouted, type unknown		ft.	ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/00/1976

Manufacturer's name AERMOTOR

Model Number HP 0.5 Volt

Length of drop pipe 54 ft Capacity g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 180 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461771 Y 5008429

Unique Number Verification Address verification Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Torgerson Well Co. 27056

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

431401

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ACAADD

Elevation 852 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14650 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SANDY CLAY	0	21	BROWN	MEDIUM
SAND	21	52	TAN	SOFT
CLAY	52	108	BROWN	MEDIUM
SHALE & SOME	108	120	BLU/TAN	MEDIUM
SANDSTONE	120	127	TAN/WHT	M.SOFT

Remarks

Well Depth 127 ft. **Depth Completed** 127 ft. **Date Well Completed** 01/13/1987

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter		Weight	
4	in. To 123 ft.	11	lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
4 in.	15	4 ft.	123 ft.	127 ft.

Static Water Level

15 ft. land surface Measure 01/13/1987

Pumping Level (below land surface)

25 ft. 4 hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer WHITEWATER Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	123 ft.
cuttings		ft.	ft.

Nearest Known Source of Contamination

50 feet Northeas Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 01/22/1987

Manufacturer's name RED JACKET

Model Number 50UI9BC HP 0.5 Volt 230

Length of drop pipe 40 ft Capacity 14 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 108 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461035 Y 5009362
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Ruppert & Son	27086	RUPPERT, G.

Minnesota Unique Well Number

656433

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 11/07/2001
Update Date 08/18/2014
Received Date 07/18/2001

Well Name	Township	Range	Dir	Section	Subsection
NASH, STEVE &	32	25	W	30	DBCDBD

Elevation 865 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14500 BOWERS DR RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND/CLAY	0	30	BROWN	
SAND	30	50	BROWN	
ROCKS/GRAVEL	50	80	BROWN	HARD
CLAY/GRAVEL	80	137	BROWN	
SHALE	137	150	GREEN	MEDIUM
SANDSTONE	150	175	WHT/BRN	M.HARD

Remarks

Well Depth	Depth Completed	Date Well Completed
175 ft.	175 ft.	01/28/2001

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 147 ft.	11 lbs./ft.	8 in. To 136 ft.
		4 in. To 175 ft.

Open Hole From 136 ft. To 175 ft.

Screen? ☐ **Type** **Make**

Static Water Level
25 ft. land surface Measure 01/28/2001

Pumping Level (below land surface)
175 ft. 1 hrs. Pumping at 50 g.p.m.

Wellhead Completion
Pitless adapter manufacturer SNAPPY Model 1INCH
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	3 Sacks	0 ft.	40 ft.

Nearest Known Source of Contamination
52 feet Southwes Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 02/07/2001
Manufacturer's name MYERS
Model Number 2 WIRE HP 0.75 Volt 230
Length of drop pipe 60 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock Tunnel City Group Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 137 ft
Located by Minnesota Department of Health
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 461280 Y 5009048
Unique Number Verification Input Date 01/30/2001

Angled Drill Hole

Well Contractor
Barott B. Well Co. 02566 BAROTT, B.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report | **656433** | Printed on 10/13/2020 HE-01205-15

Minnesota Unique Well Number

126498

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
JOHNSON, AL	32	25	W	29	CCBCBC

Elevation 865 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14330 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	68		
CLAY	68	108		
GRAVEL	108	146		
SOFT SANDROCK	146	186		
HARD SANDROCK	186	201		

Remarks

SOUTH 0.5 SECT.

Well Depth 201 ft. **Depth Completed** 201 ft. **Date Well Completed** 06/08/1976

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter **Weight**

4 in. To 188 ft. lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Static Water Level

15 ft. land surface Measure 06/08/1976

Pumping Level (below land surface)

25 ft. 3 hrs. Pumping at g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/12/1976

Manufacturer's name AERMOTOR

Model Number HP 0.75 Volt

Length of drop pipe ft Capacity g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 146 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461670 Y 5008605

Unique Number Verification Address verification Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Torgerson Well Co. 27056 OTTEN, D.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

409591

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
MILLER, GARY	32	25	W	30	AABBDD

Elevation 881 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14810 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	54	BROWN	
CLAY	54	58	GRAY	
CLAY & SANDSTONE	58	112	BROWN	
GRAVEL	112	119	VARIED	
SHALE & SANDSTONE	119	148	GRN/BRN	
SANDSTONE & SHALE	148	213		

Remarks

Well Depth	Depth Completed	Date Well Completed
213 ft.	213 ft.	05/21/1985

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 168 ft.	10.7 lbs./ft.	6.2 in. To 168 ft.
		4 in. To 213 ft.

Open Hole From 168 ft. To 213 ft.

Screen? ☐ **Type** **Make**

Static Water Level
32 ft. land surface Measure 05/21/1985

Pumping Level (below land surface)
38 ft. 3 hrs. Pumping at 60 g.p.m.

Wellhead Completion
Pitless adapter manufacturer SNAPPY Model PLASTIC
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	168 ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 05/23/1985
Manufacturer's name GRUNDFOS
Model Number SP4-8 HP 0.75 Volt 230
Length of drop pipe 63 ft Capacity 20 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 119 ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461139 Y 5009785
Unique Number Verification Information from Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Renner E.H. & Sons	02015	SUTTON, G.

Minnesota Unique Well Number

146087

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
LUKE, MARVIN	32	25	W	29	CCABCC

Elevation 865 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14235 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND & GRAVEL	0	48	YELLOW	SOFT
CLAY & ROCK	48	120	RED	HARD
GRAVEL	120	150	BLACK	HARD
SANDROCK	150	160	WHITE	HARD

Remarks

SOUTH 0.5 SECTION

Well Depth 160 ft. **Depth Completed** 160 ft. **Date Well Completed** 08/31/1977

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 155 ft.	12 lbs./ft.	6 in. To 155 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	10	5 ft.	155 ft.	160 ft.

Static Water Level

20 ft. land surface Measure 08/31/1977

Pumping Level (below land surface)

20 ft. 2 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	155 ft.

Nearest Known Source of Contamination

50 feet Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/01/1977

Manufacturer's name AERMOTOR

Model Number SD1250 HP 0.5 Volt 230

Length of drop pipe 42 ft Capacity 20 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 150 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461835 Y 5008627

Unique Number Verification Address verification Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Mc Alpine's Well Co. 27186 MCALPINE, G.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

634427

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/29/2002
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
BOYUM,	32	25	W	30	DCABDB

Elevation 862 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14470 BOWERS DR ANOKA MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	30	BROWN	MEDIUM
CLAY & STONE	30	80	BROWN	MEDIUM
STONE & CLAY	80	100	BROWN	HARD
CLAY & ROCKS	100	110	BROWN	HARD
RUBBLE	110	120	WHT/BLK	HARD
SANDSTONE	120	120		

Remarks

Well Depth 120 ft. **Depth Completed** 120 ft. **Date Well Completed** 11/19/2001

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Welded
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 110 ft.	lbs./ft.	8.7 in. To 30 ft.
		6.5 in. To 120 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** slotted pipe **Make** CERTAIN

Diameter	Slot/Gauze	Length	Set
4 in.	12	ft. 110 ft.	120 ft.

Static Water Level

25 ft. land surface Measure 11/19/2001

Pumping Level (below land surface)

ft. 4 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer SNAPPY Model

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
well grouted, type unknown	4 Sacks	0 ft.	30 ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name STA RITE

Model Number 1/2 HP 0.5 Volt 220

Length of drop pipe 80 ft Capacity g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock St.Lawrence-Tunnel City Aquifer Quat. buried

Last Strat St.Lawrence-Tunnel City Depth to Bedrock 120 ft

Located by Minnesota Department of Health

Locate Method GPS SA Off (averaged) (15 meters)

System UTM - NAD83, Zone 15, Meters X 461332 Y 5008940

Unique Number Verification Input Date 09/12/2001

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Rum River Drilling	27659	PRAUGHT, N.

Minnesota Unique Well Number

418904

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
BECHTOLD,	32	25	W	30	AABBBD

Elevation 881 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14826 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	18	TAN	SOFT
GRAVEL	18	47	TAN	SOFT
CLAY	47	85	RED/GRY	SOFT
CLAY	85	110	GRAY	SOFT
SHALE	110	137	RED	SOFT
SANDSTONE	137	148	YELLOW	SOFT
SANDSTONE	148	170	YEL/WHT	HARD

Remarks

SECTION MAP.

Well Depth 170 ft. **Depth Completed** 170 ft. **Date Well Completed** 11/06/1986

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☒ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 148 ft.	11 lbs./ft.	6.2 in. To 148 ft.
		4 in. To 170 ft.

Open Hole From 148 ft. To 170 ft.

Screen? ☐ **Type** **Make**

Static Water Level

45 ft. land surface Measure 11/07/1986

Pumping Level (below land surface)

ft. hrs. Pumping at 35 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination

55 feet South Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/06/1986

Manufacturer's name FLINT & WALLING

Model Number HP 0.5 Volt 230

Length of drop pipe 65 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock St.Lawrence Formation Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 110 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461109 Y 5009818

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Bill's Well Co. 33087 JAPP, P.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

425746

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
LETOURNEAU	32	25	W	30	ADBDCD

Elevation 860 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14607 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND GRAVEL	0	7	BROWN	SOFT
CLAY	7	14	BROWN	SOFT
CLAY GRAVEL	14	33	BROWN	SOFT
GRAVEL & SAND	33	43	BROWN	SOFT
BOULDERS, & CLAY	43	122	BROWN	HARD
GRAVEL & SAND	122	135	BROWN	SOFT

Remarks

Well Depth 135 ft. **Depth Completed** 135 ft. **Date Well Completed** 10/16/1986

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight
4 in. To 120 ft.	lbs./ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	15	12 ft.	120 ft.	135 ft.

Static Water Level
12 ft. land surface Measure 10/16/1986

Pumping Level (below land surface)
100 ft. 1.5 hrs. Pumping at 55 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model 8PL41UC7
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
neat cement		0 ft.	30 ft.
bentonite		30 ft.	120 ft.

Nearest Known Source of Contamination
66 feet North Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/18/1986
Manufacturer's name AERMOTOR
Model Number SD1250 HP 0.5 Volt 230
Length of drop pipe 40 ft Capacity 10 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Aquifer Quat. buried
Last Strat sand +larger-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 461186 Y 5009277
Unique Number Verification Address verification Input Date 01/01/1990

Angled Drill Hole

Well Contractor
Mork Well Co. 02133 LAWRENCE, R.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

494213

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 12/23/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
GORHAM, GARY	32	25	W	30	ABADCB

Elevation 878 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14801 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND & GRAVEL	0	14	TAN	SOFT
GRAVEL	14	40	TAN	MEDIUM
CLAY	40	45	BROWN	HARD
CLAY & GRAVEL	45	130	BROWN	HARD
SHALE & SANDSTONE	130	150	TAN	MEDIUM
SANDSTONE & SHALE	150	211	TAN/BRN	HARD

Remarks

Well Depth 211 ft. **Depth Completed** 211 ft. **Date Well Completed** 08/07/1991

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 151 ft.	11 lbs./ft.	4 in. To 211 ft.

Open Hole From 151 ft. To 211 ft.

Screen? ☐ **Type** **Make**

Static Water Level
33 ft. land surface Measure 08/05/1991

Pumping Level (below land surface)
43 ft. 3 hrs. Pumping at 49 g.p.m.

Wellhead Completion
Pitless adapter manufacturer MONITOR Model 5PS45BS4C1
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination
57 feet West Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/07/1991
Manufacturer's name AERMOTOR
Model Number SD 20-75 HP 0.75 Volt 230
Length of drop pipe 60 ft Capacity 18 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City
Last Strat Tunnel City Group Depth to Bedrock 130 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461244 Y 5009740
Unique Number Verification Information from Input Date 05/17/2006

Angled Drill Hole

Well Contractor
Hadden Well Co. 02164 HADDEN, M.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

722207

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 12/28/2005
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	AACBDC

Elevation 860 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14750 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
GRAVEL	0	25	BROWN	SOFT
ROCKS, GRAVEL	25	30	BROWN	MEDIUM
CLAY, GRAVEL, ROCKS	30	111	BROWN	HARD
SHALE, SANDROCK	111	130	GRN/WHT	SOFT
SANDROCK, SHALE	130	200	WHT/GRN	HARD

Remarks

SECTION MAP.

Well Depth 200 ft. **Depth Completed** 200 ft. **Date Well Completed** 06/06/2005

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint** Glued

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 135 ft.	lbs./ft.	8.5 in. To 135 ft.
		4.5 in. To 200 ft.

Open Hole From 135 ft. To 200 ft.

Screen? ☐ **Type** **Make**

Static Water Level

23 ft. land surface Measure 06/06/2005

Pumping Level (below land surface)

75 ft. 2 hrs. Pumping at 75 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount		From	To
neat cement	3	Sacks	105 ft.	135 ft.
high solids bentonite	11	Sacks	ft.	105 ft.

Nearest Known Source of Contamination

36 feet South Direction Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 08/18/2005

Manufacturer's name RED JACKET

Model Number 75F211/12G HP 0.75 Volt 230

Length of drop pipe 60 ft Capacity 15 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 111 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461129 Y 5009593

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Mork Well Co., Inc. 02730 GOODIN, G.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report **722207**

Printed on 10/13/2020

HE-01205-15

Minnesota Unique Well Number

656104

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 08/01/2001
Update Date 07/29/2008
Received Date 03/30/2001

Well Name	Township	Range	Dir	Section	Subsection
HOWIE, JEFF &	32	25	W	30	ACDAAA

Elevation 853 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14630 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	57	BROWN	SOFT
CLAY & GRAVEL	57	67	BROWN	MEDIUM
GRAVEL	67	73	BROWN	SOFT
CLAY & GRAVEL	73	73	BROWN	MEDIUM

Remarks

MISSISSIPPI ACRES LOT 15.
SECTION MAP.

Well Depth 73 ft. **Depth Completed** 73 ft. **Date Well Completed** 03/01/2001

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 68 ft.	1.9 lbs./ft.	6.5 in. To 73 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	12	5 ft.	68 ft.	73 ft.

Static Water Level

25 ft. land surface Measure 03/01/2001

Pumping Level (below land surface)

68 ft. 2 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model BULLDOG
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	0.17 Cubic yards	0 ft.	30 ft.
cuttings		30 ft.	68 ft.

Nearest Known Source of Contamination

35 feet West Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/02/2001
Manufacturer's name AERMOTOR
Model Number T12-50 HP 0.5 Volt 230
Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat pebbly sand/silt/clay- Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461066 Y 5009275
Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

McAlpine Bros., Inc. 27270 GOODIN, G.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Well Index Report | **656104** | Printed on 10/13/2020 HE-01205-15

Minnesota Unique Well Number

104707

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
MENTH, TOM &	32	25	W	29	CCBBBC

Elevation 863 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14370 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	7	BROWN	MEDIUM
CLAY	7	9	LT. GRY	MEDIUM
SAND & GRAVEL	9	53	BROWN	SOFT
FINE SAND	53	68	BROWN	SOFT
SANDY CLAY	68	79	RED/BRN	MEDIUM
CLAY & GRAVEL	79	126	BROWN	HARD
CLAY & GRAVEL	126	132	BROWN	MEDIUM
CLAY	132	136	BROWN	MEDIUM
CLAY & GRAVEL	136	160	BROWN	MEDIUM
HARDPAN & SHALE	160	190	GRAY	HARD
SANDROCK	190	225	WHT/GRY	M.HARD

Remarks

SOUTH 0.5 SECT.

Well Depth 225 ft. **Depth Completed** 225 ft. **Date Well Completed** 03/03/1975

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter		Weight		Hole Diameter	
4 in. To 194 ft.		11 lbs./ft.		4 in. To 225 ft.	

Open Hole From 194 ft. To 225 ft.

Screen? ☐ **Type** **Make**

Static Water Level

26 ft. land surface Measure 03/03/1975

Pumping Level (below land surface)

45 ft. hrs. Pumping at 30 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	194 ft.

Nearest Known Source of Contamination

50 feet South Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 04/16/1975

Manufacturer's name FLINT & WALLING

Model Number 5BA8 HP 0 Volt

Length of drop pipe 51 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 160 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461570 Y 5008682

Unique Number Verification Other, note in Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
Ruppert & Son	27086	CLARK, F.

Minnesota Unique Well Number

454349

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/22/1992
Update Date 09/21/2016
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ACDD

Elevation 850 ft. **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

Well 14590 BOWER DR NW RAMSEY 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	35	BROWN	SOFT
CLAY	35	75	BROWN	SOFT
SAND	75	92	BROWN	SOFT

Remarks

SECTION MAP.
NEW BAKER SNAPPY PITLESS 9-13-2016.

Well Depth 92 ft. **Depth Completed** 92 ft. **Date Well Completed** 07/12/1989

Drill Method Non-specified Rotary **Drill Fluid** Additive (+ Bentonite)

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☒ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 87 ft.	11 lbs./ft.	6.2 in. To 92 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** COOK

Diameter	Slot/Gauze	Length	Set	
2 in.	15	7 ft.	87 ft.	92 ft.

Static Water Level

30 ft. land surface Measure 07/12/1989

Pumping Level (below land surface)

ft. hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer BAKER Model SNAPPY
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		ft.	ft.

Nearest Known Source of Contamination

50 feet South Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 09/13/2016
Manufacturer's name GRUNDFOS
Model Number SQ05-160 HP 0.5 Volt 230
Length of drop pipe 60 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-brown Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461107 Y 5009235
Unique Number Verification Info/GPS from data Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Bill's Well Co. 33087 JAPP, P.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

768697

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/09/2009
Update Date 08/18/2014
Received Date 09/08/2009

Well Name	Township	Range	Dir	Section	Subsection
OLSON, BRYAN	32	25	W	30	DAAABC

Elevation 867 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 14513 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
BLACK DIRT	0	6	BLACK	SOFT
SANDY CLAY	6	38	BROWN	SOFT
ROCKS/CLAY/GRAVEL	38	128	GRAY	MEDIUM
CLAY/GRAVEL	128	130	GRAY	MEDIUM
GRAVEL/SHALE	130	138	BRN/GRY	MEDIUM
SANDSTONE/SHALE	138	185	TAN/GRY	HARD

Remarks

REPLACEMENT WELL.
NAMES OF DRILLER: LUCAS PRAUGHT AND ED RENNER

Well Depth 185 ft. **Depth Completed** 185 ft. **Date Well Completed** 07/10/2009

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 145 ft.	10.7 lbs./ft.	9 in. To 30 ft.
		7 in. To 143 ft.
		4 in. To 185 ft.

Open Hole From 143 ft. To 185 ft.

Screen? ☐ **Type** **Make**

Static Water Level
21 ft. top of casing Measure 07/14/2009

Pumping Level (below land surface)
ft. 5 hrs. Pumping at 20 g.p.m.

Wellhead Completion
Pitless adapter manufacturer BAKER Model SNAPPY
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	5 Sacks	0 ft.	50 ft.

Nearest Known Source of Contamination
50 feet North Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 07/16/2009
Manufacturer's name GRUNDFOS
Model Number 16S10-10 HP 1 Volt 23
Length of drop pipe 63 ft Capacity 16 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous
First Bedrock St.Lawrence-Tunnel City Aquifer St.Lawrence-
Last Strat St.Lawrence-Tunnel City Depth to Bedrock 130 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 461390 Y 5009037
Unique Number Verification Address verification Input Date 01/04/2010

Angled Drill Hole

Well Contractor

Licensee Business	Lic. or Reg. No.	Name of Driller
EH Renner and Sons, Inc.	1431	SEE REMARKS

Minnesota Unique Well Number

680275

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 03/27/2003
Update Date 08/18/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	30	ADBABB

Elevation 853 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14713 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND	0	18	BROWN	SOFT
ROCKY CLAY FIRM	18	35	RED	
ROCKY SAND GRAVEL	35	55	BROWN	SOFT
ROCKY CLAY FIRM	55	105	BROWN	
ROCKY SAND	105	125	BROWN	SOFT
SANDSTONE SHALE	125	186	TAN/BLU	

Remarks

SECTION MAP.

Well Depth 186 ft. **Depth Completed** 186 ft. **Date Well Completed** 02/24/2003

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
4 in. To 149 ft.	lbs./ft.	8 in. To 145 ft.
		4 in. To 186 ft.

Open Hole From 149 ft. To 186 ft.

Screen? ☐ **Type** **Make**

Static Water Level

30 ft. land surface Measure 02/19/2003

Pumping Level (below land surface)

70 ft. 1 hrs. Pumping at 40 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model SNAPPY

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount		From	To
high solids bentonite	2	Sacks	0 ft.	30 ft.
cuttings			30 ft.	125 ft.
neat cement	4	Sacks	125 ft.	145 ft.

Nearest Known Source of Contamination

60 feet Northwes Direction Sewer Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 02/24/2003

Manufacturer's name AERMOTOR

Model Number T12-50 HP 0.5 Volt 230

Length of drop pipe 60 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Tunnel City Group Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 125 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461197 Y 5009455

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Praught M. Well Co. 86576 PRAUGHT, S.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

490097

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/16/1992
Update Date 08/18/2014
Received Date 11/26/1991

Well Name	Township	Range	Dir	Section	Subsection
DEHEN, JOHN	32	25	W	30	AACBAD

Elevation 866 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14806 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND & GRAVEL	0	34	BROWN	SOFT
SANDY CLAY & ROCKS	34	81	BROWN	HARD
CLAY & GRAVEL FIRM	81	121	RED	
ST. LAWRENCE S.S.	121	171	GREEN	
FRANCONIA S.S.	171	190	RED	SOFT
FRANCONIA S.S.	190	250	GRN/RED	

Remarks

SECTION MAP.

Well Depth	Depth Completed	Date Well Completed
250 ft.	250 ft.	11/11/1991

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☐ No ☐ **Above/Below** 1 ft.

Casing Diameter	Weight	Hole Diameter
4 in. To 201 ft.	10.7 lbs./ft.	8.7 in. To 201 ft.
		4 in. To 250 ft.

Open Hole From 201 ft. To 250 ft.

Screen? ☐ **Type** **Make**

Static Water Level

22 ft. land surface Measure 11/16/1991

Pumping Level (below land surface)

32 ft. 3 hrs. Pumping at 40 g.p.m.

Wellhead Completion

Pitless adapter manufacturer BAKER Model STANDARD

☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
neat cement		100 ft.	201 ft.
bentonite		ft.	ft.

Nearest Known Source of Contamination

160 feet Northwes Direction Septic tank/drain field Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/16/1991

Manufacturer's name GRUNDFOS

Model Number 16S07-8 HP 0.75 Volt 230

Length of drop pipe 42 ft Capacity 16 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock St.Lawrence-Tunnel City Aquifer Tunnel City

Last Strat Tunnel City Group Depth to Bedrock 121 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461154 Y 5009617

Unique Number Verification Address verification Input Date 07/03/2008

Angled Drill Hole

Well Contractor

Renner E.H. Well 71015 SCHAFER, R.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

146160

County Anoka
Quad Anoka
Quad ID 120B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 04/15/1991
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
	32	25	W	29	CCBBBB

Elevation 863 ft. **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 14390 BOWERS DR NW RAMSEY MN 55303

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SAND-GRAVEL	0	50	BROWN	SOFT
CLAY-ROCK	50	140	BROWN	HARD
COARSE GRAVEL	140	156	BLACK	MEDIUM

Remarks

SOUTH 0.5 SECT.

Well Depth 156 ft. **Depth Completed** 156 ft. **Date Well Completed** 11/07/1977

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☒ No ☐ **Above/Below** 1 ft.

Casing Diameter		Weight		Hole Diameter	
4 in. To	151 ft.	12 lbs./ft.		6 in. To	151 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
2 in.	18	5 ft.	151 ft.	150 ft.

Static Water Level

20 ft. land surface Measure 11/03/1977

Pumping Level (below land surface)

20 ft. 2 hrs. Pumping at 20 g.p.m.

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite		0 ft.	151 ft.

Nearest Known Source of Contamination

50 feet Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/04/1977

Manufacturer's name AERMOTOR

Model Number SD1250 HP 0.5 Volt 230

Length of drop pipe 42 ft Capacity 20 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat gravel (+larger)-black Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 461546 Y 5008707

Unique Number Verification Address verification Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Mc Alpine's Well Co.	27186	MCALPINE, G.
Licensee Business	Lic. or Reg. No.	Name of Driller

Appendix D

Phase I Environmental Site Assessment Conclusions and Summary

Riverstone South EAW

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

Riverstone South/Pearson Properties
Ramsey, Minnesota

Project # 8494-00

Prepared for:

Capstone Homes, Inc.
14015 Sunfish Lake Boulevard NW #400
Ramsey, Minnesota 55303

August 12, 2020

CARLSON McCAIN

3890 PHEASANT RIDGE DRIVE NE, SUITE 100
BLAINE, MN 55449

TEL 763.489.7900
FAX 763.489.7959

CARLSONMCAIN.COM

ENGINEERING \ LAND SURVEYING \ ENVIRONMENTAL

CONCLUSIONS

At the request of Mr. Tom Bakritges with Capstone Homes, Inc., Carlson McCain, Inc. (Carlson McCain) has performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard Practice E 1527-13 for the Riverstone South/Pearson Properties, which includes portions of parcel identification numbers (PIN) 29-32-25-23-0004 and 29-32-25-22-0003, located southeast of the intersection of US Highway 10 and Bowers Drive Northwest in the City of Ramsey, Minnesota. Any exceptions to, or deletions from this practice are described in Section 9.0 of this report.

This Assessment has revealed no evidence of "recognized environmental conditions" (RECs) in connection with the Property.

Historical recognized environmental conditions (HRECs) are defined by ASTM as a past release of any hazardous substances or petroleum products that has occurred in connection with the Property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the Property to any required controls.

- There were no HRECs identified during the course of this assessment.

Controlled recognized environmental condition (CRECs) are defined by ASTM as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority.

- There were no CRECs identified during the course of this assessment.

PROJECT SUMMARY

This section of the report identifies known or suspected RECs, Controlled RECs, Historical RECs, and de minimis conditions. In addition, the table states the opinion of the environmental professional regarding the potential impact on the Property of conditions identified in the findings section.

Report Section		NFA	REC	CREC	HREC	Opinion
5.2.1	Standard Environmental Record Sources for the Subject Property	✔				No listings identified for the Property.
5.2.2	Standard Environmental Record Sources for Surrounding Sites	✔				None of the surrounding sites appear to be a REC for the Property due to site closure, their hydraulically

Report Section		NFA	REC	CREC	HREC	Opinion
						down-gradient position with respect to the Property, or their considerable distance away.
5.2.3	MPCA Institutional Controls	✔				The Property is not included on this list, which is current up to January 2018 (Appendix D).
5.3	File Review	✔				Local files did not identify any RECs for the Property.
6.0	HISTORICAL USE INFORMATION	✔				Cultivated agricultural land generally involves the application of pesticides and herbicides, some of which can be persistent in the environment. No evidence of bulk storage or improper application was identified. If properly applied, the use of these chemicals would not likely result in enforcement action if brought to the attention of a regulatory agency; therefore, this is not considered to be a REC.
7.0	SITE RECONNAISSANCE	✔				Site reconnaissance did not identify any RECs for the Property.
8.0	INTERVIEWS	✔				The fire department identified two aboveground storage tanks (ASTs) at the primary residence which is adjacent to the Property and is not considered a REC. Interviews did not identify any RECs for the Property.
10.0	DATA GAPS	✔				None identified.

1.0 SUMMARY

Carlson McCain has performed a Phase I ESA in general accordance with the scope of work and limitations of ASTM Standard Practice E1527-13, the U.S. Environmental Protection Agency (EPA) Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the Riverstone South/Pearson Properties which includes parcel identification (Parcel ID) numbers 29-32-25-23-0004 and 29-32-25-22-0003 (the "Property"). The Property is located south and east of 8846 Highway 10 Northwest in Ramsey, Anoka County, Minnesota. The Phase I ESA is designed to provide an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the Property.

1.1 Property Description

The Property is located southeast of the intersection of U.S. Highway 10 and Bowers Drive Northwest within a mostly residential and agricultural area of Ramsey, Minnesota. The table below provides further information regarding the Property:

Address:	Riverstone South/Pearson Properties which includes parcel identification (Parcel ID) numbers 29-32-25-23-0004 and 29-32-25-22-0003, Ramsey, Anoka County, Minnesota 55303
Assessor's Parcel Number (APN):	29-32-25-23-0004, 29-32-25-22-0003
Site Zoning Classification:	Residential
Number of Buildings:	No buildings.
Construction Details:	Not applicable.
Land Acreage (Ac):	~75 Acres
Date of Construction:	Not applicable.
Current Owner/Current Use:	Pearson Properties of Ramsey LLC
Historical Property Uses:	Agricultural, Undeveloped.
Surrounding Property Characteristics:	Agricultural, Residential.
Assumed Groundwater Flow Direction and Depth:	Flow is assumed to be to the south-southeast, 0 to 10 feet below ground surface (bgs)

5.2.2 Standard Environmental Record Sources for Surrounding Sites

The following table(s) are a summary of select sites located in close proximity with an elevated risk for impacting the Property within the specified search radii for the databases searched that were determined to be located adjacent to, in an expected hydraulically up-gradient direction from the Property or likely to lead to contamination of the Property. There were numerous other surrounding sites in the database report that were reviewed and the details for those sites can be found in the database report included in Appendix B.

Facility Name:	Dave Nathe Farm
Address:	14750 Bowers Drive, Ramsey, Minnesota 55303
Distance (feet) & Direction:	422 feet west
Hydrologic Position to the Property:	Side-gradient
Databases Listed:	LUAST, LUAST2016, WIMN
Comments:	Leak ID# 6487 listed as closed on 04/24/1996 and reported on 06/30/1993. Contaminated soils remaining are listed as unknown, offsite contamination is listed as unknown, groundwater contamination is listed as not reported and product released is listed as diesel.
Opinion:	This site is not considered a REC due to it's considerable distance away and in a hydraulically side-gradient position in relation to the Property.

It should be noted that this is a limited file search and does not include a complete review of all records and reports. However, the database report does contain a comprehensive listing of most sites that are known to be or are suspected to have environmental concerns. For this Phase I ESA, the database file search appeared to provide sufficient and current information on potential or reported environmental impacts at or near the Property. A detailed map and description of the facilities identified in the State and Federal databases are included in Appendix B.

*Links to description of codes can be found in the References Section 12.0 and described in the database report. Waste codes of F001, F002, D039 and D040 are associated with chlorinated solvents.

5.2.3 MPCA Institutional Controls

A list of sites in Minnesota that contain Institutional Controls was obtained from the MPCA. The Property is not included on this list, which is current up to January 2018 (Appendix D).

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Appendix E

Tree Survey Memorandum

Riverstone South EAW

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KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Providing Sound, Balanced, Comprehensive Natural Resource Solutions

Memorandum

Date: May 7, 2020

To: Tom Bakritges – Capstone Homes

From: Kyle Uhler – Kjolhaug Environmental Services Company
Mark Kjolhaug – Kjolhaug Environmental Services Company

For: Riverstone South Development Tree Survey Ramsey, MN

Riverstone South Development is located at 8846 Highway 10 NW Ramsey, MN (**Figure 1**) More specifically the project area contained PIDs: 30-32-25-11-0031, 30-32-25-11-0032, 29-32-25-22-0003, and 29-32-25-23-0004. The site covered approximately 110 acres and consisted of roughly 27 acres of woodland. The purpose of the Riverstone South tree survey was to inventory all significant trees on site. The Ramsey, MN Municipal Code of Ordinances Sec. 117-327 (C)(2) defines *Significant Trees:*

a. All species of oak that have a DBH of four inches or greater;
b. All evergreen species that have a DBH of four inches or greater; and
c. All other trees that have a DBH of eight inches or more;

This inventory defined the sites resource composition including species, diameter at breast height (DBH or 4.5' from the ground), and health condition. All trees on site were assessed and only significant trees were given a unique tag number and recorded. A list of identified significant trees and associated attributes is included in **Appendix A**. The sampled trees were located with a Trimble® R1 GNSS Receiver utilizing real-time differential corrections to obtain sub-meter accuracies.

Tree Inventory Results

Kjolhaug Environmental Services inventoried all significant trees at the Riverstone South Development site in Ramsey, MN April 13th through the 16th, 2020. The survey inventoried 2,305 significant trees within the project boundaries. The tagged tree locations are included in **Figure 2A-2E**. This inventory recorded 28 different species. Elm and oak trees combined account for 71.9% for all significant trees on site. Three species of elm trees were identified (*Ulmus Americana*, *Ulmus pumila*, and *Ulmus rubra*). The overlapping presentation between different species vegetative structures present reduced identification confidence to Genus level identification therefore all elm species sampled were combined into Ulmus spp. group. Hackberry trees were subdominant to elm and oak accounting for 12.4% of trees. All other tree

species totaled 15.7% of individuals sampled. The average DBH across all trees sampled was 14" with measurements ranging from 4"- 52". **Table 1** shows the observed tree species in order of prevalence by DBH class.

Table 1. Observed tree species in order of prevalence by DBH class (in) at Riverstone South site.

Species	4-8	8-12	12-18	18-24	24-30	30-36	36-42	>42	Total	% Total
Elm spp.	N/A	578	219	41	12	3	2	-	855	37.1
Bur oak	12	120	285	173	79	34	16	8	727	31.5
Hackberry	N/A	152	81	37	9	5	1	-	285	12.4
Boxelder	N/A	75	34	10	4	6	1	1	131	5.7
White oak	4	19	32	14	5	1	-	-	75	3.3
Green ash	N/A	29	14	8	1	-	1	-	53	2.3
Ironwood	N/A	22	14	2	-	-	-	-	38	1.6
White cedar	20	7	2	-	-	1	-	-	30	1.3
Eastern red cedar	11	9	4	1	-	-	-	-	25	1.1
Black cherry	N/A	15	5	2	1	-	-	-	23	1
American basswood	N/A	10	3	1	2	-	-	-	16	0.69
Sugar maple	N/A	5	2	2	-	-	-	-	9	0.39
Norway spruce	-	1	3	2	-	-	-	-	6	0.26
Scots pine	-	3	3	-	-	-	-	-	6	0.26
Apple spp.	N/A	1	3	1	-	-	-	-	5	0.22
Colorado spruce	-	1	4	-	-	-	-	-	5	0.22
Northern catalpa	N/A	3	-	-	-	-	-	-	3	0.13
Red oak	-	2	-	1	-	-	-	-	3	0.13
Black walnut	N/A	1	1	-	-	-	-	-	2	0.08
Plains cottonwood*	N/A	-	-	-	-	-	-	2	2	0.08
Balsam fir		-	1	-	-	-	-	-	1	0.04
Red maple	N/A	-	1	-	-	-	-	-	1	0.04
Honey locust	N/A	1	-	-	-	-	-	-	1	0.04
White spruce	-	-	1	-	-	-	-	-	1	0.04
Red pine	-	-	1	-	-	-	-	-	1	0.04
White swamp oak	-	-	1	-	-	-	-	-	1	0.04
Total	47	1054	714	295	113	50	21	11	**2305**	100

*Largest DBH recorded was a Plains Cottonwood at 52"

DBH was mapped by density for the three most prevalent trees species (elm spp., bur oak, and hackberry) and is included in **Figure 3A-3C**. Although elm trees accounted for the greatest number of individuals sampled on site bur oaks accounted for ~50% of the total basal area. A list of observed species by total basal area is included in **Appendix B**.

Trees were overall healthy with approximately 94% of trees sampled had a health scored greater or equal to 75% or "Good" condition. **Table 2** below shows tree health condition of the three most common species.

Table 2 Health conditions for Elm spp., Bur Oak, and Hackberry trees at Riverstone South

Health Condition (%)	**Dead/Dying 0-25**	**Poor 25-50**	**Fair 50-75**	**Good 75-100**
Elm spp.	8	8	19	820
Bur Oak	8	10	38	671
Hackberry	0	1	1	283
Percent of Total	0.9	1	3.1	95

Health condition was mapped by density of "Good" specimens for all significant trees located and is included in **Figure 4**.

Conclusion

The Riverstone South tree survey inventoried 2,305 trees on site. Oaks trees accounted for approximately half of the basal area on site.

Thank You

Riverstone South

Tree Survey

FIGURES

1. Site Location
2. Tree Location
3. Tree Density
4. Healthy Tree Density

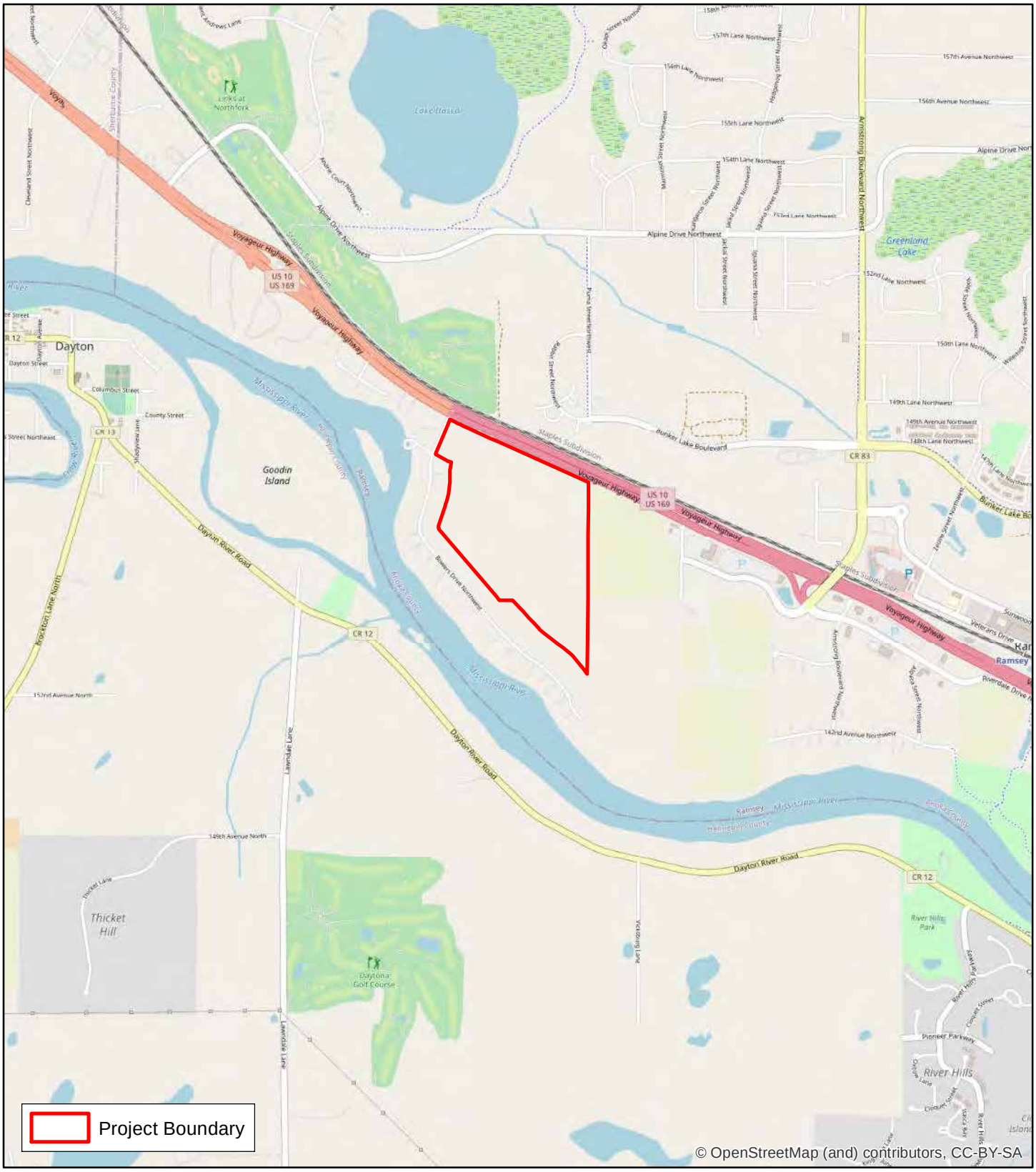

Figure 1 - Site Location

N

0 2,000 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: ESRI Open Street Map

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

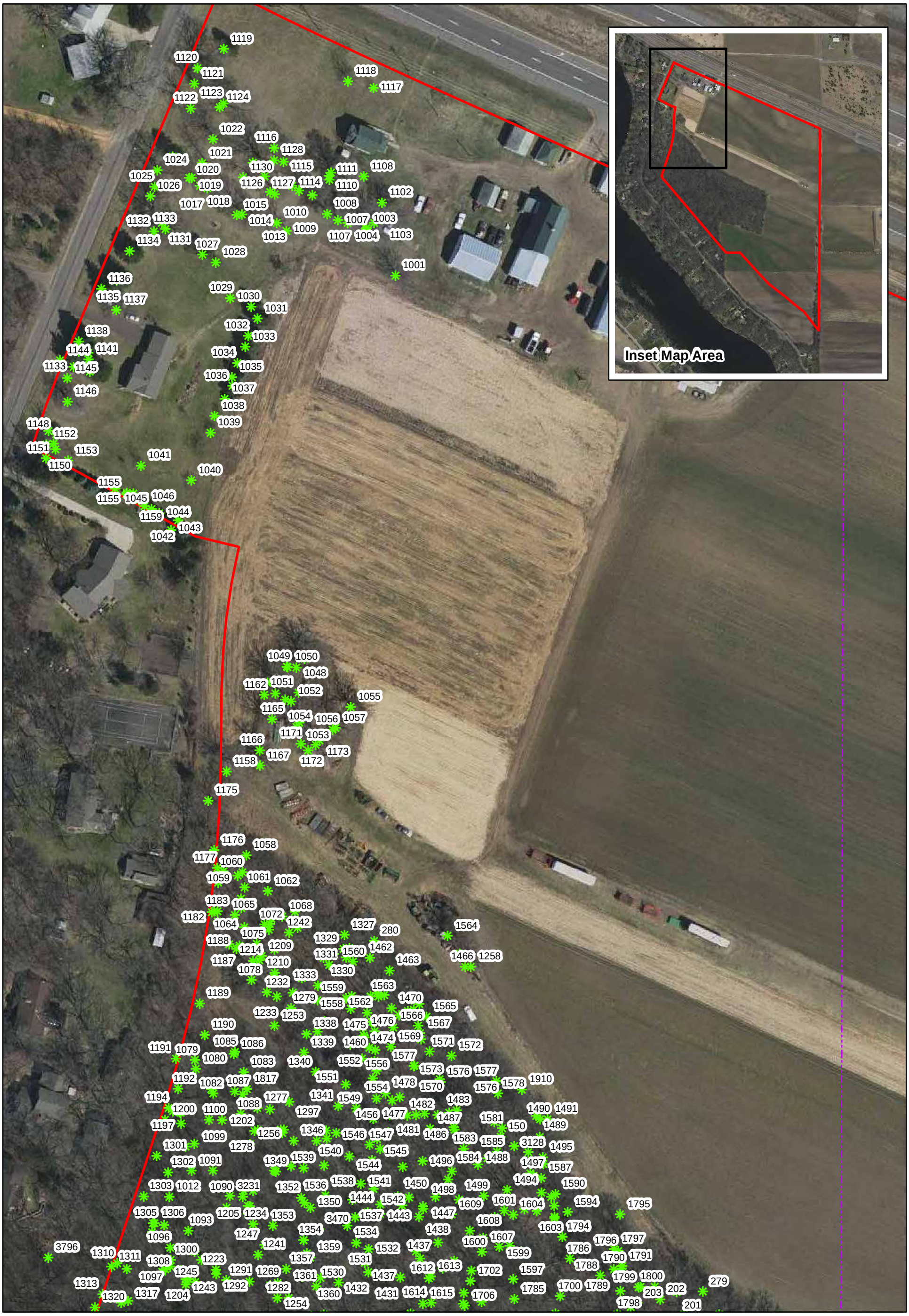

Figure 2A - Tree Location (2016 MnGeo Imagery)

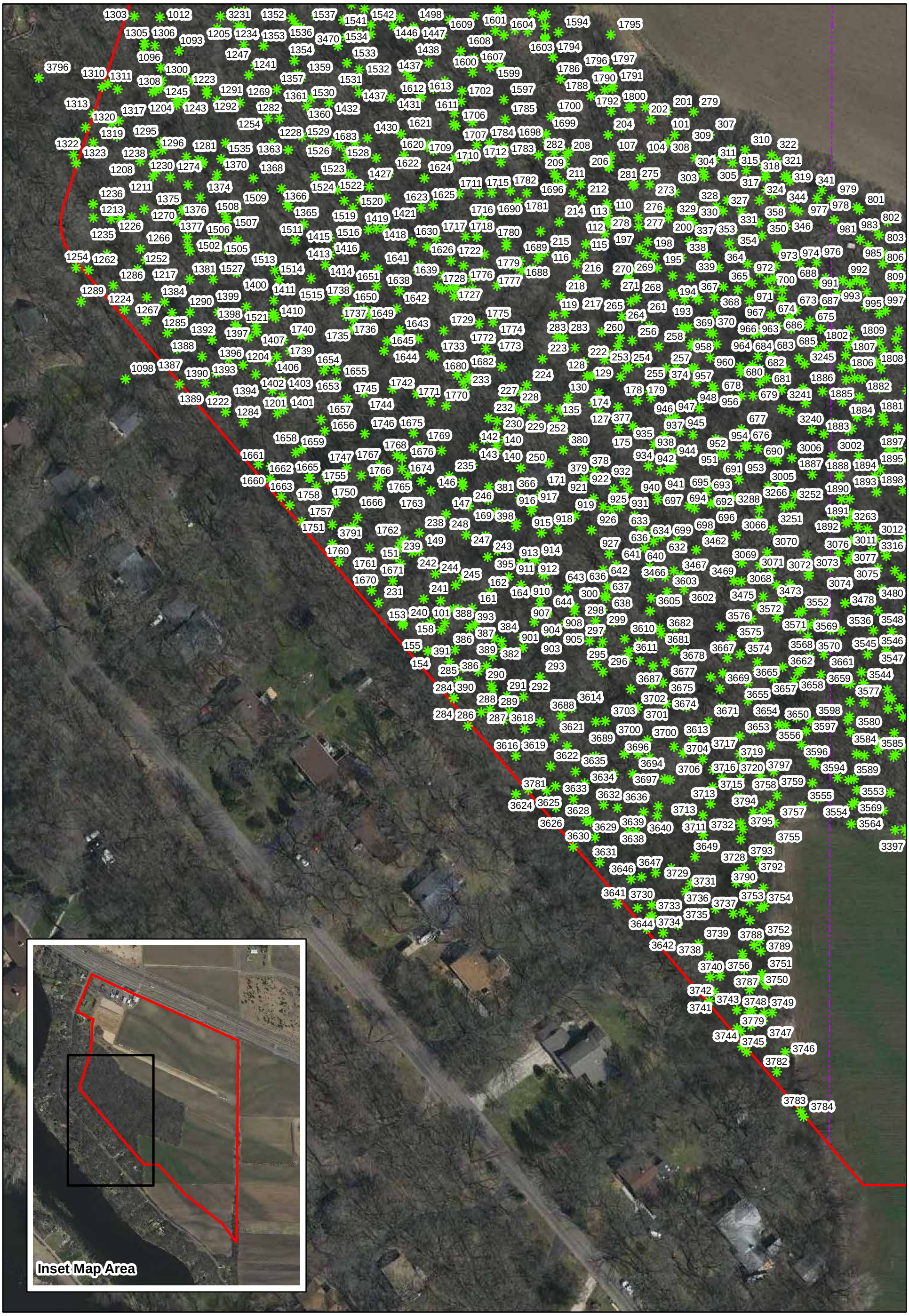

Figure 2B - Tree Location (2016 MnGeo Imagery)

N

0 100 Feet

Source: MNGEO Spatial Commons

Tree location

Project Boundary

Mississippi Critical Area

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

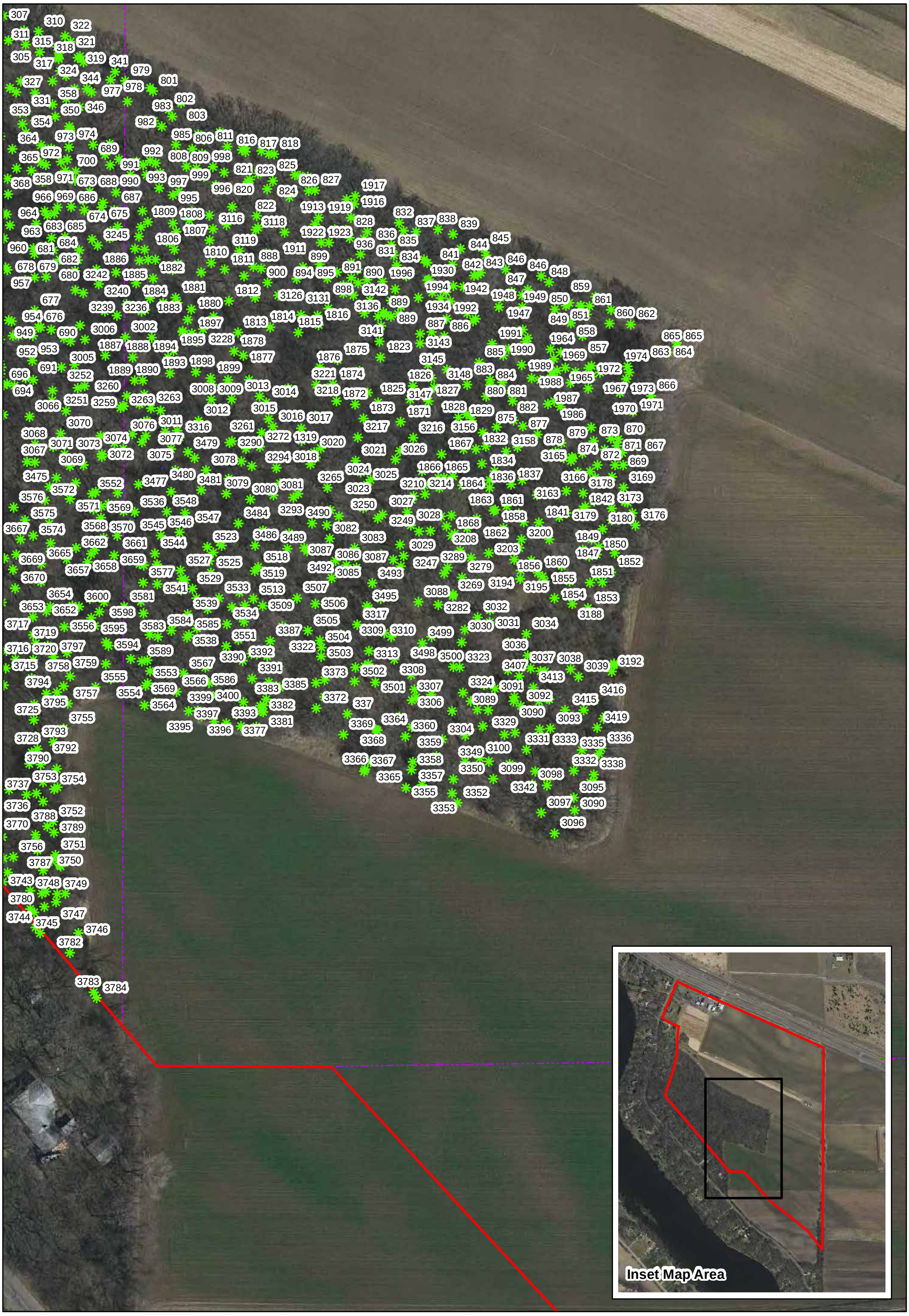

Figure 2C - Tree Location (2016 MnGeo Imagery)

N

0 100 Feet

Source: MNGEO Spatial Commons

Tree location

Project Boundary

Mississippi Critical Area

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

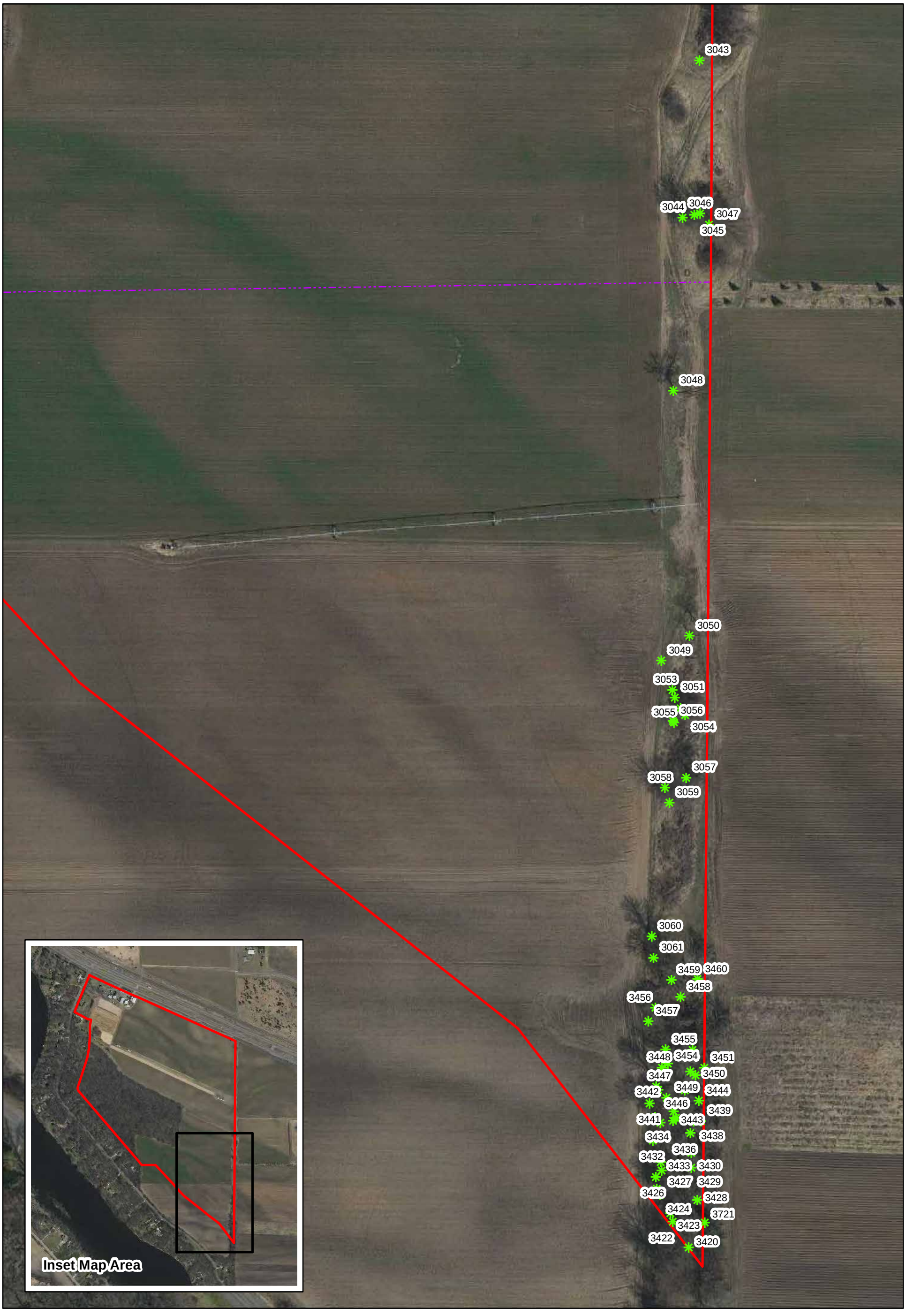

Figure 2D - Tree Location (2016 MnGeo Imagery)

N

0 100 Feet

Source: MNGEO Spatial Commons

Tree location

Project Boundary

Mississippi Critical Area

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

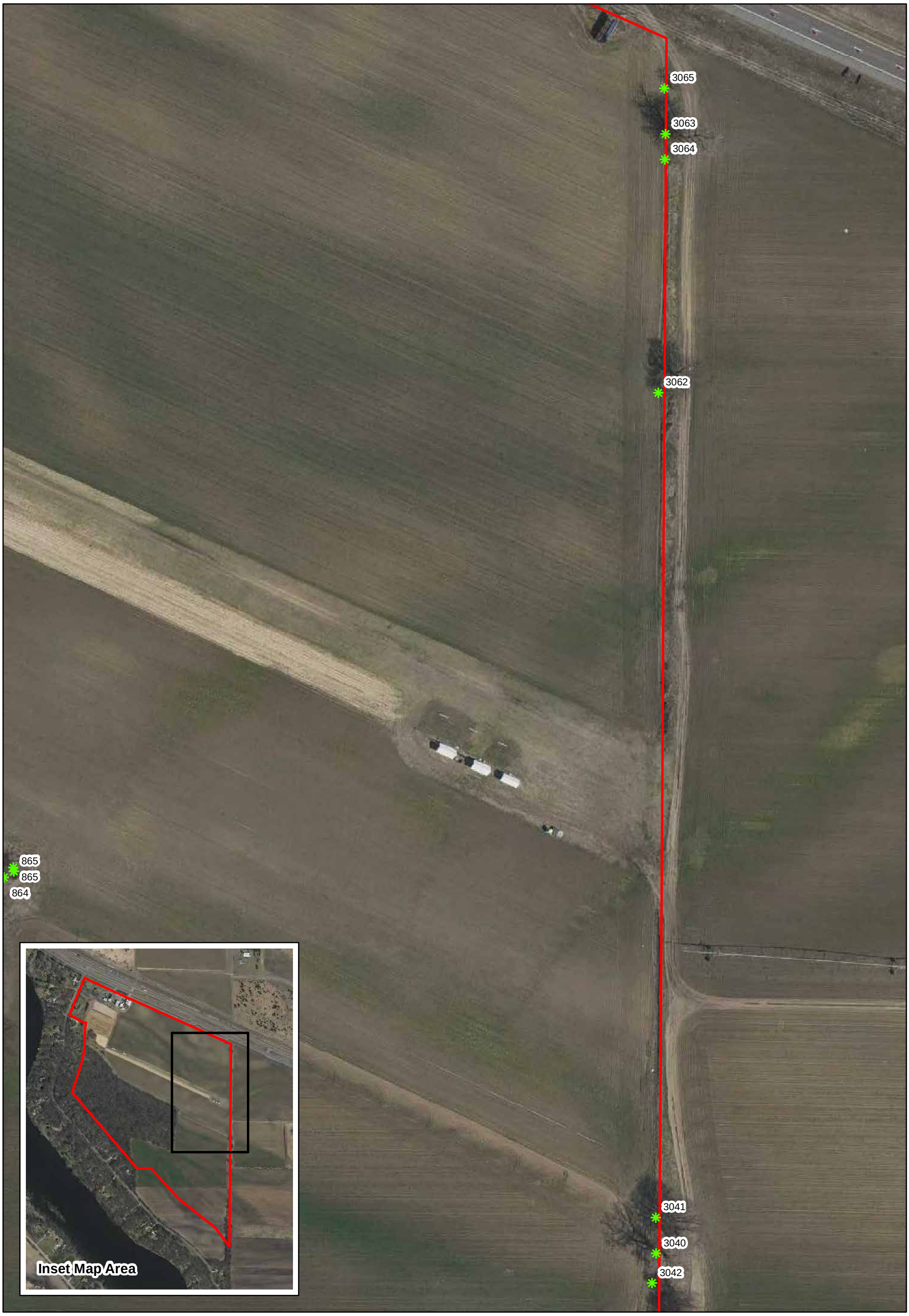

Figure 2E - Tree Location (2016 MnGeo Imagery)

N

0 100 Feet

Source: MNGEO Spatial Commons

Tree location

Project Boundary

Mississippi Critical Area

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

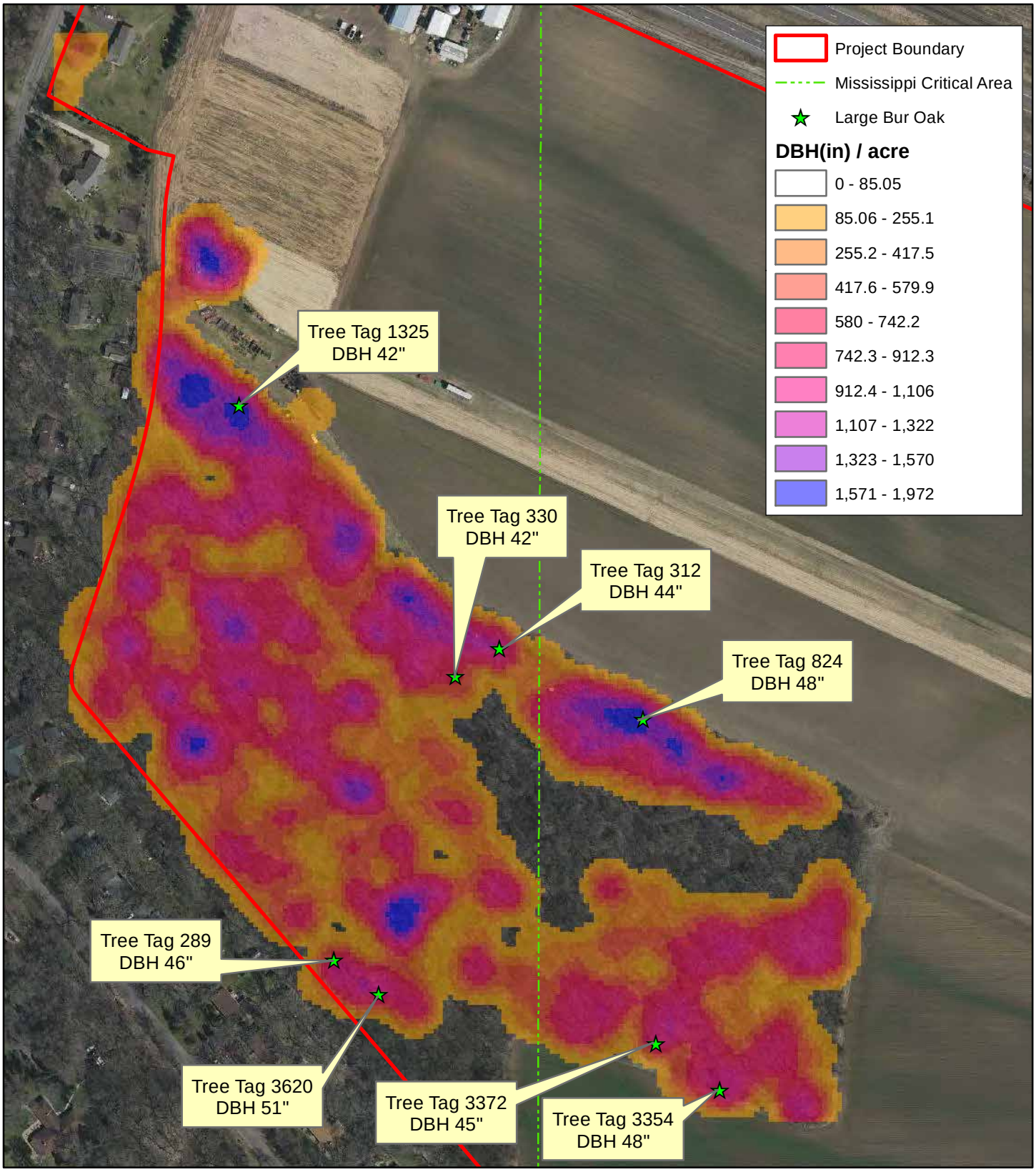

Figure 3A - Oak Density (2016 MnGeo Imagery)

N

0 250 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

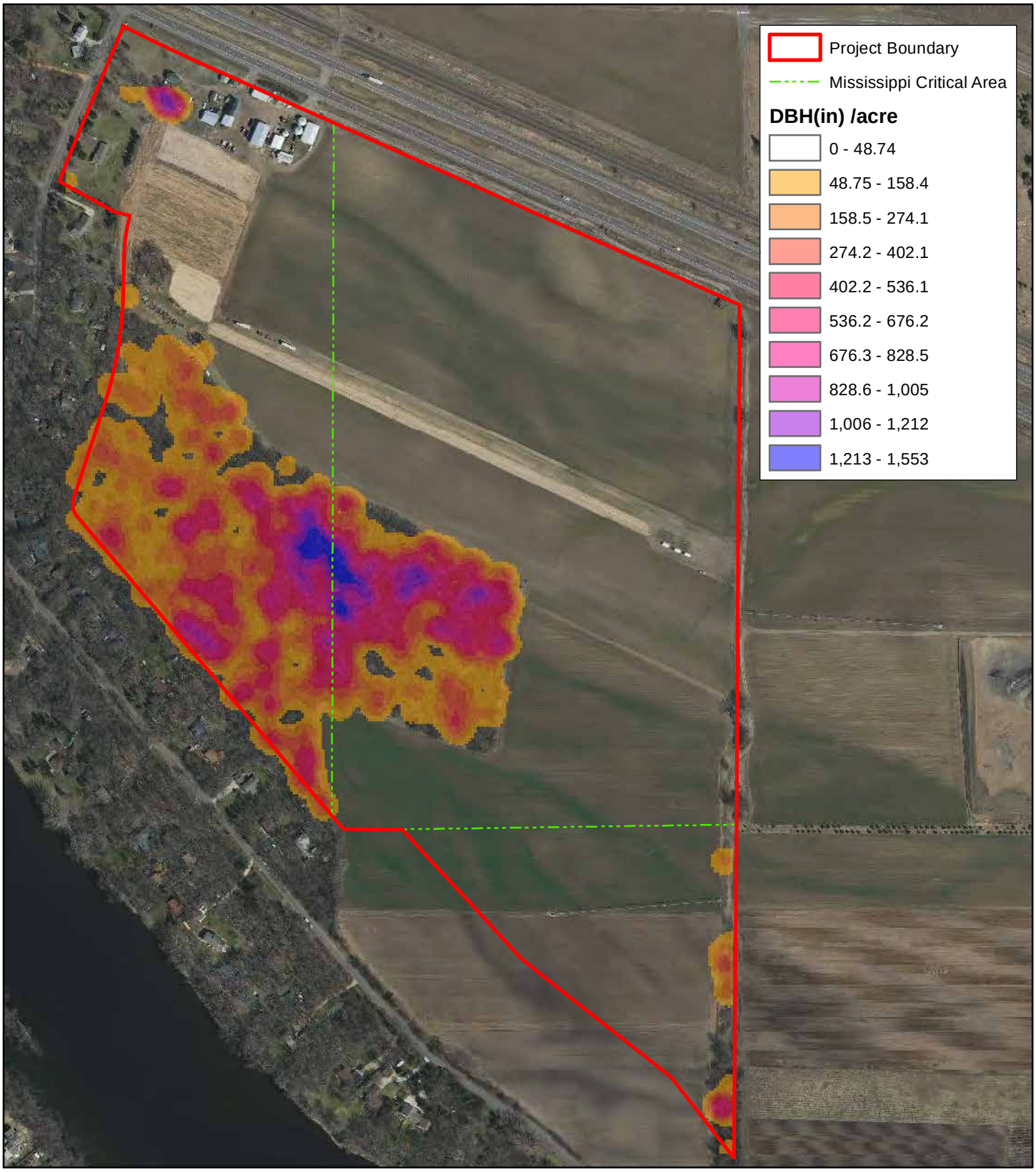

Figure 3B - Elm Density (2016 MnGeo Imagery)

N

0 450 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

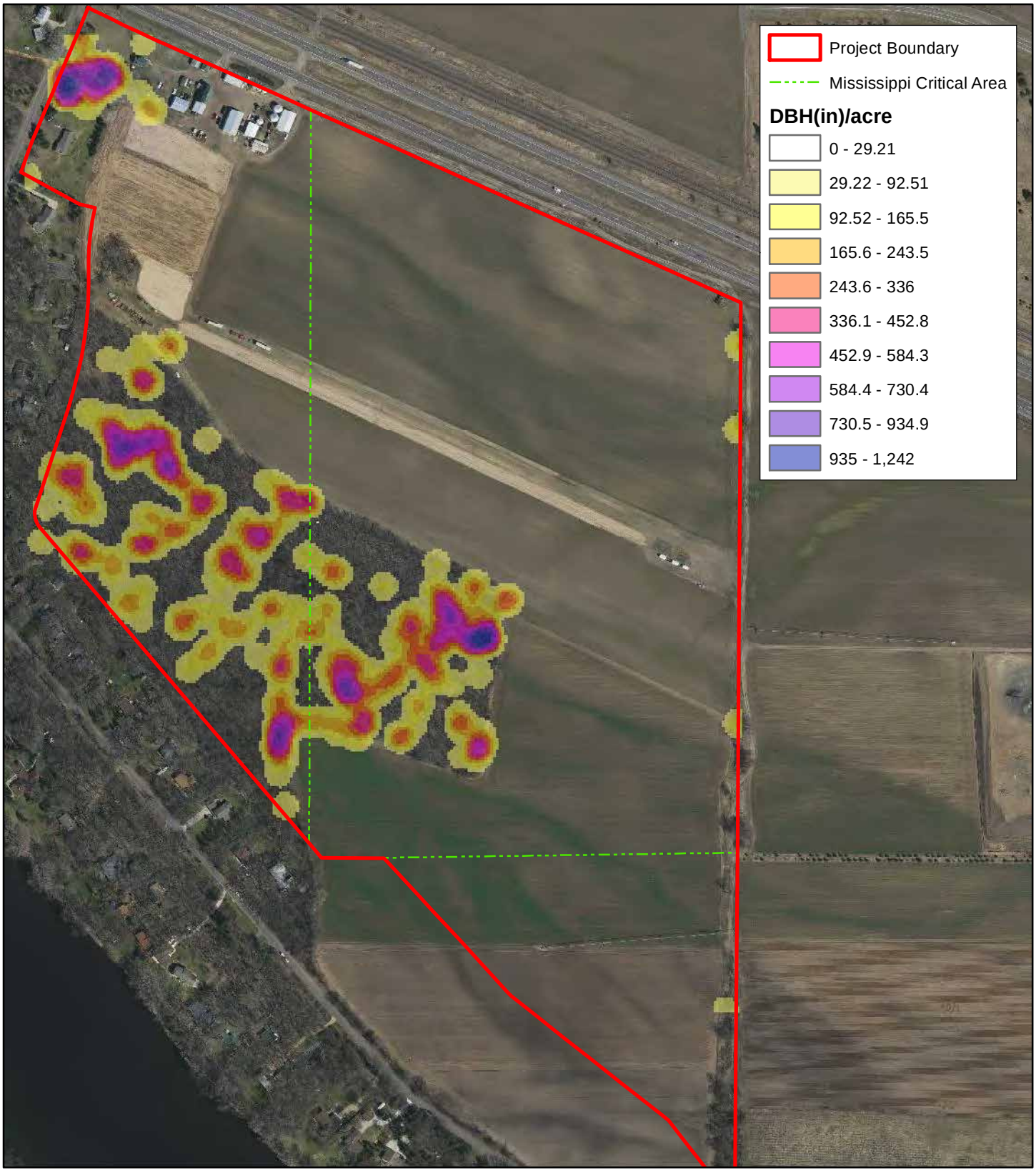

Figure 3C - Hackberry Density (2016 MnGeo Imagery)

N

0 425 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

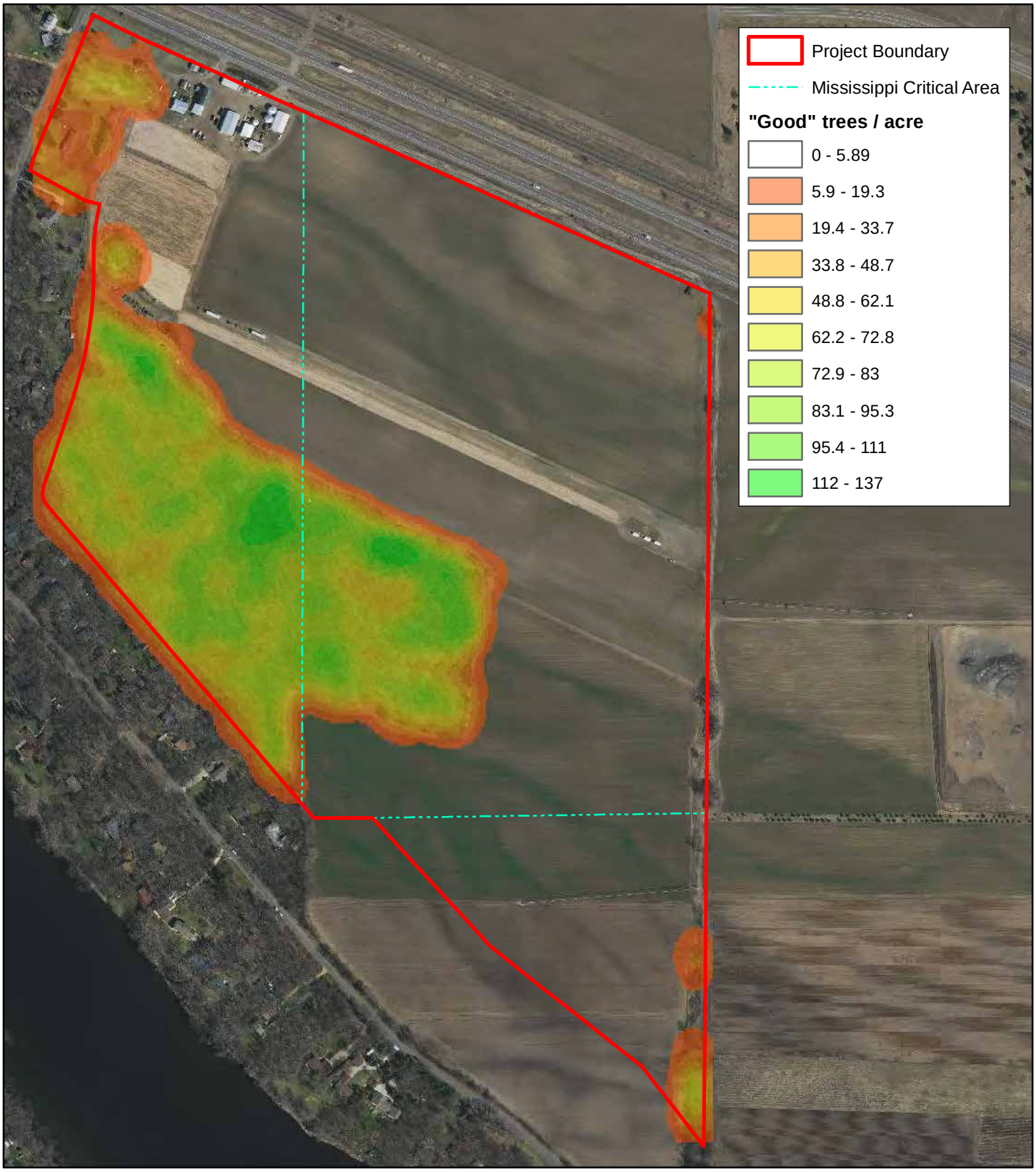

Figure 4 - Healthy Tree Density (2016 MnGeo Imagery)

N

0 450 Feet

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

Riverstone South Tree Survey (KES 2020-017)
Ramsey, Minnesota

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

Appendix F
Phase I Archaeological Survey Report

Riverstone South EAW

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Phase I Archaeological Survey of Proposed Housing Development in Ramsey, Anoka County, Minnesota

Principal Investigator:
Jeremy L. Nienow, Ph.D.
Nienow Cultural Consultants LLC
Registered Professional Archaeologist #12071

Report Author:
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Zooarchaeo Consulting, LLC
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Final Report
October 27, 2020

Phase I Archaeological Survey of Proposed Capstone Homes Housing Development in Ramsey, Anoka County, Minnesota

Submitted To:

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Submitted By:

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Registered Professional Archaeologist #12071

Report Author:

Laura Koski, MSc
Zooarchaeo Consulting, LLC
Registered Professional Archaeologist #18060

Final Report
October 27, 2020

Management Summary

Capstone Homes is proposing to build a residential development in the City of Ramsey, Anoka County, Minnesota. The project area, approximately 78.63 acres in size, is located in the E ½ of Section 30 and W ¼ of Section 29 of Township 32N, Range 25W in Archaeological Region 4e: Central Lakes Deciduous East. Historically and recently the majority of the project area was cultivated with a long wooded patch along the southwestern edge. The project area is bordered by Highway 10 approximately 500 feet to the north, the Mississippi River approximately 600 to 700 feet to the south, Bowers Drive approximately 200 feet to the west, and a solar farm on the east. Planned development includes a tree preservation area within the existing stretch of woods, 243 detached residential units, residential streets, and single-acre public park at the center.

Nienow Cultural Consultants LLC (NCC) was contracted to complete a Phase I Archaeological Survey in October of 2020. NCC's Principal Investigators for this project were Jeremy Nienow, PhD., RPA, who is licensed for Phase I archaeological work in Minnesota (20-042, Appendix A), and Laura Koski, MSc, RPA. Work began with a literature review October 7 followed by fieldwork completed October 9, 14-15, 2020. Fieldwork consisted of surface survey of corn fields and a cabbage and pumpkin patch, and shovel testing of the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on a maximum of a five-meter interval. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test. No prehistoric cultural materials were encountered. Recent historic materials (i.e. shotgun shells, whiteware sherds) and modern debris (i.e. plastics, aluminum cans) were encountered, but not collected.

Shovel test profiles documented consistent ancient floodplain soils. No prehistoric cultural material or archaeological features were identified during the field survey. Based on these results, Nienow Cultural Consultants recommends no further archaeological work be completed, and the project continues as planned. With any project there is the chance of unanticipated discovery. Should archaeological materials surface during any future construction, it is advised a professional archaeologist be consulted. Minnesota Statute 307.08 protects unplatted cemeteries (including burial mounds) and issues guidelines for dealing with unexpected finds. Should human remains be encountered during earth moving activity, all work must stop and local law enforcement must be called.

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1.0 INTRODUCTION

Capstone Homes is proposing to build a residential development in the City of Ramsey, Anoka County, Minnesota. The project area, approximately 78.63 acres in size, is located in the E ½ of Section 30 and W ¼ of Section 29 of Township 32N, Range 25W in Archaeological Region 4e: Central Lakes Deciduous East (Figure 1). Historically and recently the majority of the project area was cultivated with a long wooded patch along the southwestern edge. The project area is bordered by Highway 10 approximately 500 feet to the north, the Mississippi River approximately 600 to 700 feet to the south, Bowers Drive approximately 200 feet to the west, and a solar farm on the east. Planned development includes a tree preservation area within the existing stretch of woods, 243 detached residential units, residential streets, and single-acre public park at the center (Figure 2).

Nienow Cultural Consultants LLC (NCC) was contracted to complete a Phase I Archaeological Survey in October of 2020. NCC's Principal Investigators for this project were Jeremy Nienow, PhD., RPA who is licensed for Phase I archaeological work in Minnesota (20-042, Appendix A), and Laura Koski, MSc, RPA. NCC subcontracted six individuals to assist in completing research, fieldwork, and lab processing for the project: Alexandra Hedquist (Hedquist Archaeological Consulting, LLC), Anastasia Walhovd (Makoons Consulting, LLC), Chris Rico (Rico Cultural Resource Management Services, LLC), Fred Sutherland (Sutherland Relics and Rust LLC), John Strot (John's Archaeological Consulting), and Laura Koski (Zooarchaeo Consulting). The investigation was guided by the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48FR44716), the State Historic Preservation Office's (SHPO) Manual for Archaeological Projects in Minnesota (Anfinson 2005), and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Minnesota Office of the State Archaeologist 2011). Research and report preparation were accomplished by professional archaeologists meeting the standards set forth in 35CFR61.

Work began with a literature review October 7 followed by fieldwork completed October 9, 14, and 15, 2020. Fieldwork consisted of surface surveying corn fields, a cabbage, and pumpkin patch, and shovel testing the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on four to five-meter intervals. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test. No prehistoric cultural materials were encountered. Recent historic materials (i.e. shotgun shells, whiteware sherds) and modern debris (i.e. plastics, aluminum cans) were encountered, but not collected.

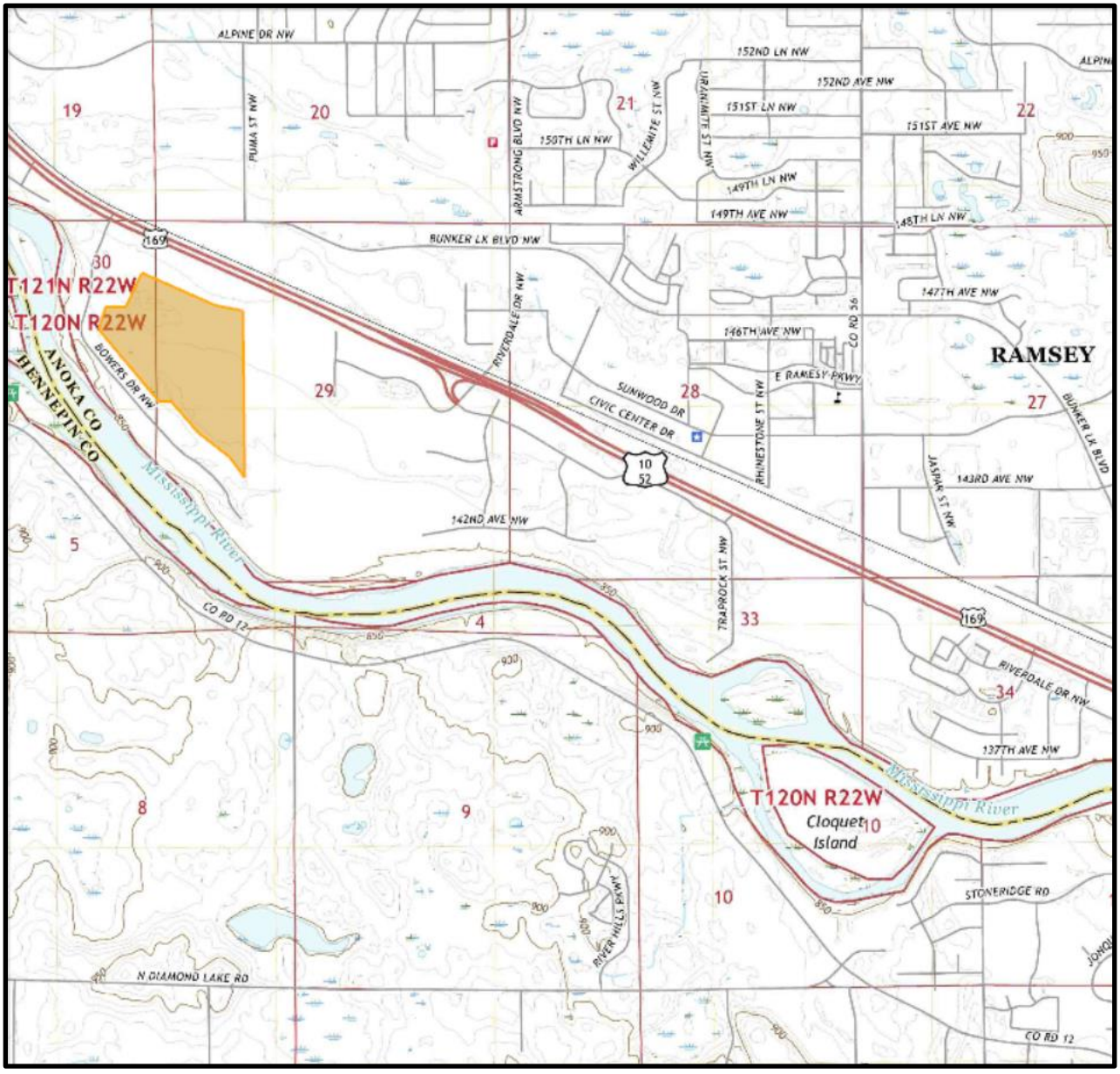

Figure 1: USGS Topographic Map Illustrating Project Area (orange polygon).
(USGS 7.5' Topographic Map, Anoka Quadrangle, 2019, 1:24,000)

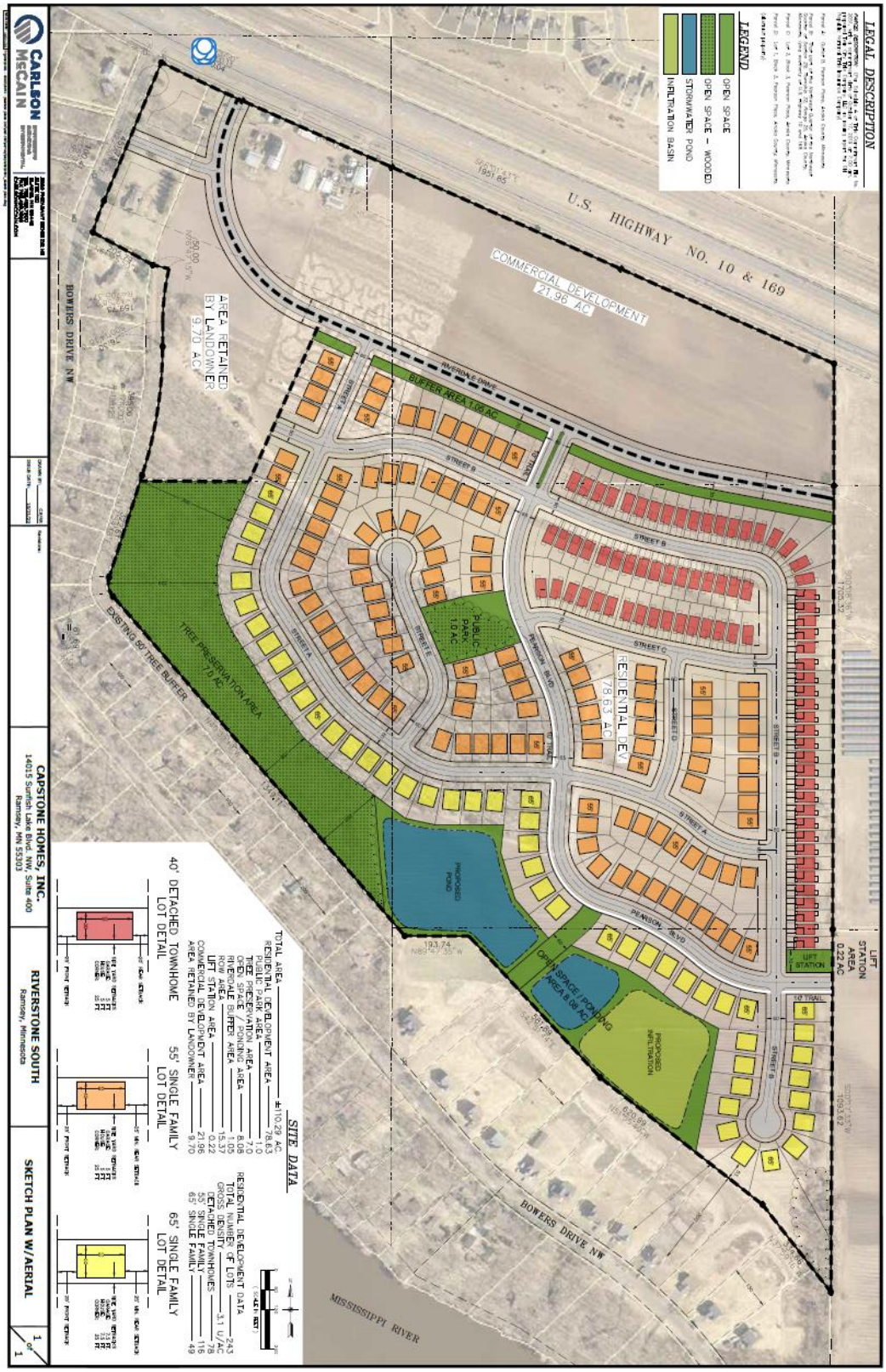

Figure 2: Engineering Sketch Plan of Project Area.
(Provided by Capstone Homes, Inc.)

2.0 RESEARCH DESIGN AND METHODOLOGY

2.1 Literature Review

A literature review was completed on October 7, 2020. Typically, the literature review would be completed by visiting the Office of the State Archaeologist and the State Historic Preservation Office. Unfortunately, both of these offices were closed due to safety precautions surrounding SARS-CoV-2 spread prevention. Instead, previously identified archaeological sites were noted for a two-mile radius surrounding the project area using the online Minnesota Office of the State Archaeologist archaeological sites portal (OSA Portal). In addition, the Township/Range/Sections within the two-mile radius were sent to the State Historic Preservation Office to generate an internal database search. The Township/Range/Section search did not yield any additional sites not included on the OSA Portal. Archaeological survey reports from nearby sites were also requested to determine whether survey had already been completed within the project area. All resulting previously identified sites and requested surveys were reviewed as a part of this project.

2.2 Fieldwork

Fieldwork was completed on October 9, 14, and 15, 2020. Fieldwork included surface survey and shovel testing within the project area (Figure 2). Surface surveyed areas consisted of cultivated corn fields, a cabbage patch, and a pumpkin patch. Ground visibility in all surface-surveyed areas ranged between 0 and 80% (see Appendix B for example surface visibility photographs). These areas were surface surveyed on a four to five-meter interval between cultivated rows. Considering the wooded area contained dense vegetation and fallen leaves preventing surface survey, along with the fact this area lies closest to the Mississippi and is therefore the most likely location within the project area to contain prehistoric cultural materials, the wooded area was tested in three shovel test transects. The first transect was laid in on a 15-meter interval, approximately 15-meters northeast and parallel to the southwestern project boundary. The second transect was laid in 30-meters northeast of and parallel to the first, but considering the negative tests in the first transect, and the clearly documented ancient floodplain soils, shovel tests in this transect were excavated on a 30-meter interval. A third transect was placed on a ridge along the northwestern edge of the wooded area with the intent of targeting what was in the past a high point along the historic Mississippi River's edge. Fifty-two shovel tests were excavated in total. Shovel tests were typically 35-40 centimeters (cm) wide and at least 100cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test.

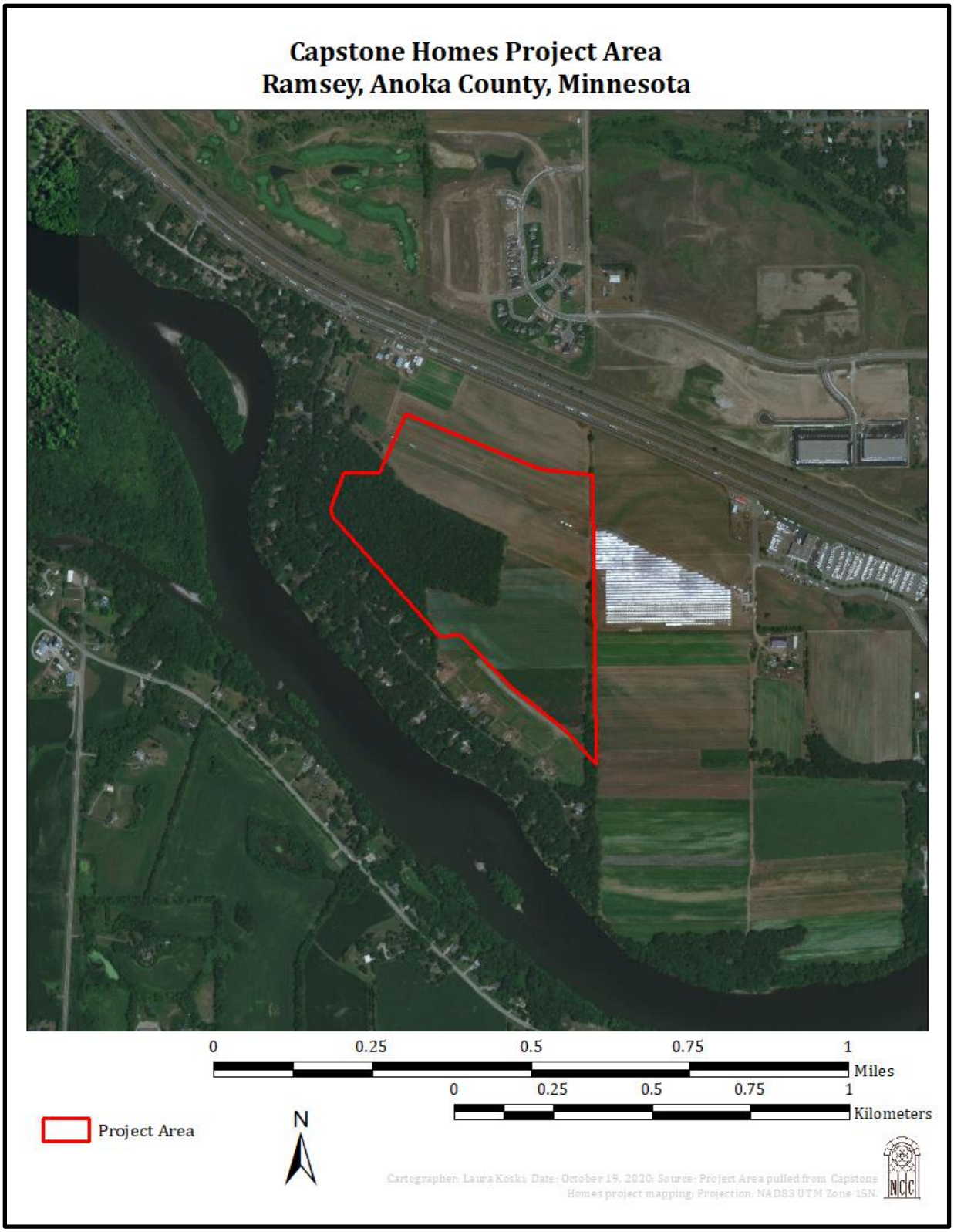

Figure 3: Illustration of Project Area Boundary (red border).
(Basemap provided by 2016 Google Satellite Imagery)

3.0 ENVIRONMENTAL SETTING

3.1 Geological Background and Soils

In his 1990 publication *Archaeological Regions in Minnesota and the Woodland Period,* former State Archaeologist Scott Anfinson divides the state of Minnesota into nine environmental-archaeological regions based on natural resources available within each region. This classification allows archaeologists to research and analyze prehistoric environments in the state, as well as predict where archaeological sites may be located.

The Capstone Homes Development project area falls within the southeastern portion of Anfinson's region 4e: Central Lakes Deciduous East Sub-Region. The region sits within east-central to central Minnesota, spanning Dakota to Becker Counties. Topographically, the region consists of a mixture of moraines, till plains, and outwash plains, and is heavily spotted with lakes, some over 30 meters (m) deep. Major rivers include the Mississippi and Minnesota Rivers flowing along the western boundary of the region, and the St. Croix River along the region's eastern boundary. Streams draining the western part of the region flow in a western direction to the Red River (Anfinson 1990). River formation was the result of a complex glacial history including several episodes of advancing and retreating glacial lobes.

The Central Lakes Deciduous East Sub-Region is located directly west of the Mississippi River, but could arguably incorporate portions of western Wisconsin. The regional topography consists of moraines, glacial till, and outwash plains, as well as a large variety of lakes, streams, and wetlands (Gibbon et al. 2002). Average precipitation ranges from 21 to 32 inches (Grimes 1968). Average high winter temperatures range from 12 to 24 degrees Fahrenheit (F) while average high summer temperatures range from 78 to 82 degrees F. The frost-free season ranges from 140 to 160 days (Gibbon et al. 2002).

Soils in the region reflect a diverse history of glacial and vegetation activity. Soil texture ranges from medium to course, with prairie soils more commonly found in the southern and western portions of the region and forest soils found mostly in the north and east portions (Anfinson 1990). Bedrock outcrops are mainly located along the region's central and eastern edge, and are comprised of mainly granite outcroppings along river banks (Gibbon et al. 2002).

All soil source material was deposited during the Wisconsin stage of the Pleistocene epoch. Two main types of glacial drift were deposited over the county when the Superior Lobe retreated from the area around 13,500 years ago. The Superior Lobe, which flowed into the area from the north, deposited coarse textured material, reddish brown in color, with pebbles of basalt, gabbro, and red sandstone. At a later date, the Grantsburg Sub-lobe, an extension of the Des Moines Lobe, advanced into Sherburne County. This lobe brought in what is commonly called "gray till" or "buff till." During the retreat of the Grantsburg Lobe around 12,500 years ago, the ice stagnated in the northern and eastern parts of the county and melt water left intermixed outwash gravel and sand from both of the previous lobes. Additionally, when the Grantsburg Lobe retreated westward, it uncovered the Mississippi Valley, and melt water from the wasting Des Moines Lobe filled the

valley throughout the county with coarse alluvium, which underlies two broad terraces parallel to the Mississippi River, an example of which is notable in the Capstone Homes project area. The sand in these areas are course in texture near the river and become increasingly finer in texture the further the distance from the river. In various places, it is underlain by strata of calcareous gravel, which was representative of what was found during the current archaeological survey (Grimes 1968).

The project area is comprised of Hubbard loamy sand ranging between 0 to 2 percent and 2 to 12 percent slopes, Dickman sandy loam ranging between 0 to 2 percent and 2 to 6 percent slopes, and Nymore loamy coarse sand on 12 to 25 percent slopes. The Hubbard loamy sand series consists of excessively drained sandy floodplain outwash found on stream terraces and hillslopes. The typical soil profile for the series consists of loamy sand from 0 to 20 centimeters, loamy sand from 20 to 50 centimeters, loamy sand from 50 to 82 centimeters, and sand from 82 to 200 centimeters. The Dickman sandy loam series consists of somewhat excessively drained floodplain outwash found on stream terraces. The typical soil profile for the series consists of sandy loam from 0 to 30 centimeters, sandy loam from 30 to 45 centimeters, and sand from 45 to 152 centimeters. The Nymore loamy coarse sand series consists of excessively drained floodplain outwash found on stream terraces. The typical soil profile for the series consists of loamy coarse sand from 0 to 18 centimeters, loamy sand from 18 to 66 centimeters, and sand from 66 to 152 centimeters (NRCS 2020).

3.2 Regional Flora and Fauna

Vegetation in the area at the time of Euro-American settlement consisted of Big Wood species in both the south and west portions of the region. Most specifically, the trees were deciduous hardwood species, primarily oak, mixed with deciduous-coniferous forest in the northern part of the region (Anfinson 1990) which also contained maple, basswood, and hickory. As Euro-American settlers moved through the area and cleared portions of forest, prairie land became more abundant. White-tailed deer, bison, elk, beaver, bear, prairie chickens, and a variety of fish and waterfowl would have been commonly available resources (Anfinson 1990). Specific to the site area, the majority of the trees on the sand plain consisted of bur oak and northern pin oak, as well as mixed hardwoods which grow in areas of glacial till, specifically in the areas where the Hayden soil series is prominent (Grimes 1968). Large areas of hardwoods invaded areas of native grasses in the outwash plains along the Mississippi River. The Hubbard series discussed above developed in these areas.

4.0 CULTURAL HISTORY

The Minnesota State Historic Preservation Office (SHPO) has developed statewide contexts examining Minnesota's Prehistoric through recent past. These contexts are laid out on the Minnesota Archaeological Site Form (Minnesota Office of the State Archaeologist 2016). Generally, they describe the history of the state and assist in predicting where specific types of sites may occur.

Native American contexts are commonly divided into three major traditions: Paleoindian, Archaic, and Woodland. Late Woodland is further subdivided into Plains Village, Mississippian, and Oneota Traditions. These divisions are based on significant changes in how these communities lived, with a special focus on subsistence strategies. Historic contexts are generally divided into Contact and Post-Contact periods. The Contact period begins with early European exploration and continues through the Post-Contact period including Euro-American settlement and Minnesota statehood. The following is a general summary of these traditions using the Author's general knowledge and various disseminated sources for information including the OSA's website, Elden Johnson's 1988 *The Prehistoric Peoples of Minnesota*, Gibbon and Anfinson's 2008 *Minnesota Archaeology: The First 13,000 Years*, and Gibbon's 2012 *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region*.

4.1 Pre-Contact Period

4.1.1 Paleoindian Tradition (11,500 to 7,500 B.C.)

The Paleoindian Tradition in Minnesota is divided into two periods: Early Paleoindian and Late Paleoindian/Early Archaic (Gibbon and Anfinson 2008). Throughout the Paleoindian, Native American communities were small, mobile, and focused on hunting. However, between the early and late periods, the environment and available food resources changed dramatically. The beginning of the Early Paleoindian Tradition is characterized by retreat of glacial ice and the growth of spruce forests. During this time, now extinct megafauna like mastodon, mammoth, and large bison were available for hunting. The Early Paleoindian period is poorly understood in Minnesota because most evidence for Paleoindian lifeways comes from isolated finds of large fluted projectile points (Gibbon and Anfinson 2008). Based on more plentiful sites in the southeastern and southwestern portions of the United States, it is generally assumed Native American populations were small, consisting of highly-mobile hunters and foragers who followed large game throughout the landscape (Gibbon and Anfinson 2008).

By the Late Paleoindian period, modern vegetation zones had established themselves in Minnesota. Modern animal species like white tail deer, grouse, and fish were available for Native American communities to hunt and fish. Lithic tool evidence from Late Paleoindian sites in Minnesota take the form of stemmed rather than fluted points and a wider range of tool types including groundstone tools (Gibbon and Anfinson 2008). Again, lifeways during this time are poorly understood, but based on three well-documented sites found in Minnesota (Cedar Creek-21AK58, Bradbury Brook-21ML42, and Browns Valley-21TR5), communities are still small, highly-mobile and focused on hunting larger animals and foraging for wild plants. However, stone toolkits did diversify and communities began exploiting smaller territories. It is also likely populations started to increase (Gibbon and Anfinson 2008).

4.1.2 Archaic Tradition (7,500 to 800 B.C.)

The Archaic Tradition continues the trend of resource diversification started in the Late Paleoindian period. Native American communities developed broader toolkits, used a wider array of foods, and became less mobile over the course of the Archaic. Additionally, by the end of the Archaic, communities were using communal burial sites. Stemmed and notched points, groundstone tools, particularly those for woodworking, and cold-hammered copper tools are hallmarks of the Archaic Tradition in the archaeological record (Anfinson 1997; Gibbon and Anfinson 2008). By the end of this period the climate shifted to a cooler, wetter pattern up until the strong, human-driven, warmer climates of the modern era. Resource gathering technologies during the Archaic included the aforementioned hunting, as well as trapping, fishing, foraging, woodworking and plant processing. Many of the larger, documented sites in the central portion of the state likely began during the end of this period.

4.1.3 Woodland Tradition (800 B.C. to European Contact)

In the Midwest region, archaeologists tend to divide the Woodland Tradition into three periods: Early, Middle, and Late. However, Anfinson (1987) and Gibbon (2012) suggest in Minnesota it is more appropriate to divide the era into Initial and Terminal Woodland periods. This view is not as widespread as research would at first suggest, with work including Arzigian's *Statewide Multiple Property Documentation Form for the Woodland Tradition* (2008), and Buhta et. al. *On the Periphery?: Archaeological Investigations of the Woodland Tradition in West- Central Minnesota* (2014), retaining the more traditional use of Early, Middle, and Late designations. Beginning approximately 2,800 years ago, peoples in the region experienced increases in population with the advent of first horticultural and then agricultural subsistence strategies to augment already extant systems of hunting, gathering, etc. As populations increased, settlements near favorable transportation and resource corridors shifted from seasonal to year-round occupations as they made forays to collect necessary resources (Johnson 1988; Anfinson 1987:222).

The period also witnessed the technical transition from spear/atlatl to bow and arrow weaponry useful for both hunting and warfare. This change in technology lead to the use of smaller projectile points or arrow heads. Similarly, the period also saw the invention of ceramic vessels and it is these vessels and their change over time, from thick walled, grit tempered, conoidal vessels, to thinner walled, shell tempered, globular vessels, which has greatly assisted the archaeological community in further refining their understanding of group identity, cohesion, and integration throughout the region. Indeed, there are more than ten major recognized ceramic complexes for the state with many temporal overlaps, often based more on location than visual representation. A final example representing not only identity and permanence on the landscape, but also religious practices, was the use of earthen burial mounds. Although community size was likely similar between the Early Woodland and Late Archaic periods, by the Late Woodland period, populations were certainly on the rise.

4.2 Contact/Post-Contact Period (1630 A.D. to Present)

This period generally refers to the span of time extending from the first European explorations until intensive Euro-American settlement of the region. Minnesota's historic period began in 1673 when French explorers Marquette and Joliet discovered the upper portion of the Mississippi River. Ten years later, Catholic Missionary Father Louis Hennepin told his story of exploring Minnesota and being held captive by Dakota Indians in the first book written about Minnesota, *Description de la Louisiane* (Hennepin 1683).

The territory containing modern-day Minnesota was claimed at various periods of time by Spain, France, Great Britain, and the United States. Lieutenant Zebulon Montgomery Pike led the first United States expedition through the area in 1805, which would ultimately become Minnesota in 1858. Fort St. Anthony (later Ft. Snelling) was completed between 1819 and 1824, and in 1836 the Wisconsin Territory, including a portion of Minnesota, was formed. Just one year later, on September 29th, 1837, during treaty negotiations in Washington, D.C., Dakota leaders ceded their lands between the Mississippi and St. Croix Rivers.

The fur trade drove much of European exploration and settlement into Minnesota prior to territorial frontier settlement in the mid-1800s. While the fur trade impacted Native American communities throughout all of Minnesota, the heaviest impacts came with later Euro-American settlement. Intensive settlement and agriculture dramatically transformed the landscape, displacing large numbers of Native Americans and their communities. In 1862 tensions between white settlers and Native Americans resulted in the Dakota War. Ultimately, this war left 462 whites and "an unknown but substantial number" of Native Americans dead (Anderson and Woolworth 1988). The conflict concluded with the largest mass execution in United States history with the hanging of 38 Dakota on December 26, 1862 at Mankato and the deportation of remaining tribal members to Santee, Nebraska.

Native American archaeological site types associated with this period are generally consistent with those of earlier periods, but European and Euro-American traders, missionaries, settlers, and industries affected the locations of these sites. This period also includes Euro-American immigrant settlement patterns, subsistence activities, and economic strategies. Sites associated with Euro-American immigrants appear in the mid-nineteenth century. Associated archaeological and historic site types categorized in the Contact/Post-Contact period include standing structures as well as archaeological sites.

5.0 LITERATURE REVIEW

Fourteen previously identified archaeological sites and four alpha sites are located within two miles of the project area (Table 1). Alpha sites are versions of archaeological sites which have been reported as *potential* sites based on mentions in literature, historic mapping (i.e. the 1874 Andreas Atlas), or by individuals reporting casually finding cultural materials; these sites have yet to be field verified through systematic archaeological research and survey.

Table 1. Previously Identified Archaeological Sites Within Two Miles

Site Number	Site Name	Site Description	Cultural Affiliation	Miles from Project Area	TRS
21AN0044	Winnebago Enclosure	Enclosure and Earthworks	Historic: Native American	0.1 Miles	T32N, R25W, S30 NW ¼, NE ¼, NE ¼
21HE0090	Dayton Mounds	Six Burial Mounds	Pre-Contact: Woodland	0.73 Miles	T121N, R22W, S31 SE ¼, S ½ And SW ¼, S ½
21HE0326	Dayton A	Habitation, Lithic Workshop	Pre-Contact	1 Mile	T120N, R22W, S9 NE ¼, NW ¼, NE ¼
21AN0136	No Name	Lithic Scatter	Pre-Contact	1 Mile	T32N, R25W, S19 SW ¼, NW ¼, NE ¼
21AN0135	No Name	Lithic Scatter	Pre-Contact	1.23 Miles	T32N, R25W, S18 SW ¼, SW ¼, SE ¼
21HE0327	Dayton B	Single Artifact	Pre-Contact	1.24 Miles	T120N, R22W, S29 SE ¼, NE ¼, SW ¼
21HE0189	Cloquet Island Scenic Overlook	Artifact Scatter	Pre-Contact, Contact, Post-Contact	1.33 Miles	T120N, R22W, S10 NW ¼, W ½
21WR0043	Crow River Scenic Overlook	Habitation	Pre-Contact	1.47 Miles	T121N, R23W, S36 SW ¼, SE ¼, NE ¼
21HE0335	No Name	Habitation	Pre-Contact: Woodland	1.54 Miles	T120N, R22W, S10 NW ¼, SW ¼, NW ¼
21HE0328	Dayton D	Habitation	Lithic Workshop	1.6 Miles	T120N, R22W, S9 NE ¼, SE ¼, SE ¼
21AN0184	No Name	Habitation	Pre-Contact: Habitation	1.7 Miles	T32N, R25W, S33 NW ¼, SE ¼, NE ¼
21WR0027	No Name	Single Burial Mound	Pre-Contact: Woodland	1.98 Miles	T120N, R23W, S1 SE ¼, SE ¼, NW ¼
21WR0125	No Name	Artifact Scatter	Pre-Contact and Post-Contact: Euro-American	1.99 Miles	T120N, R23W, S1 NW ¼, SE ¼, NW ¼
21WR0130	Dayton Quarry Burial	Human Remains	Presumably Pre-Contact	1.99 Miles	T120N, R23W, S1 NE ¼, NW ¼, SE ¼
21ANu	Itasca Village	Ghost Town	Historic: Euro-American	0.63 Miles	T32N, R25W, S19 SE ¼, NE ¼, SW ¼
21WRbp	Dayton city	Historic Documentation	Historic: Euro-American	1.19 Miles	T121N, R23W, S36
21WRbo	Waterville	Ghost Town	Historic: Euro-American	1.19 Miles	T121N, R23W, S36
21WRo	Lahn	Artifact Scatter	Pre-Contact	1.2 Miles	T120N, R23W, S12

No previously identified archaeological sites are located within the project area. Sites located within two miles comprise a mixture of pre-contact and historic activities including pre-contact lithic and artifact scatters, habitations, and burial mounds; as well as historic ghost towns and an earthwork enclosure. Of the pre-contact sites, only a few could be attributed to a cultural tradition,

all of them being of the Woodland Tradition, due to either diagnostic artifacts or archaeological features (i.e. burial mounds).

The relatively high volume of pre-contact sites within two miles of the project area, as well as the project's proximity to the Mississippi River, indicate the project area exhibits reasonable potential to contain pre-contact cultural material. LiDAR data (provided by MNDNR) was examined in an attempt to identify any visible above-ground features with a potentially archaeological origin. These features were not identified, but viewing the LiDAR hillshade revealed the project area had been submerged in the Mississippi River floodplain in the past. The old river cut is distinct to the point at least two major previous river edges can be identified in the project area hillshade imagery, accompanied by clear sandbar deposits between the current river path and the previous flooded edge (Figure 3).

6.0 RESULTS

Fieldwork was completed on October 9, 14, and 15, 2020. This began with surface survey of the cornfields, cabbage patch, and pumpkin patch on a four to five-meter interval. Surface visibility within all surface-surveyed areas varied between 0 and 80% (see Appendix B for example surface visibility photographs). No cultural materials or archaeological features were identified during the surface survey.

Shovel testing was completed along three separate transects within the wooded portion of the project area. The first transect was located 15-meters northeast and parallel to the southwestern edge of the project area (the closest edge to the Mississippi River), and consisted of 25 shovel tests excavated at 15-meter intervals. All shovel tests were negative for cultural materials. Due to the non-cultural nature of the first transect, the second transect, placed 30-meters northeast and parallel to the first, contained 11 shovel tests excavated on a 30-meter interval. This transect was also negative for cultural material. Acknowledging this tested portion of the wooded area landed at times in the past floodplain, a third transect was placed on the highest ridge at the northeastern edge of the wooded area in an attempt to capture where the cultural activity may have been focused while this area was previously flooded (see the middle flooded river edge noted in the LiDAR Hillshade imagery in Figure 3). This transect consisted of sixteen shovel tests excavated on a 15-meter interval and was also negative for cultural material. See Figure 4 for an illustration of shovel tested and surface surveyed locations.

All shovel tests were excavated to at least 80 centimeters below surface (cmbs), well into subsoils. Soil profiles were notably consistent across the shovel tested areas with the average profile containing 10YR 3/2 silty sandy loam 0 to approximately 20-30cmbs, followed by 10YR 3/3 to 10YR 3/6 sand from 20-30cmbs through shovel test termination at 80cmbs. Soils typically became more compact beginning around 50cmbs continuing through 80cmbs. Recorded soils exhibited no signs of human-related disturbance, and reflect the sandy soils deposition expected of the ancient floodplain terrace on which this portion of the project area is located. Considering the depth

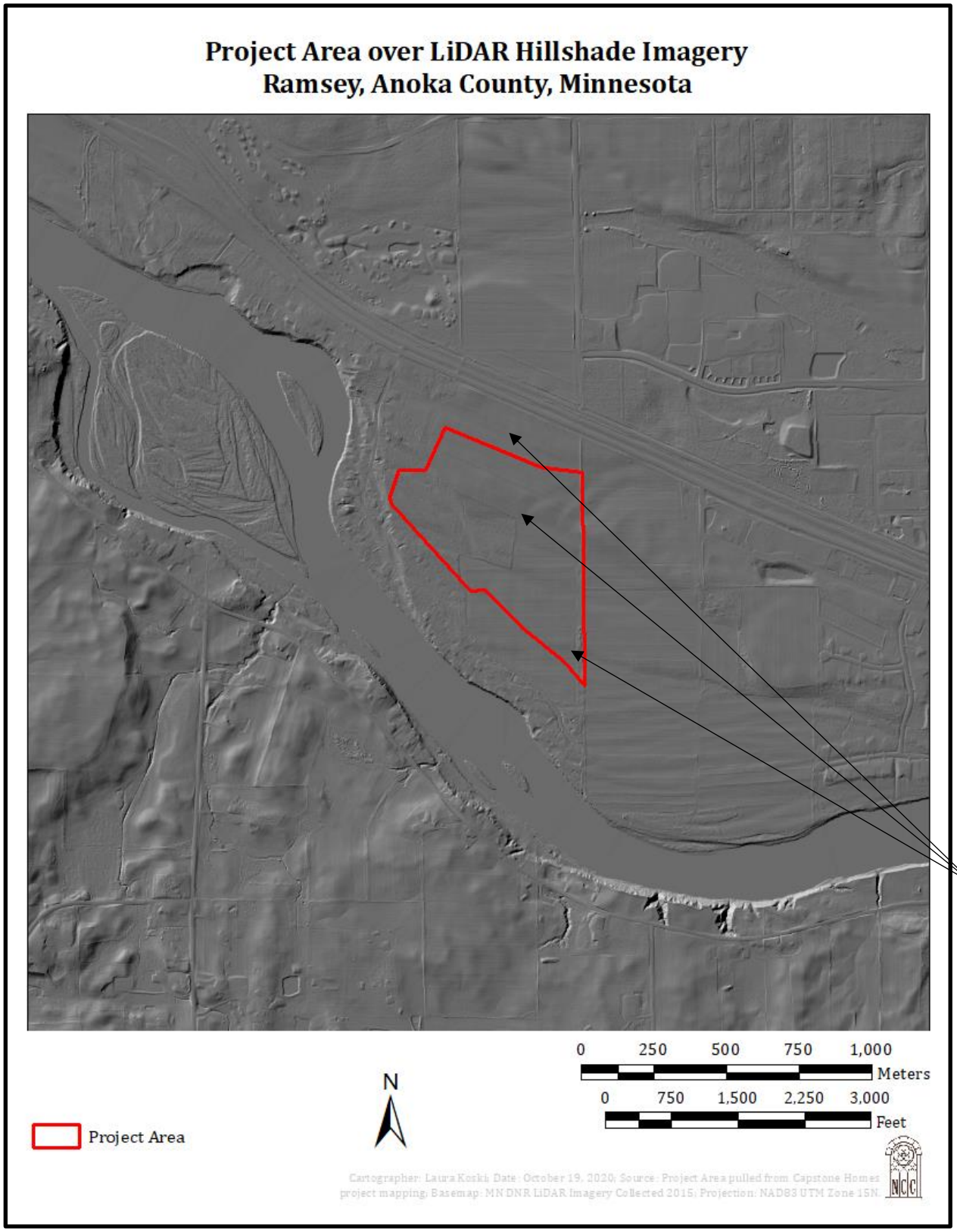

Figure 4: Map of Project Area over LiDAR Hillshade Imagery.

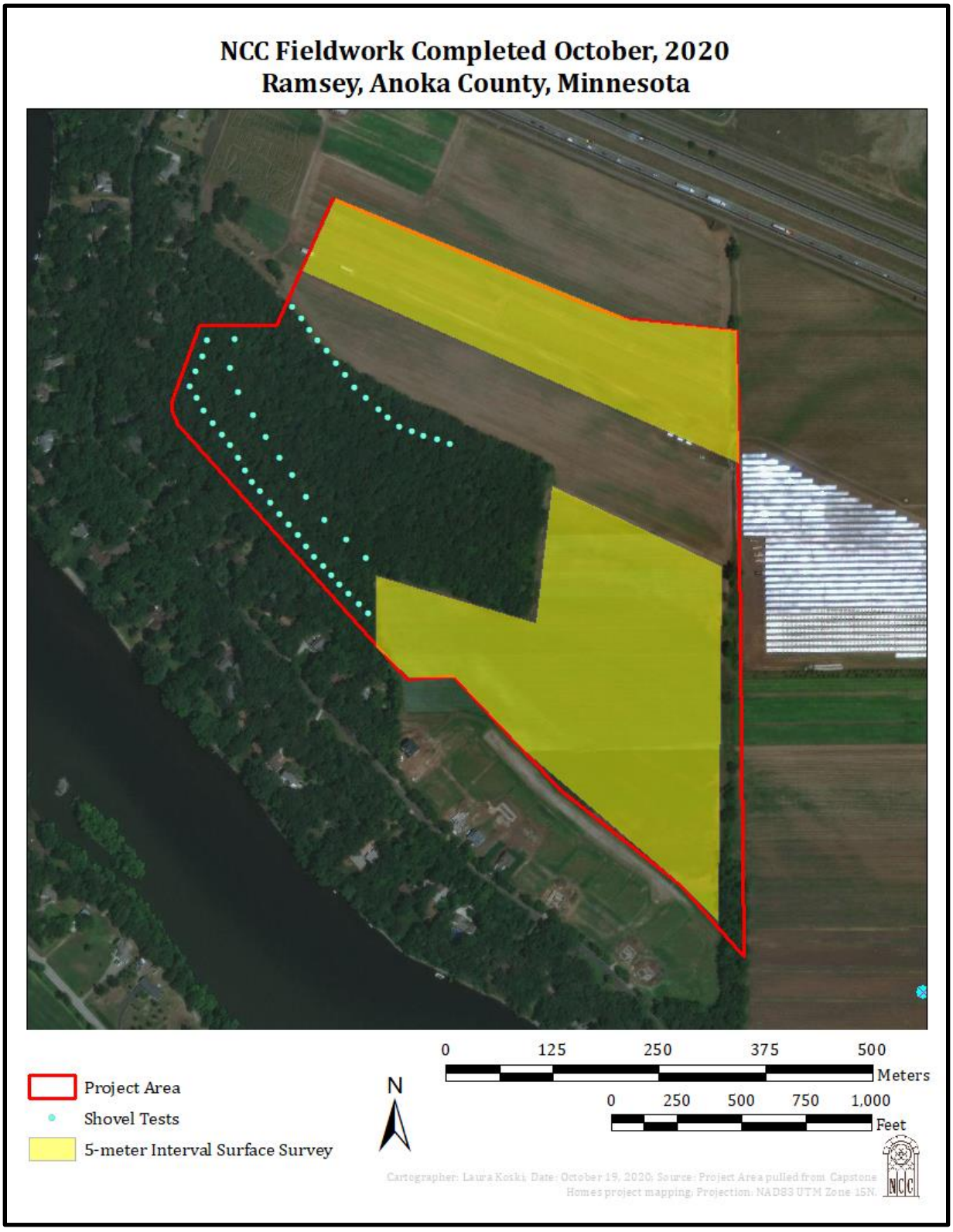

Figure 5: Map of surface surveyed areas and shovel test locations within greater project area. (Basemap provided by 2016 Google Satellite Imagery)

and compaction of these floodplain soils, it is likely this area was flooded consistently enough in the past it was not an attractive location for settlements or camps.

7.0 CONCLUSION AND RECOMMENDATIONS

Capstone Homes is proposing to build a residential development in the City of Ramsey, Anoka County, Minnesota. The project area, approximately 78.63 acres in size, is located in the E ½ of Section 30 and W ¼ of Section 29 of Township 32N, Range 25W in Archaeological Region 4e: Central Lakes Deciduous East. Historically and recently the majority of the project area was cultivated with a long wooded patch along the southwestern edge. The project area is bordered by Highway 10 approximately 500 feet to the north, the Mississippi River approximately 600 to 700 feet to the south, Bowers Drive approximately 200 feet to the west, and a solar farm on the east. Planned development includes a tree preservation area within the existing stretch of woods, 243 detached residential units, residential streets, and single-acre public park at the center.

Work began with a literature review October 7 followed by fieldwork completed October 9, 14, and 15, 2020. Fieldwork consisted of surface surveying corn fields, a cabbage, and pumpkin patch, and shovel testing the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on a four to five-meter interval. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test. No prehistoric cultural materials were encountered. Recent historic materials (i.e. shotgun shells, whiteware sherds) and modern debris (i.e. plastics, aluminum cans) were encountered, but not collected.

Shovel test profiles documented consistent ancient floodplain soils. No prehistoric cultural material or archaeological features were identified during the field survey. Based on these results, Nienow Cultural Consultants recommends no further archaeological work be completed, and the project continues as planned. With any project there is the chance of unanticipated discovery. Should archaeological materials surface during any future construction, it is advised a professional archaeologist be consulted. Minnesota Statute 307.08 protects unplatted cemeteries (including burial mounds) and issues guidelines for dealing with unexpected finds. Should human remains be encountered during earth moving activity, all work must stop and local law enforcement must be called.

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APPENDIX A:

ARCHAEOLOGICAL LICENSE

APPLICATION FOR MINNESOTA ANNUAL ARCHAEOLOGICAL SURVEY LICENSE

This license only applies to reconnaissance (Phase I) surveys conducted under Minnesota Statutes 138.31-.42 during calendar year 2020. Separate licenses must be obtained for monitoring, evaluations/ Phase II and major investigation/Phase III work, and burial site work under Minnesota Statute. This license must be renewed annually. Only the individual indicated below is licensed as principal investigator. The licensed individual is required to comply with all the conditions attached to this license.

Name: Jeremy Loren Nienow

Institution/Agency/Company Affiliation: Nienow Cultural Consultants LLC

Title/Position: Owner / Principal

Address: 200 E. Plato Blvd. St. Paul, MN 55107

Work Phone: 651-295-3744 E-Mail: Jeremy.Nienow@gmail.com

Name of Advanced Degree Institution: U of Minnesota Year: 1997

Department Name: Anthropology Degree: ☐ MA/MS ☑ PhD

Type of Land: (check all that may apply)

☑ State Owned ☑ County Owned ☑ Township/City Owned

☑ Other non-federal public List:

Purpose: (check all that may apply)

☑ CRM ☑ Academic Research ☐ Institutional Field School

Required Documentation:

☑ 1) Curriculum Vita

☑ 2) Documentation of Appropriate Experience

Most Recent License Year 2019 Type I and II *(e.g. Annual, evaluation, mitigation)*

MHS Curation #: 896 Other Approved Facility: RCHS

Signed (applicant): Date: 3/4/20

Submit one copy of this form and attachments to:
Office of the State Archaeologist, 328 West Kellogg Blvd, St. Paul, MN 55102
651-201-2263 651.201.2264 email: mn.osa@state.mn.us

Minnesota Historical Society Approval: Date: 3-9-20

State Archaeologist Approval: Date: 3/5/20

License Number: 20-042

02/28/2019

APPENDIX B:

FIELDWORK PHOTOGRAPHS

Image 1: Of Typical Surface Visibility within Cabbage Patch.

Image 2: Of Field Crew Surveying Cabbage Patch (facing NE).

Image 3: Of Typical Surface Visibility within Corn Fields.

Image 4: Of Field Crew Surveying Pumpkin Patch (Facing SW).
Note Surface Visibility.

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Appendix G
Traffic Impact Study

Riverstone South EAW

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Spack SOLUTIONS

TRAFFIC IMPACT STUDY

Riverstone South Residential Development
Ramsey, Minnesota

I hereby certify this report was prepared by me or under my direct supervision, and I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: _____
Jonah Finkelstein, P.E.
License No. 56210

Date: 12/02/2020

Executive Summary

Background:

Riverstone Development, LLC and Capstone Homes, Inc are proposing the Riverstone South Residential development located South of Highway 10, between Bowers Drive and Llama Street in Ramsey, MN. The purpose of this study is to determine the traffic impacts associated with the build-out of the proposed development on the study roads and intersections where potential impact is anticipated. Mitigation measures will be analyzed and recommended if traffic operations are expected to be below traffic engineering standards. It should be noted that minor impacts are expected on corridors not analyzed in this study and improvements along those corridors may be needed in the future to accommodate incremental traffic growth from this and other area developments.

Results:

The principal findings of this study are:

- The proposed development is expected to generate 1,912 new trips during an average weekday, 140 new trips during the a.m. peak hour, and 186 new trips during the p.m. peak hour.
- All study corridors are projected to operate with volumes within their planning level capacity through the 2040 build scenario.
- All study intersections except for Highway 10/Riverdale Drive (currently Highway 10/Bowers Drive) are projected to operate with queues and delays within acceptable bounds through the 2040 build scenario.
- Highway 10/Riverdale Drive (currently Highway 10/Bowers Drive) experiences larger than preferred queueing with excessive delays in the 2022 and 2040 no-build scenarios. Restriction of this access to a ¾-access, where the northbound left-turning movement from Riverdale Drive to Highway 10 westbound is no longer allowed, reduces the queues and delays to acceptable levels for all analyzed scenarios.
- No external bicycle or pedestrian connections are shown in the provided site plan.

Recommendations:

The following items are recommended based on the analyses contained in this study:

- The future Highway 10/Riverdale Drive intersection should be constructed to a ¾-access, eliminating the northbound left turning movement.
- A trail with a 10-foot minimum cross-section should be constructed on the south side of Riverdale Drive connecting to Highway 10/Riverdale Drive and the existing trail on the south side of Highway 10 to the current trail system on the south side of Riverdale Drive to the east of Llama Street.

This study is based upon a concept development plan titled “Riverstone South” and dated October 21, 2020. Assuming the general characteristics of the proposed development remain approximately the same as documented, minor changes in the final design are not expected to alter the results or recommendations of this study.

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1. Introduction

a. Proposed Development

Riverstone Development, LLC and Capstone Homes, Inc are proposing the Riverstone South Residential development located South of Highway 10, between Bowers Drive and Llama Street in Ramsey, MN. Following are key attributes of the proposed development:

i. Access to the site will be provided via a Riverdale Drive extension stretching from Llama Street to Bowers Drive. This new roadway extension will provide two accesses for development traffic. As a part of this roadway extension, the existing intersection of Highway 10/Bowers Drive is proposed to be shifted east to become Highway10/Riverdale Drive. Bowers Drive will intersect this new Riverdale Drive extension south of the new connection with Highway 10. The most up-to-date concept plan is shown in the Appendix.
ii. The proposed development will include 78 detached townhomes and 165 single-family homes.
iii. For this report, the development is expected to be fully occupied by 2022.
iv. The site is currently zoned R-2: Medium-Density Residential.

b. Purpose of Study

The purpose of this study is to determine the traffic impacts associated with the build-out of the proposed development in two target years. The traffic impacts are studied on the roads and intersections where potential impacts are anticipated and improvements are recommended where mitigation is needed. For those not familiar with the general concepts and terms associated with traffic engineering, *The Language of Traffic Engineering* guide is included in the Appendix.

c. Study Objectives

The objectives of this study are:

i. Document how the study intersections and roadways currently operate.
ii. Forecast the amount of traffic expected to be generated by the proposed development.
iii. Determine how the study intersections and roadways will operate in the 2022 and 2040 target year scenarios with and without the proposed development.
iv. Recommend appropriate mitigation measures if poor operations are identified.

The roadways corridors studied in this document include those surrounding the proposed site, which are:

i. Highway 10 (Hwy 10)
ii. Bowers Drive
iii. Llama Street
iv. Armstrong Boulevard

v. Riverdale Drive

For this traffic study, the study intersections closest to the proposed development, and where the highest potential for impact is expected, were chosen for review and include:

i. Hwy 10/Bowers Drive
ii. Riverdale Drive/Llama Street
iii. Armstrong Boulevard/South Hwy 10 Ramps/Riverdale Drive
iv. Armstrong Boulevard/North Hwy 10 Ramps

It should be noted traffic expected from the proposed development will have minor impacts on other corridors and intersections beyond those studied here

Furthermore, this study does not account for the existing roadway conditions such as pavement quality or appropriate drainage.

2. Existing Conditions

a. Corridor Characteristics

As mentioned, the proposed site is located South of Hwy 10, between Bowers Drive and Llama Street. Table 1 shows the characteristics of the key roadway corridors around this site and within the study area.

Table 1 – Study Corridor Characteristics

Name	Designation[1]	Classification[2]	Speed Limit	Lanes	Transit[3]	Peds/ Bicycles
Hwy 10	US 10	Principal Arterial	65 mph	4 Divided	None	None
Bowers Drive	MSAS 115	Local	30 mph	2 Undivided	None	None
Llama Street	MSAS 122	Local	30 mph	2 Undivided	None	None
Armstrong Boulevard	CSAH 83	A-Minor Expander	35 mph	4 Divided	None	Trail on one side
Riverdale Drive	MSAS 115	Local	30 mph	2 Undivided	None	Sidewalk/ Trail on east side

[1] CSAH = County State Aid Highway, MSAS = Municipal State Aid Street.
[2] City of Ramsey 2040 Comprehensive Plan Update and Anoka County Comprehensive Plan
[3] Number of routes around the proposed site followed by the frequency of transit service during the peak periods.

b. Study Intersection Characteristics

All Study intersections are under side street stop control except for Armstrong Boulevard/North Hwy 10 Ramps, which utilizes traffic signal control. The existing traffic control and travel lanes are shown in Figure 1 in the Appendix for the study intersections.

c. Traffic Volumes

Intersection video was collected at the existing study intersections under normal weekday conditions in September/October 2020. Using these videos, 48-hour turning movement counts were obtained at the study intersections. The data from the two days was averaged to provide the base traffic for a "typical weekday" and compared against previously collected data to determine if COVID-19 was having meaningful impacts on the obtain traffic data. This review showed that at the Armstrong Boulevard/Hwy 10 ramps the collected counts were higher than those collected previously. Based on this result the collected turning movement counts were utilized in our analysis.

The average a.m. and p.m. peak hours were found to be from 7:00 to 8:00 a.m. and 4:00 to 5:00 p.m. The “typical day” counts from these two peak hours were used at the study intersections for analysis. The turning movement count data from the counts are contained in fifteen-minute intervals in the Appendix.

Based on the “typical day” turning movement volumes, the current daily traffic volumes on each study corridor are:

i. 38,200 vehicles per day on Hwy 10 east of Bowers Drive
ii. 38,000 vehicles per day on Hwy 10 west of Bowers Drive
iii. 500 vehicles per day on Bowers Drive
iv. 100 vehicles per day on Llama Street
v. 300 vehicles per day on Riverdale Drive between Llama Street and Hwy 10 south ramps
vi. 800 vehicles per day on Riverdale Drive east of Armstrong Boulevard
vii. 5,600 vehicles per day on Armstrong Boulevard south of Hwy 10 north ramps
viii. 9,700 vehicles per day on Armstrong Boulevard north of Hwy 10 north ramps

3. Forecasted Traffic

a. Site Traffic Forecasting

A trip generation analysis was performed for the development site based on the methods published in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition*. Trip generation rates are also based on local data collected by Spack Solutions.

The ITE manual compiles studies from across the country to provide a national average traffic for various land uses. Spack Solutions collects current average traffic volumes for various land uses in the Twin Cities regional area for use in our studies. Local data is considered more relevant than the ITE national data as it is generally newer and accounts for our area's specific characteristics and driving habits. Per the procedure in the *Trip Generation Manual*, local trip generation data is used when possible and supplemented with national ITE data when local data is not available.

The resultant new trips generated by the proposed development are shown in Table 2. A detailed trip generation table showing the exact breakdowns is provided in the Appendix.

Table 2 – New Trip Generation

Land Use Code – Source[1]	Description & Size	Daily			AM Peak Hour			PM Peak Hour		
		In	Out	*Total*	In	Out	*Total*	In	Out	*Total*
210 - ITE	Single Family Detached Housing (165 units)	779	779	*1,558*	31	91	*122*	102	61	*163*
210 - ITE	Single Family Detached Housing (78 units)	368	368	*736*	14	43	*57*	50	29	*79*
Totals Using ITE Rates		**1,147**	**1,147**	***2,294***	**45**	**134**	***179***	**152**	**90**	***242***
Local	Single Family Detached Housing (165 units)	744	744	*1,488*	29	75	*104*	83	62	*145*
Local	Detached Townhomes (78 units)	212	212	*424*	9	27	*36*	26	15	*41*
Totals Using Local Rates		**956**	**956**	***1,912***	**38**	**102**	***140***	**109**	**77**	***186***

[1] Local = Trip generation data collected by Spack Solutions.

As shown in Table 2, the local and ITE daily trip generation rates are similar. However, the ITE rates produce higher trip generation results than local data when observing

peak hours. Based on ITE's recommendation to use local data when available, the trip generation based on local data was utilized in our analysis. Furthermore, the local data presents a more accurate representation of the proposed land uses as ITE no longer has detached townhome data while the local data does.

A trip distribution pattern was developed for the generated traffic going to and from the proposed development. This pattern is based on the existing traffic volumes, site access, and access to the regional transportation system. The general trip distribution pattern for this study is:

i. 44% of the generated traffic to/from the west on Highway 10.
ii. 11% of the generated traffic to/from the north on Armstrong Boulevard.
iii. 44% of the generated traffic to/from the east on Highway 10.
iv. 1% percent of the generated traffic to/from the south on Riverdale Drive.

Traffic generated by the site development was assigned to the area roadways per this distribution pattern.

b. Non-site Traffic Forecasting

The impacts of the proposed development are studied in 2022 and 2040. To forecast future traffic volumes in the study area outside of the proposed development's traffic, specific other developments around the site and the general growth in traffic are considered.

Several sources were considered to determine general background growth in the area, including:

- Historic traffic data on the study roadways.
- 2040 forecast volumes from the 2040 Comprehensive Plan.
- Generic growth factor for the County as developed by MnDOT's County Growth Projection Factors.
- Previous traffic studies in the surrounding area.

Based on this information, a growth rate of approximately 2.0% per year was calculated. This growth rate was applied to all movements in the study network except for those accessing the development, since those movements will only be increased with the development's forecast trip generation.

Applying this background growth rate to the existing traffic volumes established the 2022 and 2040 No-Build forecasts.

c. Total Traffic

Traffic forecasts were developed for the 2022 and 2040 scenarios by adding the traffic generated by the proposed development to the non-site forecast volumes. The resultant 2022 and 2040 peak hour forecasts are shown in Figures 2 through 4 in the Appendix.

d. Build Condition Roadway Changes

A few roadway configuration changes are proposed with construction of the new development. These changes include:

- The Bowers Drive intersection with Hwy 10 will be closed off and converted to a cul-de-sac.
- A new Hwy 10 intersection will be constructed roughly 250 feet east of the existing Bowers Drive intersection, effectively shifting the current intersection to the east.
- The southern leg of this new intersection will be the new Riverdale Drive roadway that extends to Llama Street where it will intercept the existing Riverdale Drive corridor.
- Bowers Drive will connect to Riverdale Drive through a T-intersection roughly 315 feet south of the new Hwy 10/Riverdale Drive intersection.

The proposed roadway geometry can be seen in the site plan provided in the Appendix.

4. Analyses

a. Corridor Vehicular Analysis

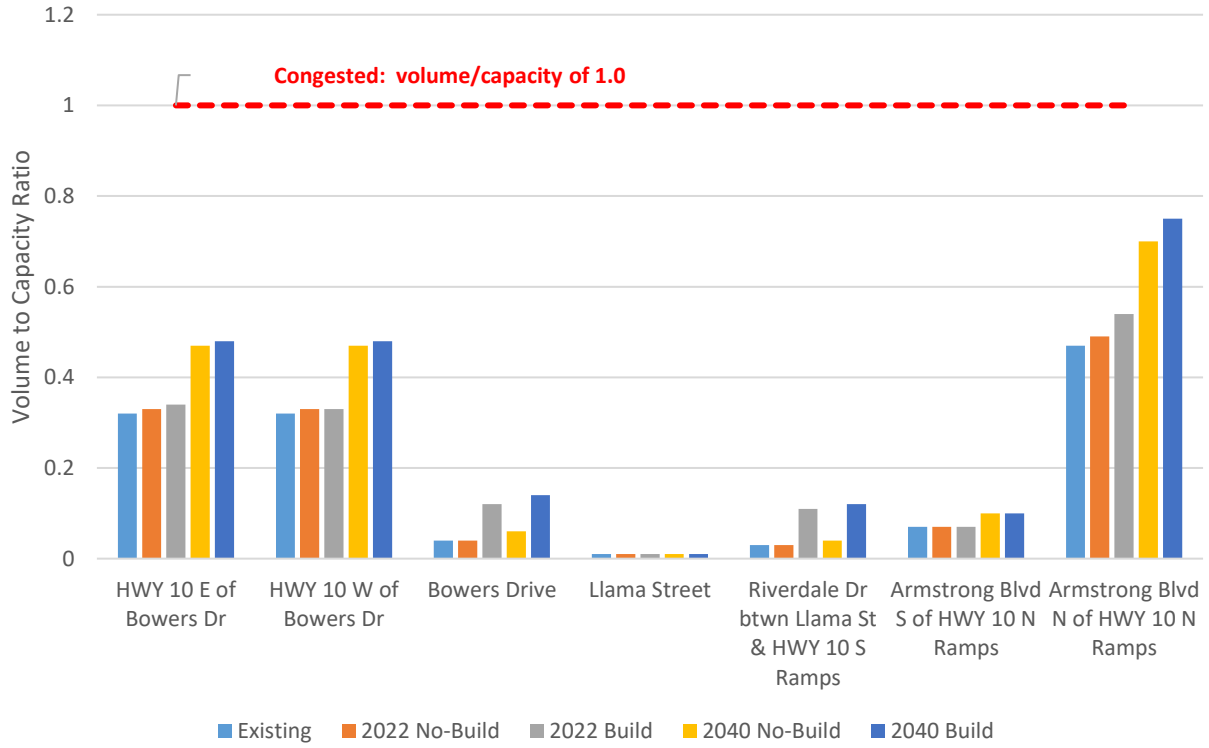
While many factors contribute to a road feeling congested, the two biggest factors are volume, how many vehicles are using the road, and capacity, how many vehicles the road can accommodate a day. Transportation professionals use these pieces of information to create a ratio of volume to capacity. For example, a road with a volume to capacity ratio of 1.0, where the traffic demand is nearly equal to the traffic supply, will feel congested to motorists.

Below is a rough guide of the daily traffic volumes different types of roads can accommodate based on The City of Ramsey's Comprehensive Plan. If the Average Daily Traffic (ADT) volume on a roadway is below the threshold, then it is considered un-congested. If the daily volume falls inside the range, the road is almost congested, and if the daily volume is over the threshold the road is congested.

- 2-Lane undivided streets are considered congested with a volume between 10,000 to 12,000 vehicles per day.
- 2-Lane divided streets are considered congested with a volume between 15,000 to 17,000 vehicles per day.
- 4-Lane divided streets - 28,000 to 32,000 vehicles per day.
- 6-Lane divided freeway – 90,000 to 120,000 vehicles per day.

To provide an initial planning level screening, Chart 1 provides volume to capacity ratios of the study corridors during each of the study years to determine if any of the roadway corridors are candidates for additional through lanes.

Chart 1 – Study Corridor Volume to Capacity



b. Intersection Vehicular Analysis

Individual intersections can perform poorly during peak periods while the overall roadway corridor is operating with an uncongested daily volume to capacity ratio lower than 1.0. Therefore, capacity analyses are performed for the study intersections to determine if they need improvements such as turn lanes or an upgrade in traffic control.

The existing and forecasted turning movement volumes along with the existing intersection configurations and traffic control were used to develop the average delay per intersection in each study scenario. The delay calculations were done in accordance with the *Highway Capacity Manual, 6th Edition* using the Vistro software package. The full calculations for each study scenario, including Level of Service (LOS) grades and queue lengths, are included in the Appendix. Also included in the Appendix is a guide explaining the Level of Service grade concept.

Chart 2 (a.m. peak hour) and Chart 3 (p.m. peak hour) show the average peak hour delay per traffic signal-controlled intersection for each study scenario. The LOS D/E boundary of 55 seconds of delay per vehicle is considered the threshold between acceptable and unacceptable traffic signal operation in Minnesota.

The initial signal timing for the existing conditions was provided by Anoka County.

Chart 2 – A.M. Peak Hour Delays: Signal Controlled Intersections

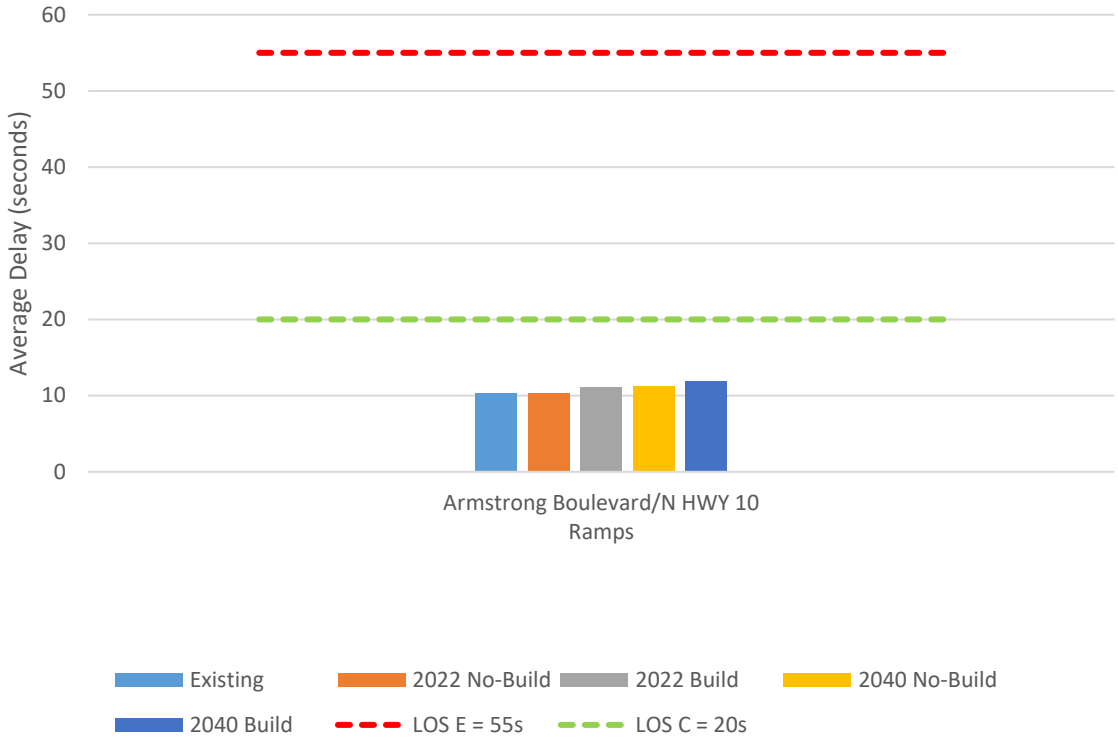


Chart 3 – P.M. Peak Hour Delays: Signal Controlled Intersections

Chart 4 (a.m. peak hour) and Chart 5 (p.m. peak hour) show the 95th percentile queue lengths on the busiest stop sign controlled approach at intersections with side street stop sign control. Average delays are not calculated for intersections with side street stop sign control because the vast majority of vehicles going through the intersection are on the main roadway and have zero delay, which leads to low overall average delays. At side street stop sign controlled approaches to busy roadways, the average delay for all the vehicles on the approach often exceeds 60 seconds. This can be the case for a few vehicles waiting at the stop sign where improvements would not be justified for the low traffic volume. Based on our experience, improvements are not warranted at these types of intersections until the 95th percentile queue at a stop sign is in the five to ten vehicle range.

Chart 6 – A.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections

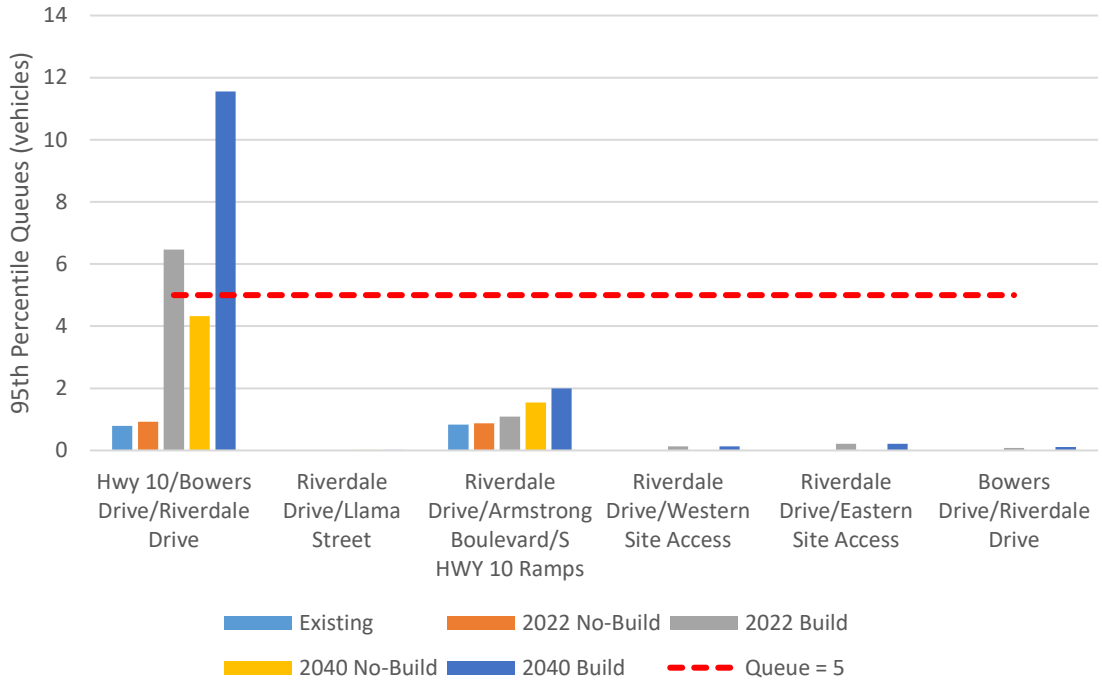
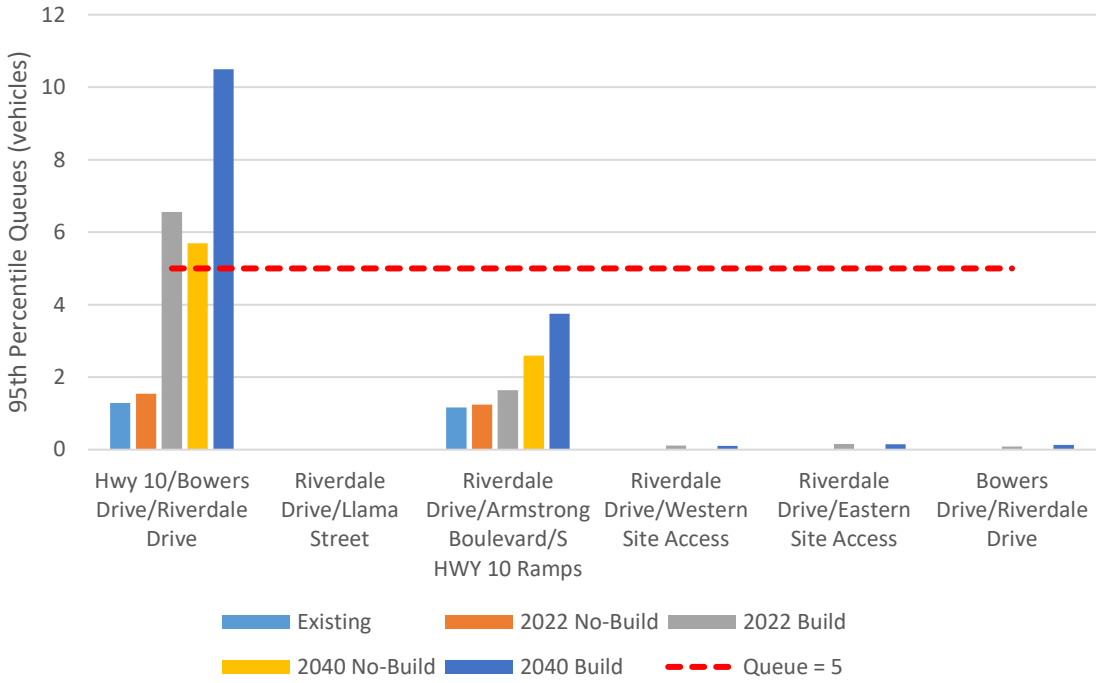


Chart 7 – P.M. Peak Hour Queues: Side Street Stop Sign Controlled Intersections



c. Vehicular Mitigation Analysis

Per the above analyses, most of the study intersections and all corridors will operate acceptably throughout the study scenarios. However, the proposed side street stop control intersection of Hwy 10/Riverdale Drive begins to see queues that extend above five vehicles.

Further investigation into the queues at this intersection revealed that in the no-build and build scenarios delays begin to reach excessive levels for the northbound left turning movements. This movement will experience delays up to:

- Four minutes in the 2022 no-build scenario
- 21 minutes in the 2040 no-build scenario
- 12 minutes in the 2022 build scenario
- Over an hour in the 2040 build scenarios

Alternatives were explored to provide appropriate mitigation at this location, improving the vehicle operations. Specially, mitigation was examined to help reduce delays associated with the northbound left turning vehicles. Generally, the least expensive alternative providing acceptable operations is recommended (i.e. stop signs over a traffic signal if stop signs will be sufficient). Based on these analyses, construction of the proposed Hwy 10/Riverdale Drive intersection as a ¾-access, eliminating the northbound left turning movement from the intersection is recommended.

This configuration removes the highest delayed movement, the cross street left-turning movement (northbound left) from the intersection. These vehicles will now need to route east along Riverdale Drive to the northern Highway 10 Ramps on Armstorng Boulevard, where they will then be able to proceed westbound on Highway 10. In total, roughly 2.25 miles will be added to these vehicles drive, however with projected delays of 21 mintues to more than one hour by the 2040 build scenario, this rerouting will take less time than if the vehicles were to wait to complete a northbound left at the Hwy 10/Riverdale Drive intersection.

The restricted access mitigation was run for the 2040 scenario to determine if it was an effective solution for the delay concerns. The results were improved to:

- 46 seconds of delay per vehicle for northbound vehicles with queueing of less than two vehicles in the 2040 a.m. build scenario.
- 26 seconds of delay per vehicle for northbound vehicles with queueing of less than one vehicle in the 2040 p.m. build scenario.

As previously mentioned, and based on our experience, improvements are not warranted at side-street stop-controlled intersections until the 95th percentile queue at a stop sign is in the five to ten vehicle range. This proposed mitigation reduces the queue to less than five vehicles and brings delays back to standard levels for side street movements at side-street stop-controlled intersections intersecting with busy roadways. The full capacity analysis results can be seen in the Appendix.

d. Concept Site Plan & Multi-Modal Review

The concept site plan contained in the Appendix was reviewed to determine if the plan meets city requirement's, provides appropriate circulation, and minimizes conflicts. Following are key transportation elements of the concept site plan:

i. Car Circulation: vehicle circulation is provided in the site with two proposed accesses on Riverdale Drive. These accesses both provide connections to the entire site, meaning if one access becomes blocked due to a crash or vehicle breakdown, drivers will still be able to navigate the site and enter/exit using the alternate access. Additional future connection stub-outs are provided on the east and west of the site providing further connections when/if the area is built out further.

ii. Truck Circulation: Heavy vehicle turning movements should be considered within the site. Specifically, the two internal cul-de-sacs should be designed in a way that garbage trucks can easily turn around without require any reversing movements.

iii. Bicycle/Walking Paths: No bicycle paths are currently shown on the site plan. At a minimum, a ten-foot wide trail connection on the south side of Riverdale Drive, from the future Highway 10/Riverdale Drive intersection trail system to the trail system that starts on the east side of Riverdale Drive/Llama Street, should be provided. This connection will provide both walking and bicycle

connections for the proposed development. Internally, the eastern most access will provide a sidewalk allowing for connections to the public park.

iv. Parking: Parking for each unit will be provided off-street. Five on-street parking stalls are provided next to the 1.0-acre public park for use by park visitors.

5. Conclusions and Recommendations

The traffic impacts of the proposed development were thoroughly studied, and the principal findings are:

- The proposed development is expected to generate 1,912 new trips during an average weekday, 140 new trips during the a.m. peak hour, and 186 new trips during the p.m. peak hour.
- All study corridors are projected to operate with volumes within their planning level capacity through the 2040 build scenario.
- All study intersections except for Highway 10/Riverdale Drive (currently Highway 10/Bowers Drive) are projected to operate with queues and delays within acceptable bounds through the 2040 build scenario.
- Highway 10/Riverdale Drive (currently Highway 10/Bowers Drive) experiences larger than preferred queueing with excessive delays in the 2022 and 2040 no-build scenarios. Restriction of this access to a ¾-access, where the northbound left turning movement from Riverdale Drive to Highway 10 westbound is no longer allowed, reduces the queues and delays to acceptable levels for all analyzed scenarios.
- No external bicycle or pedestrian connections are shown in the provided site plan.

The following recommendations are made based on the above findings:

- The future Highway 10/Riverdale Drive intersection should be constructed to a ¾-access, eliminating the northbound left turning movement.
- A trail with a 10-foot minimum cross section should be constructed on the south side of Riverdale Drive connecting to Highway 10/Riverdale Drive and the existing trail on the south side of Highway 10, to the current trail system on the south side of Riverdale Drive to the east of Llama Street.

6. Appendix

A. Site Plan

B. The Language of Traffic Engineering

C. Figures 1-4

D. Traffic Counts

E. Trip Generation Table

F. Level of Service (LOS)

G. Capacity Analysis Backup

- AM Existing
- PM Existing
- AM 2022 No-Build
- PM 2022 No-Build
- AM 2040 Build
- PM 2040 Build
- AM 2022 No-Build
- PM 2022 No-Build
- AM 2040 Build
- PM 2040 Build
- Mitigated AM 2040 Build
- Mitigated PM 2040 Build

LEGAL DESCRIPTION

PARCEL DESCRIPTION: (Per Schedule A of Title Commitment File No. 2651, with a commitment date of October 17, 2019 at 7:00 am, prepared Twin City Title Company, LLC as issuing agent for Old Republic National Title Insurance Company)

Parcel A: Outlot B, Pearson Place, Anoka County, Minnesota.

Parcel B: That part of the Northwest Quarter of the Northwest Quarter of Section 29, Township 32, Range 25, Anoka County, Minnesota, lying southerly of U.S. Highway 10 and 169.

Parcel C: Lot 2, Block 3, Pearson Place, Anoka County, Minnesota.

Parcel D: Lot 1, Block 3, Pearson Place, Anoka County, Minnesota.

(abstract property)

LEGEND

- OPEN SPACE
- OPEN SPACE – WOODED
- STORMWATER POND
- INFILTRATION BASIN

U.S. HIGHWAY NO. 10 & 169

COMMERCIAL DEVELOPMENT 21.96 AC

S66°01'47"E 1951.85

S00°08'36"W 1705.32

LIFT STATION AREA 0.22 AC

S00°17'33"W 1093.62

LIFT STATION

8' TRAIL

INF. BASIN

534.66 N37°59'16"W

STREET B

STREET A

STREET C

STREET D

STREET E

PEARSON BLVD

RESIDENTIAL DEV. 78.63 AC

PUBLIC PARK 1.0 AC

POND

INFILTRATION BENCH

LAKE

OPEN SPACE / PONDING AREA - 8.08 AC

581.89 S42°51'14"E

620.99 N51°55'40"W

193.74 N89°47'35"W

BOWERS DRIVE NW

MISSISSIPPI RIVER

RIVERDALE DRIVE

BUFFER AREA 1.05 AC

AREA RETAINED BY LANDOWNER 9.70 AC

TREE PRESERVATION AREA 7.0 AC

EXISTING 50' TREE BUFFER

1349.11 N40°39'13"W

322.61 N17°54'18"E

451.73 N22°50'18"E

205.79 N67°09'42"W

159.73 A=12°58'27" R=706.37

76.30 S00°14'18"W

395.06 A=17°40'00" R=128.25

100.41 A=06°01'20" R=955.30

270.04 A=07°17'00" R=2125.00

50.00 N76°47'15"W

61.69 A=58°33'37" R=60.36

SITE DATA

TOTAL AREA	±110.29 AC.
RESIDENTIAL DEVELOPMENT AREA	78.63
PUBLIC PARK AREA	1.0
TREE PRESERVATION AREA	7.0
OPEN SPACE / PONDING AREA	8.08
RIVERDALE BUFFER AREA	1.05
ROW AREA	15.37
LIFT STATION AREA	0.22
COMMERCIAL DEVELOPMENT AREA	21.96
AREA RETAINED BY LANDOWNER	9.70

N

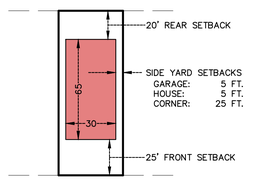
0 60 120 240

(SCALE IN FEET)

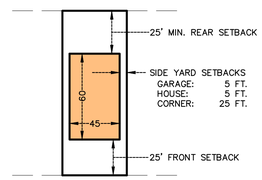
RESIDENTIAL DEVELOPMENT DATA

TOTAL NUMBER OF LOTS	243
GROSS DENSITY	3.1 U/AC
DETACHED TOWNHOMES	78
55' SINGLE FAMILY	116
65' SINGLE FAMILY	49

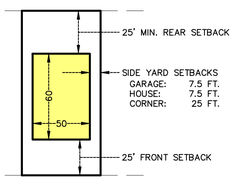
40' DETACHED TOWNHOME LOT DETAIL



55' SINGLE FAMILY LOT DETAIL



65' SINGLE FAMILY LOT DETAIL



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ISSUE DATE: 12/3/20
Revisions:

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Ramsey, MN 55303

RIVERSTONE SOUTH
Ramsey, Minnesota

SKETCH PLAN W/AERIAL

1 of 1

[Save Date: 12/03/20] F:\jobs\8481 - 8500\8494 - pearson place 2nd\cad c3d\survey\layouts\8494_sketch plan.dwg

The Language of Traffic Engineering

Traffic Engineering, and Traffic Engineers, often use technical terms or jargon that may be confusing or tough to understand even within the context of a sentence. Key terms and acronyms that can generally be found in all types of traffic studies are defined in this document.

Types of Studies

Access Management – The practice of government agencies limiting the amount of intersections (both public roadway crossings and private driveways) along a roadway corridor based on the function of the roadway to improve safety and mobility while streamlining access.

Corridor Study – A transportation review and analysis of the existing and future traffic operations of a roadway segment. Varies in length from a couple blocks to a few miles and typically covers all modes of travel.

Intersection Control Evaluation (ICE) Report – A document that examines and determines the most appropriate type of control (stop sign, signal, roundabout, or other) at one or more intersections.

Safety Study – An examination of crash records to identify potential trends, issues, and problem intersections/ corridors. Usually includes potential mitigation options expected to decrease crash rates in the future.

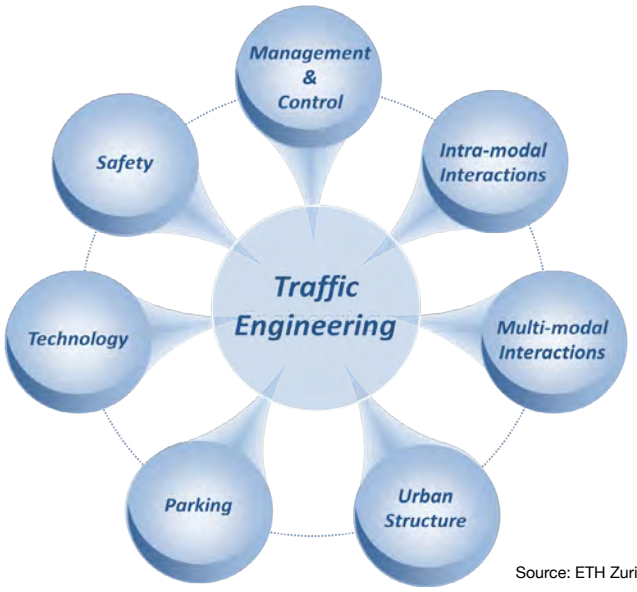
Speed Study – A review of existing travel speeds and the corridor characteristics to determine if speeding is an issue, the appropriate speed to post as the limit, and/or areas to provide reduced speed warnings.

Traffic Impact Study (TIS) – A document that addresses the expected traffic impacts of a development and, if necessary, mitigation options that will reduce or eliminate negative impacts. Also referred to as a Traffic Impact Analysis.

Transportation Plan – A document developed by a government agency to take inventory of their transportation network, identify concerns or issues and lay out the path for improvement of the system.

Travel Demand Management Plan (TDMP) – A plan that documents the existing infrastructure around a site, including transit and non-motorized vehicle options, and develops measures to be implemented to encourage those alternative modes of travel.

Warrant Evaluation – Review of traffic volumes and other characteristics at an intersection against thresholds to determine if a traffic signal or other traffic control option is needed/warranted.



Source: ETH Zurich

Traffic Engineering is a branch of civil engineering that focuses on the safe and efficient movement of people and vehicles. It is part science and part art, requiring not only technical skills for analysis but an understanding of motivations in choosing travel routes.

Key Organizations

AASHTO – American Association of State Highway and Transportation Officials. A nonprofit, nonpartisan association representing transportation departments with a primary goal of fostering the development, operation, and maintenance of an integrated national transportation system.

DOT – Department of Transportation. Government organizations within federal and state agencies dedicated to serving the transportation needs of the community and typically responsible for study, design, operation, and maintenance of all facets of transportation.

FHWA – Federal Highway Administration. An agency within the US Department of Transportation that supports State and local governments in the design, construction, and maintenance of the highway system.

ITE – Institute of Transportation Engineers. An international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs.

Results

85th Percentile Speed – Speed at which 85 percent of drivers are traveling at or below. Speed limits are typically set at the 85th percentile speed.

95th Percentile Queue – The distance, generally measured in feet or number of vehicles, which will be exceeded in a lane, typically at an intersection, only five percent of the time. Usually used to help determine intersection turn lane lengths.

Control Delay – The total amount of time a motorist takes to get through a road segment or intersection minus the time it would take without stopping due to traffic controls (like stop signs or traffic signals). Control delay includes decelerating and accelerating back to full driving speed.

Functional Classification – the grouping of streets and highways into categories according to their characteristics and emphasis on mobility or access. Generally, categories include arterials (emphasizing mobility and fast travel), local roads (emphasizing access to adjoining properties), and collector roads (emphasizing a balance between the two and usually connecting arterials to local roads).

Intersection Delay – The average amount of time, usually expressed in seconds, experienced by any vehicle traveling through an intersection.

Level of Service (LOS) – Qualitative measure of traffic operations related to the amount of average delay experienced. Expressed in letter grades with LOS A representing the best operations with little to no delay and LOS F representing the worst operations with excessive delays and congestion.

Measures of Effectiveness – Performance measures that define how well traffic is moving along a corridor or thru an intersection. The common MOEs are travel time, corridor speed, delay, and queues.

Mitigation – Measures intended to reduce the impact of a development or improve an identified traffic issue by either improving capacity (like adding lanes) or reducing demand (like encouraging carpooling).

Queue – Length of line of cars waiting at an intersection or at a bottleneck in a corridor, typically measured for each individual lane of traffic in feet or number of vehicles.

Volume to Capacity (v/c) ratio – the number of vehicles through an intersection or roadway segment in a specific amount of time divided by the expected capacity of the road. Less than 1.0 indicates available capacity and above 1.0 indicates more vehicles than can be accommodated. Typically, a v/c ratio above 0.85 suggests operational issues.

Trip Generation – The amount of vehicle traffic generated by a land use. One trip is equal to one vehicle traveling from an origin to a destination (traveling to and from work equals two trips).

Warrants – Criteria based on volumes and other Measures of Effectiveness for determining when all way stop signs, roundabouts, traffic signals, or other type of control should be installed.

Important Manuals/Guides

HCM – Highway Capacity Manual (released by the Transportation Research Board, or TRB). The guide for engineers and planners to assess traffic and environmental effects of highway projects. This manual presents the foundation of traffic analysis procedures in the US.

MUTCD – Manual of Uniform Traffic Control Devices. A document that sets minimum standards and provides guidance to ensure uniformity of traffic control devices (such as messages, location, size, shapes, and colors) across the nation. All roads are subject to its jurisdiction.

HSM – Highway Safety Manual (released by AASHTO). A guide that presents a variety of methods for quantitatively estimating crash frequency or severity.

Resources

MUTCD, 2009 Edition, published by FHWA

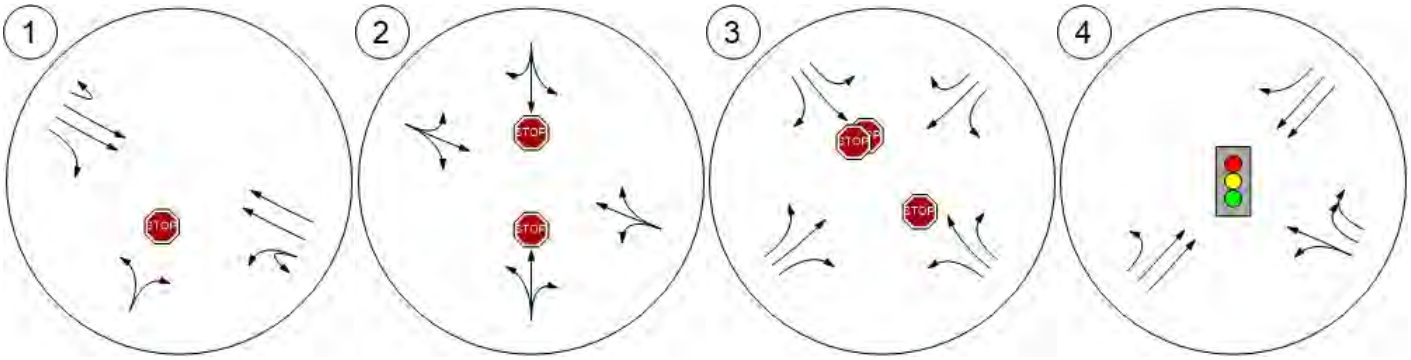
Highway Capacity Manual, HCM2010

Highway Safety Manual, HSM

About This Brief

Spack Solutions prepared this brief as part of our company's vision to significantly improve the practice of traffic engineering and transportation planning. Transportation professionals from around the world have assisted us in developing this document. We are providing this brief under the Creative Commons Attribution License. Feel free to use-modify-share this guide, but please give us some credit in your document. To request our whole series of Design Briefs and to be included on our distribution list for new materials, please email mspack@spacksolutions.com. And please reach out if you have any comments or questions related to this Design Brief.

Lane Configuration and Traffic Control

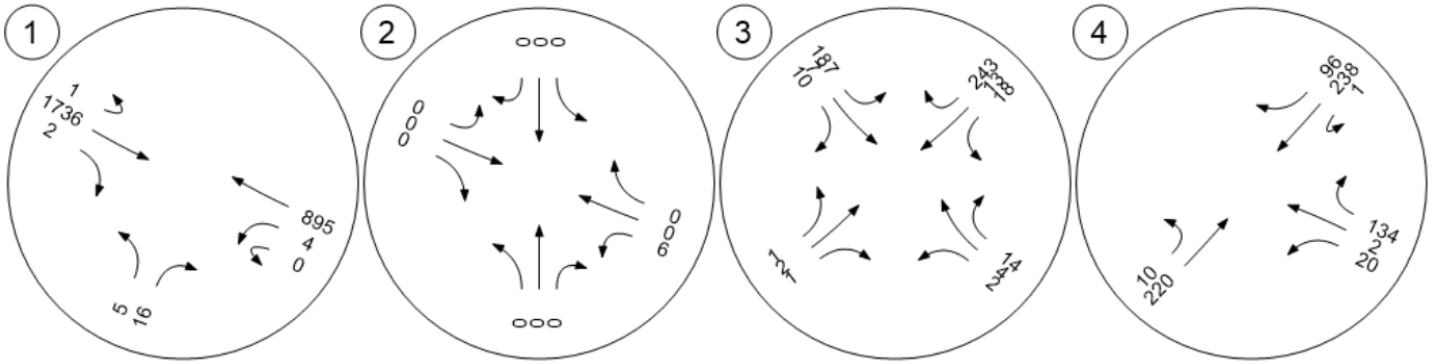


Appendix C - Figures 1 - 4

Figure 2 Through Figure 4

Figure 2 – Existing Scenario

Existing AM Peak



Existing PM Peak

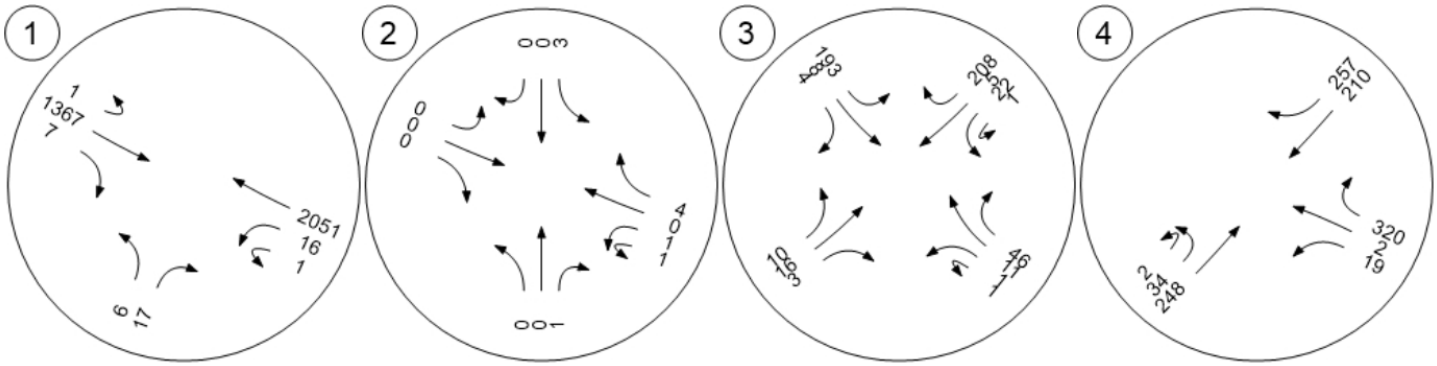
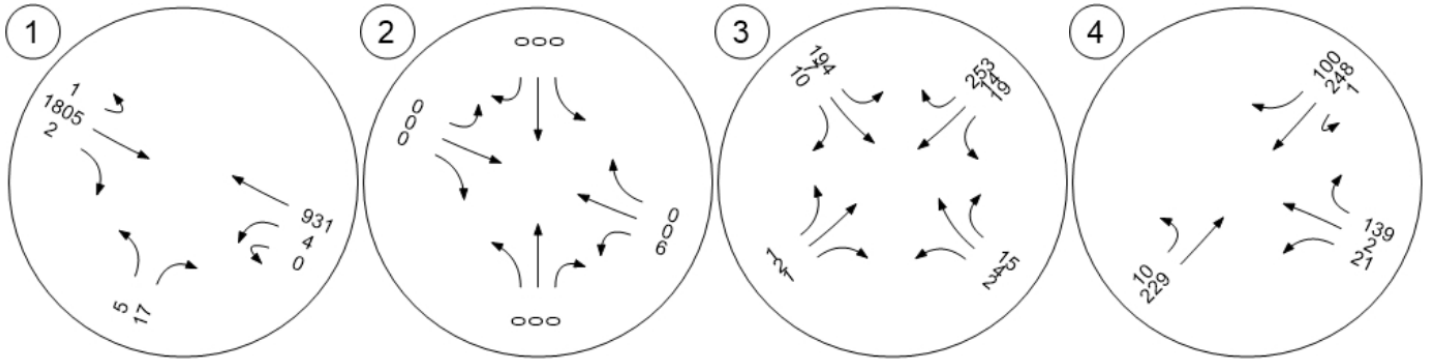


Figure 3 – No Build Scenario

2022 No-Build AM Peak



2022 No-Build PM Peak

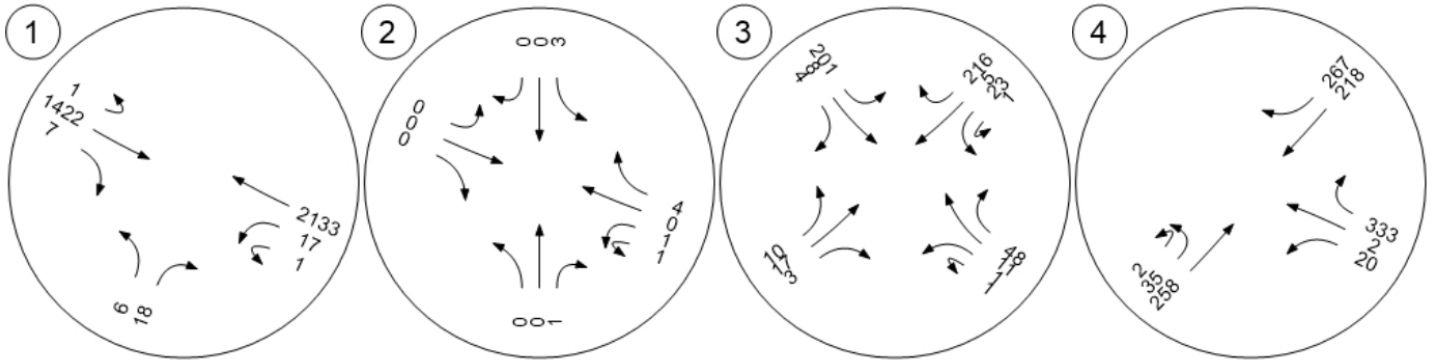
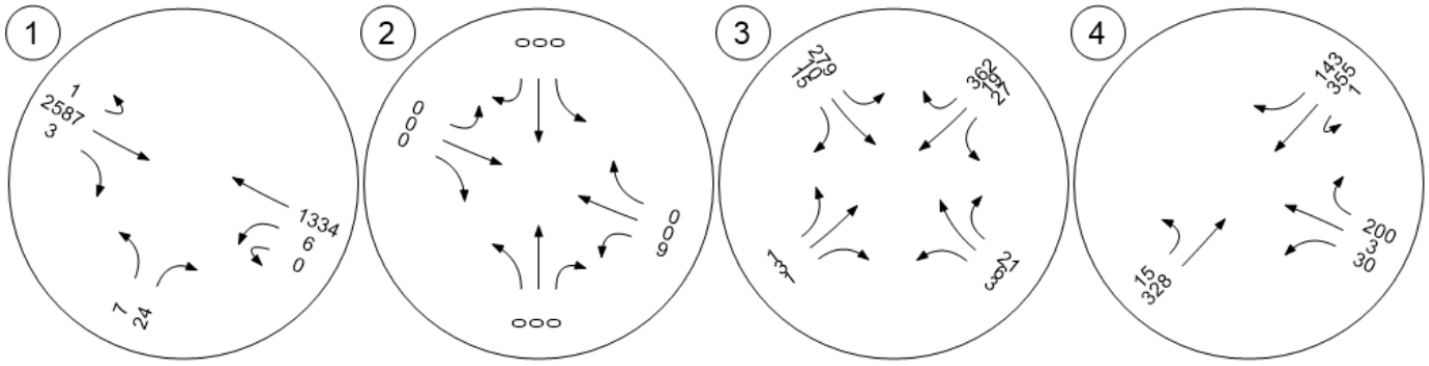


Figure 3 Cont. – No Build Scenario

2040 No-Build AM Peak



2040 No-Build PM Peak

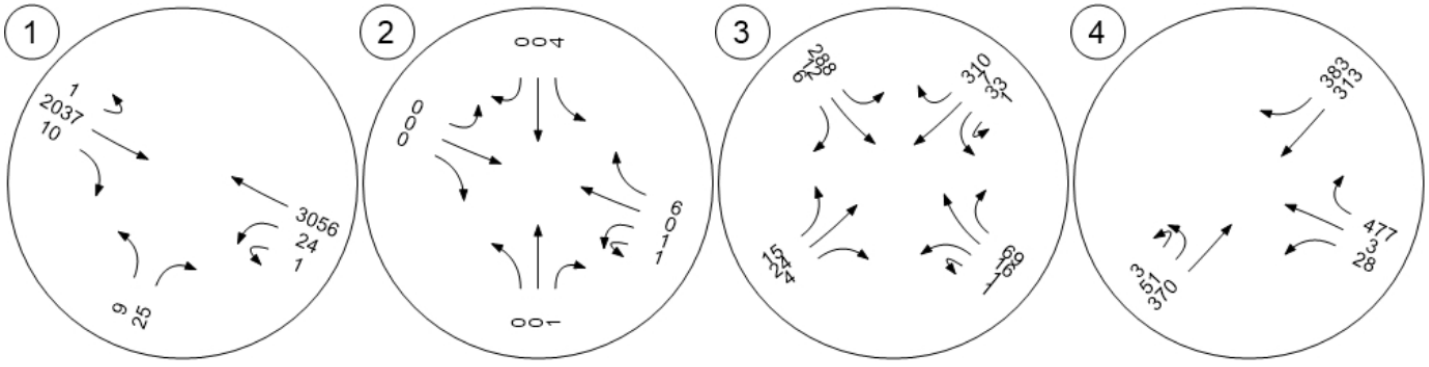
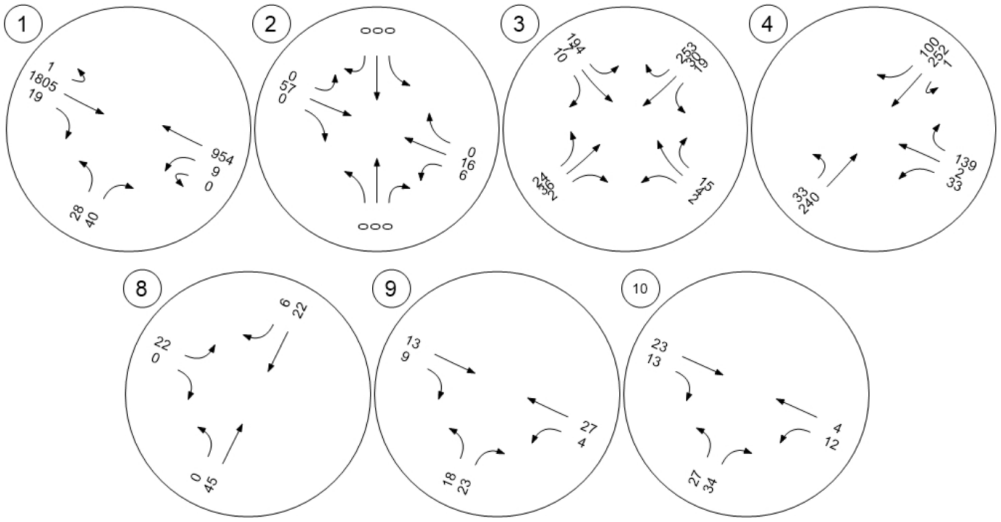


Figure 4 – Build Scenario

2022 Build AM Peak



2022 Build PM Peak

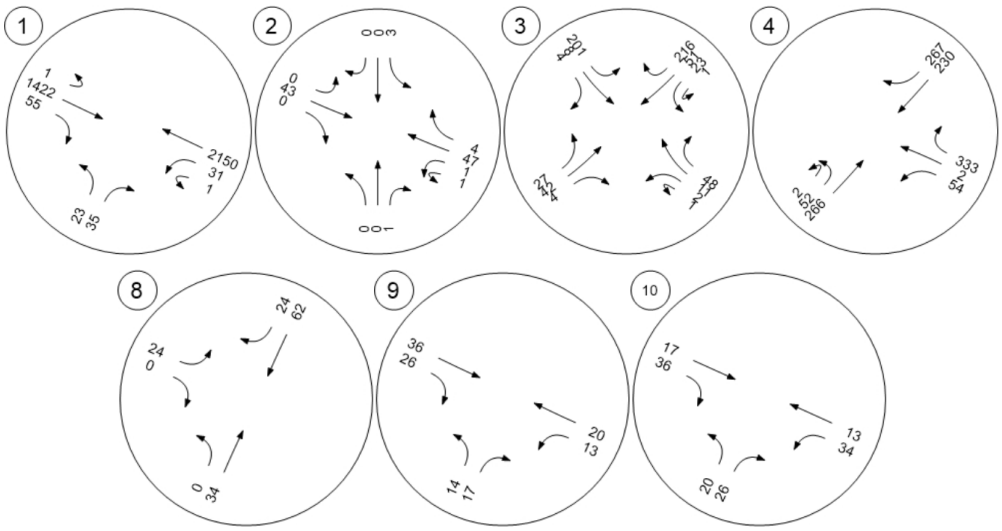
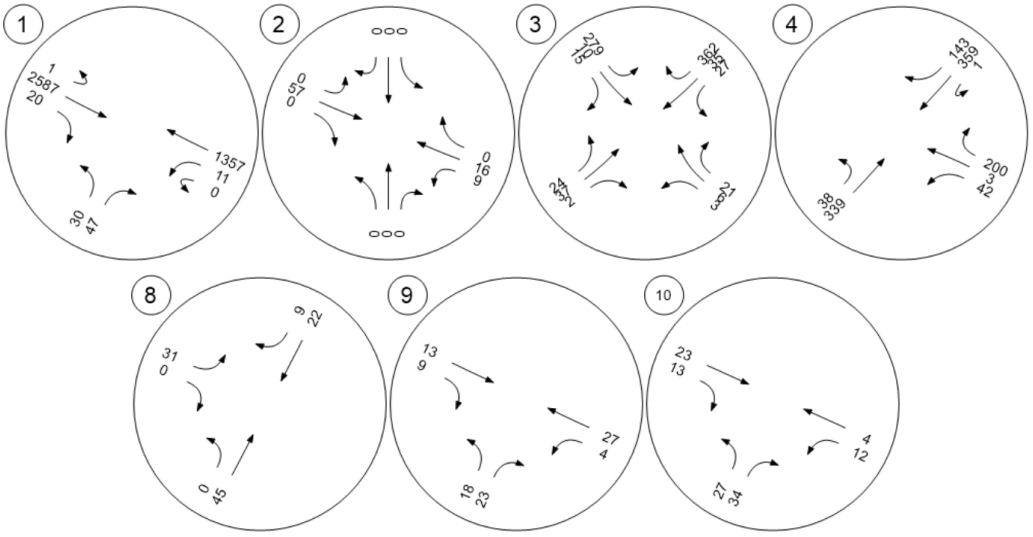
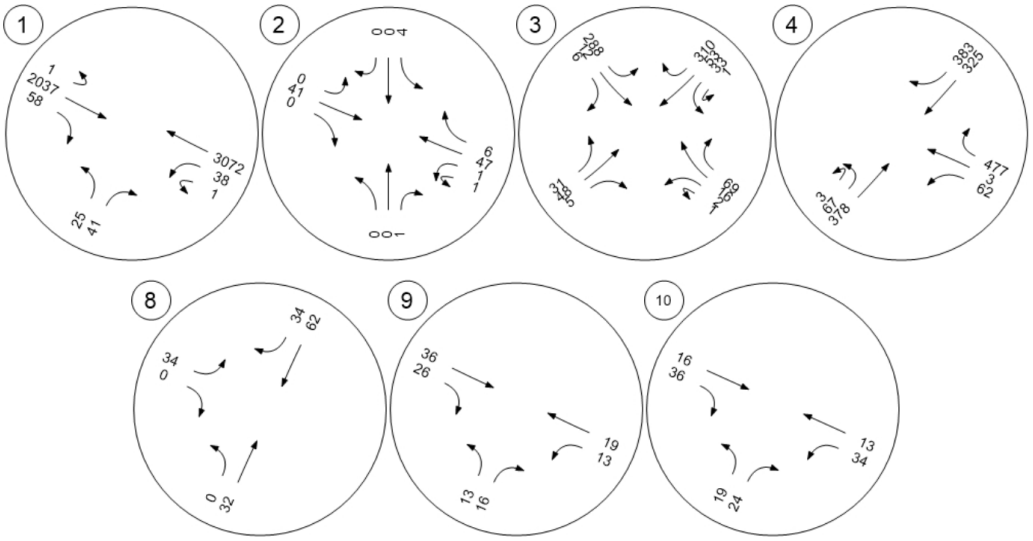


Figure 4 Cont. – Build Scenario

2040 Build AM Peak



2040 Build PM Peak



Appendix D - Traffic Counts

01 Hwy 10 and Bowers Dr
Ramsey MN
Tuesday, September 29, 2020

Time	Southbound NA						Westbound Hwy 10						Northbound Bowers Drive						Eastbound Hwy 10						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**

Appendix D - Traffic Counts

01 Hwy 10 and Bowers Dr
Ramsey MN
Tuesday, September 29, 2020

Time	Southbound NA						Westbound Hwy 10						Northbound Bowers Drive						Eastbound Hwy 10						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 PM	0	0	0	0	0	*0*	0	2	466	0	0	*468*	0	1	0	3	0	*4*	1	0	295	1	0	*297*	**769**
3:15 PM	0	0	0	0	0	*0*	0	5	491	0	0	*496*	0	1	0	3	0	*4*	2	0	325	1	0	*328*	**828**
3:30 PM	0	0	0	0	0	*0*	0	2	453	0	0	*455*	0	1	0	1	0	*2*	0	0	287	1	0	*288*	**745**
3:45 PM	0	0	0	0	0	*0*	0	4	476	0	0	*480*	0	0	0	3	0	*3*	0	0	325	2	0	*327*	**810**
Hourly Total	0	0	0	0	0	*0*	0	13	1886	0	0	*1899*	0	3	0	10	0	*13*	3	0	1232	5	0	*1240*	**3152**

Appendix D - Traffic Counts

01 Hwy 10 and Bowers Dr
Ramsey MN
Tuesday, September 29, 2020

Time	Southbound NA						Westbound Hwy 10						Northbound Bowers Drive						Eastbound Hwy 10						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	0	3	502	0	0	*505*	0	1	0	3	0	*4*	0	0	331	1	0	*332*	**841**
4:15 PM	0	0	0	0	0	*0*	0	2	537	0	0	*539*	0	1	0	3	0	*4*	0	0	321	2	0	*323*	**866**
4:30 PM	0	0	0	0	0	*0*	0	7	541	0	0	*548*	0	3	0	8	2	*11*	0	0	315	2	0	*317*	**876**
4:45 PM	0	0	0	0	0	*0*	0	4	525	0	0	*529*	0	1	0	3	2	*4*	1	0	385	0	0	*386*	**919**
Hourly Total	0	0	0	0	0	*0*	0	16	2105	0	0	*2121*	0	6	0	17	4	*23*	1	0	1352	5	0	*1358*	**3502**
5:00 PM	0	0	0	0	0	*0*	0	7	464	0	0	*471*	0	1	0	3	0	*4*	0	0	302	0	0	*302*	**777**
5:15 PM	0	0	0	0	0	*0*	1	5	435	0	0	*441*	0	2	0	3	0	*5*	1	0	332	1	0	*334*	**780**
5:30 PM	0	0	0	0	0	*0*	0	3	391	0	0	*394*	0	2	0	1	0	*3*	0	0	329	3	0	*332*	**729**
5:45 PM	0	0	0	0	0	*0*	0	3	327	0	0	*330*	0	0	0	2	3	*2*	2	0	242	3	0	*247*	**579**
Hourly Total	0	0	0	0	0	*0*	1	18	1617	0	0	*1636*	0	5	0	9	3	*14*	3	0	1205	7	0	*1215*	**2865**
6:00 PM	0	0	0	0	0	*0*	0	0	312	0	0	*312*	0	2	0	1	0	*3*	0	0	248	3	0	*251*	**566**
6:15 PM	0	0	0	0	0	*0*	0	6	261	0	0	*267*	0	0	0	3	1	*3*	0	0	295	0	0	*295*	**565**
6:30 PM	0	0	0	0	0	*0*	0	2	264	0	0	*266*	0	1	0	1	0	*2*	1	0	183	0	0	*184*	**452**
6:45 PM	0	0	0	0	0	*0*	0	6	231	0	0	*237*	0	0	0	2	0	*2*	0	0	204	1	0	*205*	**444**
Hourly Total	0	0	0	0	0	*0*	0	14	1068	0	0	*1082*	0	3	0	7	1	*10*	1	0	930	4	0	*935*	**2027**
7:00 PM	0	0	0	0	0	*0*	0	3	231	0	0	*234*	0	1	0	4	3	*5*	0	0	196	1	0	*197*	**436**
7:15 PM	0	0	0	0	0	*0*	0	9	279	0	0	*288*	0	1	0	1	1	*2*	0	0	190	3	0	*193*	**483**
7:30 PM	0	0	0	0	0	*0*	0	2	188	0	0	*190*	0	1	0	0	0	*1*	0	0	145	0	0	*145*	**336**
7:45 PM	0	0	0	0	0	*0*	0	3	181	0	0	*184*	0	0	0	1	0	*1*	0	0	140	4	0	*144*	**329**
Hourly Total	0	0	0	0	0	*0*	0	17	879	0	0	*896*	0	3	0	6	4	*9*	0	0	671	8	0	*679*	**1584**
8:00 PM	0	0	0	0	0	*0*	0	5	172	0	0	*177*	0	1	0	4	0	*5*	0	0	129	2	0	*131*	**313**
8:15 PM	0	0	0	0	0	*0*	0	3	139	0	0	*142*	0	0	0	1	0	*1*	0	0	96	0	0	*96*	**239**
8:30 PM	0	0	0	0	0	*0*	0	3	112	0	0	*115*	0	1	0	0	0	*1*	0	0	104	0	0	*104*	**220**
8:45 PM	0	0	0	0	0	*0*	0	0	123	0	0	*123*	0	1	0	1	0	*2*	0	0	174	1	0	*175*	**300**
Hourly Total	0	0	0	0	0	*0*	0	11	546	0	0	*557*	0	3	0	6	0	*9*	0	0	503	3	0	*506*	**1072**
9:00 PM	0	0	0	0	0	*0*	0	1	93	0	0	*94*	0	0	0	1	0	*1*	0	0	69	0	0	*69*	**164**
9:15 PM	0	0	0	0	0	*0*	0	0	100	0	0	*100*	0	0	0	0	0	*0*	1	0	67	1	0	*69*	**169**
9:30 PM	0	0	0	0	0	*0*	0	2	82	0	0	*84*	0	0	0	0	0	*0*	0	0	55	1	0	*56*	**140**
9:45 PM	0	0	0	0	0	*0*	0	0	63	0	0	*63*	0	0	0	2	0	*2*	0	0	61	0	0	*61*	**126**
Hourly Total	0	0	0	0	0	*0*	0	3	338	0	0	*341*	0	0	0	3	0	*3*	1	0	252	2	0	*255*	**599**
10:00 PM	0	0	0	0	0	*0*	0	1	73	0	0	*74*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	**136**
10:15 PM	0	0	0	0	0	*0*	0	1	60	0	0	*61*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	**123**
10:30 PM	0	0	0	0	0	*0*	0	0	72	0	0	*72*	0	0	0	0	0	*0*	0	0	45	0	0	*45*	**117**
10:45 PM	0	0	0	0	0	*0*	0	0	63	0	0	*63*	0	0	0	0	0	*0*	0	0	40	0	0	*40*	**103**
Hourly Total	0	0	0	0	0	*0*	0	2	268	0	0	*270*	0	0	0	0	0	*0*	0	0	209	0	0	*209*	**479**
11:00 PM	0	0	0	0	0	*0*	0	1	51	0	0	*52*	0	0	0	0	0	*0*	0	0	33	0	0	*33*	**85**
11:15 PM	0	0	0	0	0	*0*	0	0	63	0	0	*63*	0	0	0	0	0	*0*	0	0	36	1	0	*37*	**100**
11:30 PM	0	0	0	0	0	*0*	0	0	41	0	0	*41*	0	0	0	0	0	*0*	0	0	19	0	0	*19*	**60**
11:45 PM	0	0	0	0	0	*0*	0	1	43	0	0	*44*	0	0	0	0	0	*0*	0	0	20	1	0	*21*	**65**
Hourly Total	0	0	0	0	0	*0*	0	2	198	0	0	*200*	0	0	0	0	0	*0*	0	0	108	2	0	*110*	**310**
DAILY TOTAL	**0**	**0**	**0**	**0**	**0**	***0***	**1**	**96**	**8905**	**0**	**0**	***9002***	**0**	**23**	**0**	**58**	**12**	***81***	**9**	**0**	**6462**	**36**	**0**	***6507***	**15590**
Cars	0	0	0	0	0	*0*	1	95	8731	0	0	*8827*	0	23	0	55	3	*78*	8	0	6256	35	0	*6299*	**15204**
Heavy Vehicles	0	0	0	0	0	*0*	0	1	174	0	0	*175*	0	0	0	3	9	*3*	1	0	206	1	0	*208*	**386**
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	1.04%	1.95%	0.00%	0.00%	*1.94%*	0.00%	0.00%	0.00%	5.17%	75.00%	*3.70%*	11.11%	0.00%	3.19%	2.78%	0.00%	*3.20%*	**2.48%**

01 Hwy 10 and Bowers Dr
Ramsey MN
Tuesday, September 29, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Peak Hour Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
PHF	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.000**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	0	3	502	0	0	*505*	0	1	0	3	0	*4*	0	0	331	1	0	*332*	**841**
4:15 PM	0	0	0	0	0	*0*	0	2	537	0	0	*539*	0	1	0	3	0	*4*	0	0	321	2	0	*323*	**866**
4:30 PM	0	0	0	0	0	*0*	0	7	541	0	0	*548*	0	3	0	8	2	*11*	0	0	315	2	0	*317*	**876**
4:45 PM	0	0	0	0	0	*0*	0	4	525	0	0	*529*	0	1	0	3	2	*4*	1	0	385	0	0	*386*	**919**
Peak Hour Total	0	0	0	0	0	*0*	0	16	2105	0	0	*2121*	0	6	0	17	4	*23*	1	0	1352	5	0	*1358*	**3502**
PHF	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.571	0.973	0.000	0.000	*0.968*	0.000	0.500	0.000	0.531	0.500	*0.523*	0.250	0.000	0.878	0.625	0.000	*0.880*	**0.953**

Total Vehicles On Leg					0
Vehicles Entering Intersection	0		Vehicles Exiting Intersection		0
Southbound					
Cars	0	0	0	0	0
Heavy	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**

Total Vehicles on Leg 15444	Vehicles Entering Intersection 6507	Vehicles Exiting Intersection 8937	**Eastbound**	Cars	Heavy	**Total**
				0	0	**0**
				8	1	**9**
				0	0	**0**
				6256	206	**6462**
				35	1	**36**

Daily Volumes

Cars	Heavy	**Total**	**Westbound**	Vehicles Entering Intersection 9002	Total Vehicles on Leg 15523
0	0	**0**			
8731	174	**8905**			
95	1	**96**		Vehicles Exiting Intersection 6521	
1	0	**1**			
0	0	**0**			

Cars	3	0	23	0	55
Heavy	9	0	0	0	3
Total	**12**	**0**	**23**	**0**	**58**
Northbound					
Vehicles Entering Intersection	81		Vehicles Exiting Intersection		132
Total Vehicles On Leg			213		

Appendix D - Traffic Counts

01 Hwy 10 and Bowers Dr
Ramsey MN
Wednesday, September 30, 2020

Time	Southbound NA						Westbound Hwy 10						Northbound Bowers Drive						Eastbound Hwy 10						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	35	0	0	*35*	0	0	0	0	0	*0*	0	0	17	0	0	*17*	**52**
12:15 AM	0	0	0	0	0	*0*	0	0	25	0	0	*25*	0	0	0	0	0	*0*	0	0	18	0	0	*18*	**43**
12:30 AM	0	0	0	0	0	*0*	0	0	23	0	0	*23*	0	0	0	1	0	*1*	0	0	18	0	0	*18*	**42**
12:45 AM	0	0	0	0	0	*0*	0	0	28	0	0	*28*	0	0	0	0	0	*0*	0	0	12	0	0	*12*	**40**
Hourly Total	0	0	0	0	0	*0*	0	0	111	0	0	*111*	0	0	0	1	0	*1*	0	0	65	0	0	*65*	**177**
1:00 AM	0	0	0	0	0	*0*	0	1	22	0	0	*23*	0	0	0	0	0	*0*	0	0	19	0	0	*19*	**42**
1:15 AM	0	0	0	0	0	*0*	0	1	16	0	0	*17*	0	0	0	0	0	*0*	0	0	20	0	0	*20*	**37**
1:30 AM	0	0	0	0	0	*0*	0	0	27	0	0	*27*	0	0	0	0	0	*0*	0	0	15	0	0	*15*	**42**
1:45 AM	0	0	0	0	0	*0*	0	0	19	0	0	*19*	0	0	0	0	0	*0*	0	0	16	0	0	*16*	**35**
Hourly Total	0	0	0	0	0	*0*	0	2	84	0	0	*86*	0	0	0	0	0	*0*	0	0	70	0	0	*70*	**156**
2:00 AM	0	0	0	0	0	*0*	0	0	13	0	0	*13*	0	0	0	0	0	*0*	0	0	13	0	0	*13*	**26**
2:15 AM	0	0	0	0	0	*0*	0	0	21	0	0	*21*	0	0	0	0	0	*0*	0	0	19	1	0	*20*	**41**
2:30 AM	0	0	0	0	0	*0*	0	1	14	0	0	*15*	0	0	0	0	0	*0*	0	0	19	0	0	*19*	**34**
2:45 AM	0	0	0	0	0	*0*	0	0	10	0	0	*10*	0	0	0	0	0	*0*	0	0	16	0	0	*16*	**26**
Hourly Total	0	0	0	0	0	*0*	0	1	58	0	0	*59*	0	0	0	0	0	*0*	0	0	67	1	0	*68*	**127**
3:00 AM	0	0	0	0	0	*0*	0	0	22	0	0	*22*	0	0	0	0	0	*0*	0	0	21	0	0	*21*	**43**
3:15 AM	0	0	0	0	0	*0*	0	0	16	0	0	*16*	0	0	0	0	0	*0*	0	0	27	0	0	*27*	**43**
3:30 AM	0	0	0	0	0	*0*	0	0	14	0	0	*14*	0	0	0	0	0	*0*	0	0	43	0	0	*43*	**57**
3:45 AM	0	0	0	0	0	*0*	0	0	17	0	0	*17*	0	0	0	0	0	*0*	0	0	39	0	0	*39*	**56**
Hourly Total	0	0	0	0	0	*0*	0	0	69	0	0	*69*	0	0	0	0	0	*0*	0	0	130	0	0	*130*	**199**
4:00 AM	0	0	0	0	0	*0*	0	0	19	0	0	*19*	0	0	0	0	0	*0*	0	0	54	0	0	*54*	**73**
4:15 AM	0	0	0	0	0	*0*	0	0	18	0	0	*18*	0	0	0	1	0	*1*	0	0	99	0	0	*99*	**118**
4:30 AM	0	0	0	0	0	*0*	0	0	47	0	0	*47*	0	0	0	0	0	*0*	0	0	137	0	0	*137*	**184**
4:45 AM	0	0	0	0	0	*0*	0	0	46	0	0	*46*	0	0	0	0	0	*0*	0	0	162	0	0	*162*	**208**
Hourly Total	0	0	0	0	0	*0*	0	0	130	0	0	*130*	0	0	0	1	0	*1*	0	0	452	0	0	*452*	**583**
5:00 AM	0	0	0	0	0	*0*	0	0	50	0	0	*50*	0	0	0	0	0	*0*	0	0	205	0	0	*205*	**255**
5:15 AM	0	0	0	0	0	*0*	0	1	69	0	0	*70*	0	0	0	0	0	*0*	0	0	295	0	0	*295*	**365**
5:30 AM	0	0	0	0	0	*0*	0	0	96	0	0	*96*	0	0	0	2	0	*2*	0	0	384	0	0	*384*	**482**
5:45 AM	0	0	0	0	0	*0*	0	0	113	0	0	*113*	0	0	0	0	0	*0*	0	0	348	0	0	*348*	**461**
Hourly Total	0	0	0	0	0	*0*	0	1	328	0	0	*329*	0	0	0	2	0	*2*	0	0	1232	0	0	*1232*	**1563**
6:00 AM	0	0	0	0	0	*0*	0	0	109	0	0	*109*	0	1	0	2	0	*3*	0	0	475	0	0	*475*	**587**
6:15 AM	0	0	0	0	0	*0*	0	0	161	0	0	*161*	0	0	0	2	0	*2*	0	0	451	1	0	*452*	**615**
6:30 AM	0	0	0	0	0	*0*	0	0	204	0	0	*204*	0	0	0	8	0	*8*	0	0	466	1	0	*467*	**679**
6:45 AM	0	0	0	0	0	*0*	0	0	196	0	0	*196*	0	0	0	2	0	*2*	0	0	423	0	0	*423*	**621**
Hourly Total	0	0	0	0	0	*0*	0	0	670	0	0	*670*	0	1	0	14	0	*15*	0	0	1815	2	0	*1817*	**2502**
7:00 AM	0	0	0	0	0	*0*	0	0	177	0	0	*177*	0	1	0	3	0	*4*	0	0	449	1	0	*450*	**631**
7:15 AM	0	0	0	0	0	*0*	0	1	242	0	0	*243*	0	4	0	2	0	*6*	0	0	410	1	0	*411*	**660**
7:30 AM	0	0	0	0	0	*0*	0	3	249	0	0	*252*	0	1	0	9	0	*10*	0	0	436	0	0	*436*	**698**
7:45 AM	0	0	0	0	0	*0*	0	0	218	0	0	*218*	0	1	0	4	0	*5*	1	0	426	1	0	*428*	**651**
Hourly Total	0	0	0	0	0	*0*	0	4	886	0	0	*890*	0	7	0	18	0	*25*	1	0	1721	3	0	*1725*	**2640**

01 Hwy 10 and Bowers Dr
Ramsey MN
Wednesday, September 30, 2020

Time	Southbound NA						Westbound Hwy 10						Northbound Bowers Drive						Eastbound Hwy 10						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	0	0	0	*0*	0	2	179	0	0	*181*	0	0	0	4	0	*4*	0	0	273	0	0	*273*	**458**
8:15 AM	0	0	0	0	0	*0*	0	1	191	0	0	*192*	0	1	0	1	0	*2*	0	0	303	0	0	*303*	**497**
8:30 AM	0	0	0	0	0	*0*	0	1	168	0	0	*169*	0	0	0	2	0	*2*	0	0	304	1	0	*305*	**476**
8:45 AM	0	0	0	0	0	*0*	0	2	227	0	0	*229*	0	0	0	4	0	*4*	2	0	236	1	0	*239*	**472**
Hourly Total	0	0	0	0	0	*0*	0	6	765	0	0	*771*	0	1	0	11	0	*12*	2	0	1116	2	0	*1120*	**1903**
9:00 AM	0	0	0	0	0	*0*	0	0	197	0	0	*197*	0	1	0	5	0	*6*	0	0	253	2	0	*255*	**458**
9:15 AM	0	0	0	0	0	*0*	0	1	174	0	0	*175*	0	1	0	2	0	*3*	0	0	253	0	0	*253*	**431**
9:30 AM	0	0	0	0	0	*0*	0	2	231	0	0	*233*	0	0	0	4	0	*4*	0	0	261	0	0	*261*	**498**
9:45 AM	0	0	0	0	0	*0*	1	1	215	0	0	*217*	0	2	0	2	0	*4*	0	0	234	0	0	*234*	**455**
Hourly Total	0	0	0	0	0	*0*	1	4	817	0	0	*822*	0	4	0	13	0	*17*	0	0	1001	2	0	*1003*	**1842**
10:00 AM	0	0	0	0	0	*0*	0	1	204	0	0	*205*	0	0	0	1	1	*1*	1	0	199	0	0	*200*	**406**
10:15 AM	0	0	0	0	0	*0*	1	0	188	0	0	*189*	0	0	0	1	0	*1*	0	0	229	1	0	*230*	**420**
10:30 AM	0	0	0	0	0	*0*	1	3	231	0	0	*235*	0	2	0	6	0	*8*	0	0	237	0	0	*237*	**480**
10:45 AM	0	0	0	0	0	*0*	1	2	228	0	0	*231*	0	1	#REF!	5	0	*#REF!*	0	0	248	1	0	*249*	**#REF!**
Hourly Total	0	0	0	0	0	*0*	3	6	851	0	0	*860*	0	3	#REF!	13	1	*#REF!*	1	0	913	2	0	*916*	**#REF!**
11:00 AM	0	0	0	0	0	*0*	0	3	239	0	0	*242*	0	1	0	7	0	*8*	0	0	210	1	0	*211*	**461**
11:15 AM	0	0	0	0	0	*0*	0	5	237	0	0	*242*	0	1	0	4	0	*5*	0	0	281	1	0	*282*	**529**
11:30 AM	0	0	0	0	0	*0*	0	4	252	0	0	*256*	0	0	0	1	0	*1*	0	0	249	0	0	*249*	**506**
11:45 AM	0	0	0	0	0	*0*	0	2	232	0	0	*234*	0	1	0	3	0	*4*	0	0	257	0	0	*257*	**495**
Hourly Total	0	0	0	0	0	*0*	0	14	960	0	0	*974*	0	3	0	15	0	*18*	0	0	997	2	0	*999*	**1991**
12:00 PM	0	0	0	0	0	*0*	0	1	242	0	0	*243*	0	1	0	2	1	*3*	0	0	239	1	0	*240*	**486**
12:15 PM	0	0	0	0	0	*0*	0	2	248	0	0	*250*	0	2	0	4	1	*6*	0	0	258	1	0	*259*	**515**
12:30 PM	0	0	0	0	0	*0*	0	0	239	0	0	*239*	0	0	0	2	1	*2*	0	0	238	1	0	*239*	**480**
12:45 PM	0	0	0	0	0	*0*	0	3	242	0	0	*245*	0	0	0	1	0	*1*	0	0	244	1	0	*245*	**491**
Hourly Total	0	0	0	0	0	*0*	0	6	971	0	0	*977*	0	3	0	9	3	*12*	0	0	979	4	0	*983*	**1972**
1:00 PM	0	0	0	0	0	*0*	0	2	249	0	0	*251*	0	1	0	0	0	*1*	0	0	275	2	0	*277*	**529**
1:15 PM	0	0	0	0	0	*0*	0	5	299	0	0	*304*	0	2	0	6	0	*8*	0	0	261	1	0	*262*	**574**
1:30 PM	0	0	0	0	0	*0*	1	4	284	0	0	*289*	0	0	0	6	1	*6*	0	0	264	0	0	*264*	**559**
1:45 PM	0	0	0	0	0	*0*	0	4	267	0	0	*271*	0	0	0	2	1	*2*	0	0	240	2	0	*242*	**515**
Hourly Total	0	0	0	0	0	*0*	1	15	1099	0	0	*1115*	0	3	0	14	2	*17*	0	0	1040	5	0	*1045*	**2177**
2:00 PM	0	0	0	0	0	*0*	0	5	322	0	0	*327*	0	4	0	4	0	*8*	0	0	276	2	0	*278*	**613**
2:15 PM	0	0	0	0	0	*0*	0	1	354	0	0	*355*	0	0	0	3	0	*3*	0	0	332	3	0	*335*	**693**
2:30 PM	0	0	0	0	0	*0*	0	3	463	0	0	*466*	0	1	0	0	0	*1*	1	0	303	2	0	*306*	**773**
2:45 PM	0	0	0	0	0	*0*	0	7	404	0	0	*411*	0	1	0	6	0	*7*	0	0	309	3	0	*312*	**730**
Hourly Total	0	0	0	0	0	*0*	0	16	1543	0	0	*1559*	0	6	0	13	0	*19*	1	0	1220	10	0	*1231*	**2809**
3:00 PM	0	0	0	0	0	*0*	0	5	431	0	0	*436*	0	0	0	3	0	*3*	0	0	310	0	0	*310*	**749**
3:15 PM	0	0	0	0	0	*0*	1	5	445	0	0	*451*	0	1	0	3	2	*4*	0	0	318	1	0	*319*	**774**
3:30 PM	0	0	0	0	0	*0*	0	6	490	0	0	*496*	0	3	0	2	0	*5*	0	0	297	1	0	*298*	**799**
3:45 PM	0	0	0	0	0	*0*	0	3	495	0	0	*498*	0	2	0	5	0	*7*	0	0	341	1	0	*342*	**847**
Hourly Total	0	0	0	0	0	*0*	1	19	1861	0	0	*1881*	0	6	0	13	2	*19*	0	0	1266	3	0	*1269*	**3169**

01 Hwy 10 and Bowers Dr
Ramsey MN
Wednesday, September 30, 2020

Time	Southbound NA						Westbound Hwy 10						Northbound Bowers Drive						Eastbound Hwy 10						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	1	4	455	0	0	*460*	0	0	0	4	0	*4*	0	0	320	3	0	*323*	**787**
4:15 PM	0	0	0	0	0	*0*	0	6	445	0	0	*451*	0	1	0	2	0	*3*	0	0	334	3	0	*337*	**791**
4:30 PM	0	0	0	0	0	*0*	0	2	572	0	0	*574*	0	3	0	7	0	*10*	1	0	356	2	0	*359*	**943**
4:45 PM	0	0	0	0	0	*0*	0	4	524	0	0	*528*	0	1	0	3	0	*4*	0	0	372	1	0	*373*	**905**
Hourly Total	0	0	0	0	0	*0*	1	16	1996	0	0	*2013*	0	5	0	16	0	*21*	1	0	1382	9	0	*1392*	**3426**
5:00 PM	0	0	0	0	0	*0*	0	4	466	0	0	*470*	0	3	0	4	0	*7*	0	0	291	1	0	*292*	**769**
5:15 PM	0	0	0	0	0	*0*	0	5	440	0	0	*445*	0	1	0	3	0	*4*	0	0	315	1	0	*316*	**765**
5:30 PM	0	0	0	0	0	*0*	0	7	405	0	0	*412*	0	0	0	0	0	*0*	0	0	323	1	0	*324*	**736**
5:45 PM	0	0	0	0	0	*0*	0	4	378	0	0	*382*	0	1	0	4	1	*5*	0	0	297	1	0	*298*	**685**
Hourly Total	0	0	0	0	0	*0*	0	20	1689	0	0	*1709*	0	5	0	11	1	*16*	0	0	1226	4	0	*1230*	**2955**
6:00 PM	0	0	0	0	0	*0*	0	7	331	0	0	*338*	0	0	0	4	1	*4*	0	0	225	3	0	*228*	**570**
6:15 PM	0	0	0	0	0	*0*	0	3	340	0	0	*343*	0	1	0	4	0	*5*	0	0	251	1	0	*252*	**600**
6:30 PM	0	0	0	0	0	*0*	0	7	303	0	0	*310*	0	1	0	2	0	*3*	0	0	199	1	0	*200*	**513**
6:45 PM	0	0	0	0	0	*0*	0	3	204	0	0	*207*	0	0	0	3	0	*3*	0	0	212	2	0	*214*	**424**
Hourly Total	0	0	0	0	0	*0*	0	20	1178	0	0	*1198*	0	2	0	13	1	*15*	0	0	887	7	0	*894*	**2107**
7:00 PM	0	0	0	0	0	*0*	0	4	248	0	0	*252*	0	0	0	4	0	*4*	2	0	171	2	0	*175*	**431**
7:15 PM	0	0	0	0	0	*0*	0	1	200	0	0	*201*	0	2	0	3	0	*5*	1	0	171	2	0	*174*	**380**
7:30 PM	0	0	0	0	0	*0*	0	6	187	0	0	*193*	0	1	0	2	0	*3*	0	0	139	0	0	*139*	**335**
7:45 PM	0	0	0	0	0	*0*	0	5	190	0	0	*195*	0	0	0	0	0	*0*	0	0	148	2	0	*150*	**345**
Hourly Total	0	0	0	0	0	*0*	0	16	825	0	0	*841*	0	3	0	9	0	*12*	3	0	629	6	0	*638*	**1491**
8:00 PM	0	0	0	0	0	*0*	0	7	146	0	0	*153*	0	1	0	0	0	*1*	0	0	127	1	0	*128*	**282**
8:15 PM	0	0	0	0	0	*0*	0	3	127	0	0	*130*	0	1	0	1	0	*2*	0	0	130	1	0	*131*	**263**
8:30 PM	0	0	0	0	0	*0*	0	2	123	0	0	*125*	0	0	0	0	0	*0*	0	0	97	1	0	*98*	**223**
8:45 PM	0	0	0	0	0	*0*	0	2	128	0	0	*130*	0	1	0	1	0	*2*	1	0	108	1	0	*110*	**242**
Hourly Total	0	0	0	0	0	*0*	0	14	524	0	0	*538*	0	3	0	2	0	*5*	1	0	462	4	0	*467*	**1010**
9:00 PM	0	0	0	0	0	*0*	0	4	114	0	0	*118*	0	0	0	0	0	*0*	0	0	79	0	0	*79*	**197**
9:15 PM	0	0	0	0	0	*0*	0	1	103	0	0	*104*	0	0	0	0	0	*0*	0	0	71	0	0	*71*	**175**
9:30 PM	0	0	0	0	0	*0*	0	2	111	0	0	*113*	0	0	0	2	0	*2*	0	0	81	0	0	*81*	**196**
9:45 PM	0	0	0	0	0	*0*	0	1	90	0	0	*91*	0	0	0	1	0	*1*	0	0	60	0	0	*60*	**152**
Hourly Total	0	0	0	0	0	*0*	0	8	418	0	0	*426*	0	0	0	3	0	*3*	0	0	291	0	0	*291*	**720**
10:00 PM	0	0	0	0	0	*0*	0	2	58	0	0	*60*	0	0	0	1	0	*1*	0	0	69	0	0	*69*	**130**
10:15 PM	0	0	0	0	0	*0*	0	1	71	0	0	*72*	0	0	0	1	0	*1*	0	0	50	0	0	*50*	**123**
10:30 PM	0	0	0	0	0	*0*	0	0	62	0	0	*62*	0	0	0	1	0	*1*	0	0	43	1	0	*44*	**107**
10:45 PM	0	0	0	0	0	*0*	0	0	46	0	0	*46*	0	0	0	3	0	*3*	0	0	45	0	0	*45*	**94**
Hourly Total	0	0	0	0	0	*0*	0	3	237	0	0	*240*	0	0	0	6	0	*6*	0	0	207	1	0	*208*	**454**
11:00 PM	0	0	0	0	0	*0*	0	0	45	0	0	*45*	0	0	0	0	0	*0*	0	0	27	0	0	*27*	**72**
11:15 PM	0	0	0	0	0	*0*	0	1	58	0	0	*59*	0	0	0	0	0	*0*	0	0	38	1	0	*39*	**98**
11:30 PM	0	0	0	0	0	*0*	0	0	60	0	0	*60*	0	0	0	0	0	*0*	0	0	34	0	0	*34*	**94**
11:45 PM	0	0	0	0	0	*0*	0	0	48	0	0	*48*	0	0	0	1	0	*1*	0	0	23	0	0	*23*	**72**
Hourly Total	0	0	0	0	0	*0*	0	1	211	0	0	*212*	0	0	0	1	0	*1*	0	0	122	1	0	*123*	**336**
DAILY TOTAL	**0**	**0**	**0**	**0**	**0**	***0***	**7**	**192**	**18281**	**0**	**0**	***18480***	**0**	**55**	**#REF!**	**198**	**10**	***#REF!***	**10**	**0**	**19290**	**68**	**0**	***19368***	**#REF!**
Cars	0	0	0	0	0	*0*	7	189	17624	0	0	*17820*	0	55	0	192	4	*247*	10	0	18461	63	0	*18534*	**36601**
Heavy Vehicles	0	0	0	0	0	*0*	0	3	657	0	0	*660*	0	0	0	6	6	*6*	0	0	829	5	0	*834*	**1500**
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	1.56%	3.59%	0.00%	0.00%	*3.57%*	0.00%	0.00%	#REF!	3.03%	60.00%	*#REF!*	0.00%	0.00%	4.30%	7.35%	0.00%	*4.31%*	**#REF!**

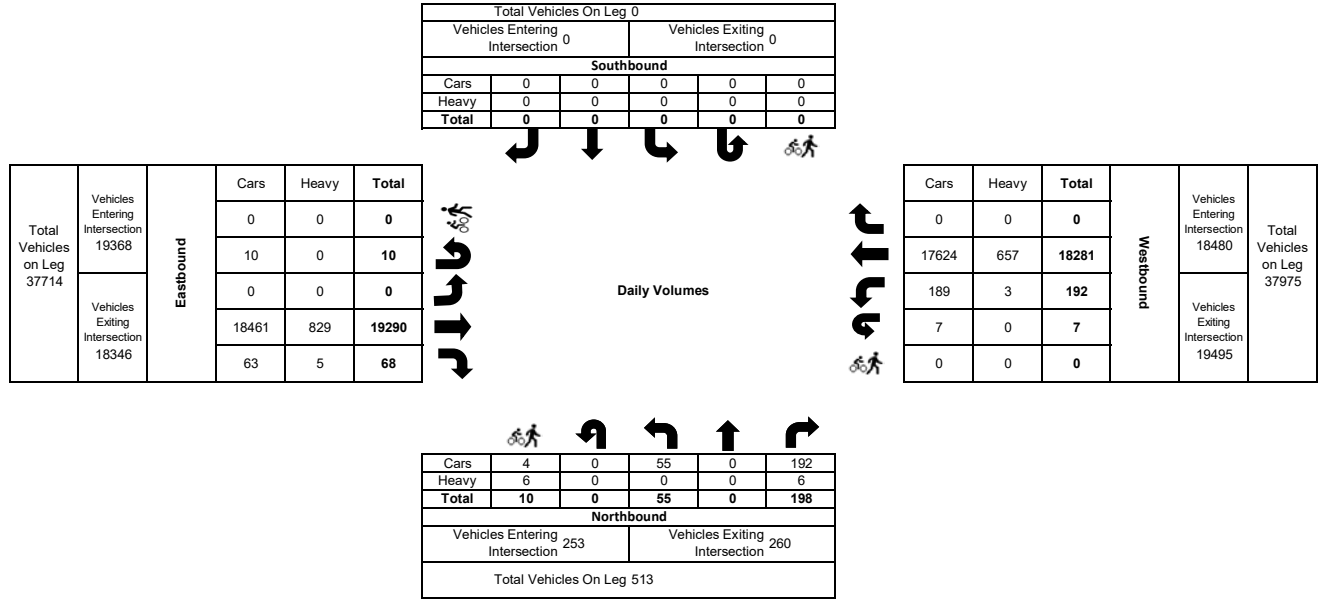
01 Hwy 10 and Bowers Dr
Ramsey MN
Wednesday, September 30, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	**#REF!**
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	**#REF!**
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	**#REF!**
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	**#REF!**
Peak Hour Total	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	**#REF!**
PHF	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	#REF!	#REF!	#REF!	#REF!	#REF!	*#REF!*	**#REF!**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	1	4	455	0	0	*460*	0	0	0	4	0	*4*	0	0	320	3	0	*323*	**787**
4:15 PM	0	0	0	0	0	*0*	0	6	445	0	0	*451*	0	1	0	2	0	*3*	0	0	334	3	0	*337*	**791**
4:30 PM	0	0	0	0	0	*0*	0	2	572	0	0	*574*	0	3	0	7	0	*10*	1	0	356	2	0	*359*	**943**
4:45 PM	0	0	0	0	0	*0*	0	4	524	0	0	*528*	0	1	0	3	0	*4*	0	0	372	1	0	*373*	**905**
Peak Hour Total	0	0	0	0	0	*0*	1	16	1996	0	0	*2013*	0	5	0	16	0	*21*	1	0	1382	9	0	*1392*	**3426**
PHF	0.000	0.000	0.000	0.000	0.000	*0.000*	0.250	0.667	0.872	0.000	0.000	*0.877*	0.000	0.417	0.000	0.571	0.000	*0.525*	0.250	0.000	0.929	0.750	0.000	*0.933*	**0.908**



02 Riverdale Dr and Llama St
Ramsey MN
Tuesday, September 29, 2020

Time	Southbound Llama St						Westbound Riverdale Dr						Northbound Llama St						Eastbound NA						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**

02 Riverdale Dr and Llama St
Ramsey MN
Tuesday, September 29, 2020

Time	Southbound Llama St						Westbound Riverdale Dr						Northbound Llama St						Eastbound NA						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:15 PM	0	1	0	0	0	*1*	1	0	0	2	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**4**
3:30 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
3:45 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
Hourly Total	0	3	0	0	0	*3*	1	0	0	3	0	*4*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**8**

02 Riverdale Dr and Llama St
Ramsey MN
Tuesday, September 29, 2020

Time	Southbound Llama St						Westbound Riverdale Dr						Northbound Llama St						Eastbound NA						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:15 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
4:30 PM	0	1	0	0	0	*1*	0	0	0	5	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**6**
4:45 PM	0	2	0	0	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
Hourly Total	0	4	0	0	0	*4*	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**10**
5:00 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
5:15 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
5:30 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**3**
5:45 PM	0	0	0	0	0	*0*	1	1	0	0	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
Hourly Total	0	1	0	0	0	*1*	1	3	0	1	0	*5*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**8**
6:00 PM	0	2	0	0	0	*2*	0	0	0	0	1	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
6:15 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
6:30 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
6:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	3	0	0	0	*3*	0	1	0	1	1	*2*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**7**
7:00 PM	0	0	0	0	0	*0*	0	0	0	0	1	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:15 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
7:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**1**
7:45 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
Hourly Total	0	0	0	0	0	*0*	0	2	0	0	1	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
8:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
DAILY TOTAL	**0**	**11**	**0**	**0**	**0**	***11***	**2**	**6**	**0**	**11**	**2**	***19***	**0**	**0**	**0**	**6**	**0**	***6***	**0**	**0**	**0**	**0**	**0**	***0***	**36**
Cars	0	11	0	0	0	*11*	2	5	0	10	2	*17*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	**32**
Heavy Vehicles	0	0	0	0	0	*0*	0	1	0	1	0	*2*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**4**
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	16.67%	0.00%	9.09%	0.00%	*10.53%*	0.00%	0.00%	0.00%	33.33%	0.00%	*33.33%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**11.11%**

02 Riverdale Dr and Llama St
Ramsey MN
Tuesday, September 29, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Peak Hour Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
PHF	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.000**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:15 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
4:30 PM	0	1	0	0	0	*1*	0	0	0	5	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**6**
4:45 PM	0	2	0	0	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
5:00 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
Peak Hour Total	0	5	0	0	0	*5*	0	0	0	7	0	*7*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**12**
PHF	0.000	0.625	0.000	0.000	0.000	*0.625*	0.000	0.000	0.000	0.350	0.000	*0.350*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.500**

Total Vehicles On Leg			22		
Vehicles Entering Intersection	11		Vehicles Exiting Intersection	11	
Southbound					
Cars	0	0	11	0	0
Heavy	0	0	0	0	0
Total	**0**	**0**	**11**	**0**	**0**

Total Vehicles on Leg 0	Vehicles Entering Intersection 0	**Eastbound**	Cars	Heavy	**Total**
			0	0	**0**
			0	0	**0**
	Vehicles Exiting Intersection 0		0	0	**0**
			0	0	**0**
			0	0	**0**

Daily Volumes

Cars	Heavy	**Total**	**Westbound**	Vehicles Entering Intersection 19	Total Vehicles on Leg 38
10	1	**11**			
0	0	**0**			
5	1	**6**		Vehicles Exiting Intersection 19	
2	0	**2**			
2	0	**2**			

Cars	0	0	0	0	4
Heavy	0	0	0	0	2
Total	**0**	**0**	**0**	**0**	**6**
Northbound					
Vehicles Entering Intersection	6		Vehicles Exiting Intersection	6	
Total Vehicles On Leg			12		

02 Riverdale Dr and Llama St
Ramsey MN
Wednesday, September 30, 2020

Time	Southbound Llama St						Westbound Riverdale Dr						Northbound Llama St						Eastbound NA						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**1**
6:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**1**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**2**
7:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:45 AM	0	0	0	0	0	*0*	0	5	0	0	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**
Hourly Total	0	0	0	0	0	*0*	0	5	0	0	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**

02 Riverdale Dr and Llama St
Ramsey MN
Wednesday, September 30, 2020

Time	Southbound Llama St						Westbound Riverdale Dr						Northbound Llama St						Eastbound NA						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
8:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:30 AM	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
8:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	1	0	1	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
9:00 AM	0	2	0	0	0	*2*	1	0	0	1	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**4**
9:15 AM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
9:30 AM	0	1	0	0	0	*1*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
9:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	3	0	0	0	*3*	1	1	0	3	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**8**
10:00 AM	0	0	0	0	1	*0*	0	1	0	0	0	*1*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**3**
10:15 AM	0	0	0	0	0	*0*	0	1	0	1	0	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
10:30 AM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**2**
10:45 AM	0	0	0	0	0	*0*	1	1	0	0	0	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
Hourly Total	0	0	0	0	1	*0*	1	4	0	1	0	*6*	0	0	0	5	0	*5*	0	0	0	0	0	*0*	**11**
11:00 AM	0	1	0	0	0	*1*	1	0	0	1	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
11:15 AM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
11:30 AM	0	0	0	0	0	*0*	0	1	0	2	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
11:45 AM	0	1	0	0	0	*1*	0	1	0	1	1	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**4**
Hourly Total	0	3	0	0	0	*3*	1	2	0	5	1	*8*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**12**
12:00 PM	0	0	0	0	0	*0*	0	1	0	1	0	*2*	0	0	0	3	0	*3*	0	0	0	0	0	*0*	**5**
12:15 PM	0	1	0	0	0	*1*	2	1	0	2	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**6**
12:30 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
12:45 PM	0	0	0	0	0	*0*	0	2	0	0	0	*2*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**4**
Hourly Total	0	2	0	0	0	*2*	2	4	0	3	0	*9*	0	0	0	5	0	*5*	0	0	0	0	0	*0*	**16**
1:00 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
1:15 PM	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
1:30 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
1:45 PM	0	1	0	0	0	*1*	1	1	0	0	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
Hourly Total	0	3	0	0	0	*3*	1	1	0	2	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**7**
2:00 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	**6**
2:15 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**4**
2:30 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**2**
2:45 PM	0	2	0	0	0	*2*	0	1	0	1	0	*2*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**6**
Hourly Total	0	5	0	0	0	*5*	0	1	0	3	0	*4*	0	0	0	9	0	*9*	0	0	0	0	0	*0*	**18**
3:00 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
3:15 PM	0	0	0	0	0	*0*	1	0	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
3:30 PM	0	2	0	0	0	*2*	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**
3:45 PM	0	3	0	0	0	*3*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**
Hourly Total	0	6	0	0	0	*6*	1	0	0	5	0	*6*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**12**

02 Riverdale Dr and Llama St
Ramsey MN
Wednesday, September 30, 2020

Time	Southbound Llama St						Westbound Riverdale Dr						Northbound Llama St						Eastbound NA						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	1	0	0	1	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
4:15 PM	0	1	0	0	0	*1*	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
4:30 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
4:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	2	0	0	0	*2*	1	1	0	2	0	*4*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**7**
5:00 PM	0	0	0	0	0	*0*	0	2	0	0	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
5:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**1**
5:30 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**2**
5:45 PM	0	1	0	0	1	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
Hourly Total	0	2	0	0	1	*2*	0	2	0	1	0	*3*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**7**
6:00 PM	0	0	0	0	0	*0*	0	0	0	0	1	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:45 PM	0	1	0	0	0	*1*	1	0	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
Hourly Total	0	1	0	0	0	*1*	1	0	0	0	1	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
7:00 PM	0	0	0	0	0	*0*	1	0	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
7:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:30 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
7:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	1	1	0	0	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
8:00 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
8:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**1**
8:30 PM	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
8:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	2	0	0	0	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**3**
9:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:45 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
Hourly Total	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
11:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:45 PM	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
Hourly Total	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
DAILY TOTAL	**0**	**28**	**0**	**0**	**2**	***28***	**10**	**25**	**0**	**27**	**2**	***62***	**0**	**0**	**0**	**26**	**0**	***26***	**0**	**0**	**0**	**0**	**0**	***0***	**116**
Cars	0	28	0	0	2	*28*	8	23	0	26	2	*57*	0	0	0	24	0	*24*	0	0	0	0	0	*0*	**109**
Heavy Vehicles	0	0	0	0	0	*0*	2	2	0	1	0	*5*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**7**
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	20.00%	8.00%	0.00%	3.70%	0.00%	*8.06%*	0.00%	0.00%	0.00%	7.69%	0.00%	*7.69%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**6.03%**

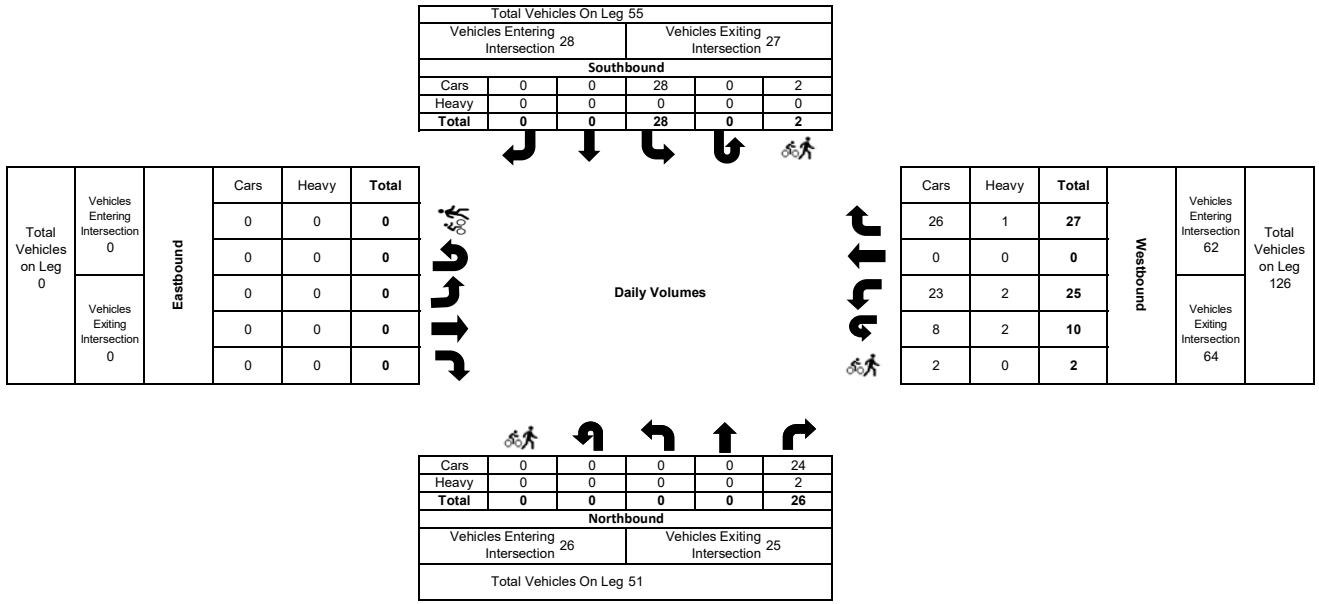
02 Riverdale Dr and Llama St
Ramsey MN
Wednesday, September 30, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
11:00 AM	0	1	0	0	0	*1*	1	0	0	1	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
11:15 AM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
11:30 AM	0	0	0	0	0	*0*	0	1	0	2	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
11:45 AM	0	1	0	0	0	*1*	0	1	0	1	1	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**4**
Peak Hour Total	0	3	0	0	0	*3*	1	2	0	5	1	*8*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**12**
PHF	0.000	0.750	0.000	0.000	0.000	*0.750*	0.250	0.500	0.000	0.625	0.250	*0.667*	0.000	0.000	0.000	0.250	0.000	*0.250*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.750**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
2:00 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	**6**
2:15 PM	0	1	0	0	0	*1*	0	0	0	1	0	*1*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**4**
2:30 PM	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	**2**
2:45 PM	0	2	0	0	0	*2*	0	1	0	1	0	*2*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	**6**
Peak Hour Total	0	5	0	0	0	*5*	0	1	0	3	0	*4*	0	0	0	9	0	*9*	0	0	0	0	0	*0*	**18**
PHF	0.000	0.625	0.000	0.000	0.000	*0.625*	0.000	0.250	0.000	0.750	0.000	*0.500*	0.000	0.000	0.000	0.563	0.000	*0.563*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.750**



Appendix D - Traffic Counts

Riverdale Dr and Southern Ramps
Ramsey MN
Wednesday, October 21, 2020

Time	Southbound Armstorng Blvd						Westbound Riverdale Drive						Northbound Riverdale Dr						Eastbound HWY 10 S Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	3	0	*3*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**5**
12:15 AM	0	0	0	1	0	*1*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	2	1	0	0	*3*	**6**
12:30 AM	0	0	0	2	0	*2*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	1	1	0	0	*2*	**5**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	6	0	*6*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	4	2	0	0	*6*	**16**
1:00 AM	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**5**
1:15 AM	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**6**
1:30 AM	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**2**
1:45 AM	0	1	0	3	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**4**
Hourly Total	0	1	0	11	0	*12*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	5	0	0	0	*5*	**17**
2:00 AM	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	1	0	0	*2*	**5**
2:15 AM	0	0	0	0	0	*0*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	0	1	0	0	*1*	**3**
2:30 AM	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**7**
2:45 AM	1	0	0	5	0	*6*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**7**
Hourly Total	1	0	0	11	0	*12*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	6	2	0	0	*8*	**22**
3:00 AM	0	0	0	3	0	*3*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**4**
3:15 AM	0	0	0	8	0	*8*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**9**
3:30 AM	0	0	0	7	0	*7*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	3	1	0	0	*4*	**12**
3:45 AM	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**6**
Hourly Total	0	0	0	24	0	*24*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	4	1	0	0	*5*	**31**
4:00 AM	0	0	0	15	0	*15*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**17**
4:15 AM	0	1	1	20	0	*22*	0	0	0	0	0	*0*	0	0	1	1	0	*2*	0	2	0	0	0	*2*	**26**
4:30 AM	0	0	1	15	0	*16*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	7	0	0	0	*7*	**26**
4:45 AM	0	1	0	21	0	*22*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	9	0	0	0	*9*	**33**
Hourly Total	0	2	2	71	0	*75*	0	1	0	4	0	*5*	0	0	2	1	0	*3*	0	19	0	0	0	*19*	**102**
5:00 AM	0	0	0	30	0	*30*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	8	1	0	0	*9*	**39**
5:15 AM	0	0	1	35	0	*36*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	17	0	0	0	*17*	**53**
5:30 AM	0	1	0	58	0	*59*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	28	0	0	0	*28*	**88**
5:45 AM	0	1	0	37	0	*38*	0	1	1	3	0	*5*	0	0	0	0	0	*0*	0	38	0	0	0	*38*	**81**
Hourly Total	0	2	1	160	0	*163*	0	1	1	4	0	*6*	0	0	0	0	0	*0*	0	91	1	0	0	*92*	**261**
6:00 AM	0	3	1	45	0	*49*	0	0	1	1	0	*2*	0	0	0	1	0	*1*	0	20	0	0	0	*20*	**72**
6:15 AM	0	1	2	55	0	*58*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	28	0	0	0	*28*	**86**
6:30 AM	0	4	0	63	0	*67*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	31	2	1	0	*34*	**101**
6:45 AM	0	2	7	60	0	*69*	0	1	1	1	0	*3*	0	0	1	0	0	*1*	0	49	2	7	0	*58*	**131**
Hourly Total	0	10	10	223	0	*243*	0	1	2	2	0	*5*	0	0	1	1	0	*2*	0	128	4	8	0	*140*	**390**
7:00 AM	0	2	3	60	0	*65*	0	0	1	2	0	*3*	0	1	2	0	0	*3*	0	34	2	1	0	*37*	**108**
7:15 AM	0	5	0	60	0	*65*	0	0	1	5	0	*6*	0	0	0	0	0	*0*	0	47	0	2	0	*49*	**120**
7:30 AM	0	9	2	54	0	*65*	0	1	1	0	0	*2*	0	0	0	0	0	*0*	0	53	2	0	0	*55*	**122**
7:45 AM	0	5	6	36	0	*47*	0	0	1	3	0	*4*	0	0	1	0	0	*1*	0	48	6	1	0	*55*	**107**
Hourly Total	0	21	11	210	0	*242*	0	1	4	10	0	*15*	0	1	3	0	0	*4*	0	182	10	4	0	*196*	**457**

Riverdale Dr and Southern Ramps
Ramsey MN
Wednesday, October 21, 2020

Time	Southbound Armstorng Blvd						Westbound Riverdale Drive						Northbound Riverdale Dr						Eastbound HWY 10 S Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	6	1	60	0	*67*	0	0	1	5	0	*6*	0	1	0	0	0	*1*	0	22	4	0	0	*26*	**100**
8:15 AM	0	4	1	43	0	*48*	0	0	1	5	0	*6*	0	1	1	0	0	*2*	0	27	2	0	0	*29*	**85**
8:30 AM	0	3	3	34	0	*40*	0	0	1	2	0	*3*	0	1	0	0	0	*1*	0	18	2	3	0	*23*	**67**
8:45 AM	0	5	0	43	0	*48*	0	0	0	2	0	*2*	0	0	0	2	0	*2*	0	19	1	1	0	*21*	**73**
Hourly Total	0	18	5	180	0	*203*	0	0	3	14	0	*17*	0	3	1	2	0	*6*	0	86	9	4	0	*99*	**325**
9:00 AM	0	3	1	41	0	*45*	0	1	0	10	0	*11*	0	0	3	0	0	*3*	0	8	3	0	0	*11*	**70**
9:15 AM	0	7	2	30	0	*39*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	18	2	1	0	*21*	**62**
9:30 AM	0	5	2	43	0	*50*	0	0	2	3	0	*5*	0	0	1	1	0	*2*	0	20	4	0	0	*24*	**81**
9:45 AM	0	4	1	28	0	*33*	0	0	2	3	0	*5*	0	2	1	0	0	*3*	0	18	2	1	0	*21*	**62**
Hourly Total	0	19	6	142	0	*167*	0	1	4	18	0	*23*	0	2	5	1	0	*8*	0	64	11	2	0	*77*	**275**
10:00 AM	0	9	1	33	0	*43*	0	1	3	4	0	*8*	0	0	2	0	0	*2*	0	13	3	1	0	*17*	**70**
10:15 AM	0	5	2	30	0	*37*	0	1	1	3	0	*5*	0	0	2	2	0	*4*	0	14	1	1	0	*16*	**62**
10:30 AM	0	5	5	37	0	*47*	0	1	2	5	0	*8*	0	2	5	0	0	*7*	0	20	0	2	0	*22*	**84**
10:45 AM	0	9	3	23	0	*35*	0	0	0	8	0	*8*	0	2	0	2	0	*4*	0	15	0	3	0	*18*	**65**
Hourly Total	0	28	11	123	0	*162*	0	3	6	20	0	*29*	0	4	9	4	0	*17*	0	62	4	7	0	*73*	**281**
11:00 AM	0	9	1	40	0	*50*	0	0	2	3	0	*5*	0	0	3	1	0	*4*	0	16	1	2	0	*19*	**78**
11:15 AM	1	5	0	37	0	*43*	0	0	2	4	0	*6*	0	1	2	0	0	*3*	0	24	3	2	0	*29*	**81**
11:30 AM	0	5	2	41	0	*48*	0	0	0	6	0	*6*	0	1	2	0	0	*3*	0	21	0	1	0	*22*	**79**
11:45 AM	0	5	6	26	0	*37*	0	0	1	10	0	*11*	0	1	2	1	0	*4*	0	23	1	0	0	*24*	**76**
Hourly Total	1	24	9	144	0	*178*	0	0	5	23	0	*28*	0	3	9	2	0	*14*	0	84	5	5	0	*94*	**314**
12:00 PM	1	12	6	30	0	*49*	0	1	1	7	0	*9*	0	4	3	2	0	*9*	0	13	0	2	0	*15*	**82**
12:15 PM	0	7	7	32	0	*46*	0	1	1	8	0	*10*	0	0	6	1	0	*7*	0	29	4	1	0	*34*	**97**
12:30 PM	0	4	2	49	0	*55*	0	0	6	4	0	*10*	0	0	2	0	0	*2*	0	23	1	2	0	*26*	**93**
12:45 PM	0	5	2	31	0	*38*	0	0	1	7	0	*8*	0	2	6	1	0	*9*	0	19	3	2	0	*24*	**79**
Hourly Total	1	28	17	142	0	*188*	0	2	9	26	0	*37*	0	6	17	4	0	*27*	0	84	8	7	0	*99*	**351**
1:00 PM	0	4	1	34	0	*39*	0	0	3	9	0	*12*	0	3	0	0	0	*3*	0	16	2	0	0	*18*	**72**
1:15 PM	0	7	5	39	0	*51*	0	0	0	2	0	*2*	0	0	0	1	0	*1*	0	27	1	0	0	*28*	**82**
1:30 PM	1	4	2	37	0	*44*	0	0	1	6	0	*7*	0	2	2	1	0	*5*	0	20	0	1	0	*21*	**77**
1:45 PM	0	7	1	44	0	*52*	0	0	2	4	0	*6*	0	3	1	1	0	*5*	0	25	1	3	0	*29*	**92**
Hourly Total	1	22	9	154	0	*186*	0	0	6	21	0	*27*	0	8	3	3	0	*14*	0	88	4	4	0	*96*	**323**
2:00 PM	0	7	3	25	0	*35*	0	0	3	3	0	*6*	0	1	1	0	0	*2*	0	25	2	5	0	*32*	**75**
2:15 PM	0	10	3	33	0	*46*	0	0	1	3	0	*4*	0	2	3	1	0	*6*	0	31	1	1	0	*33*	**89**
2:30 PM	0	9	1	28	0	*38*	0	0	2	5	0	*7*	0	1	4	1	0	*6*	0	24	1	1	0	*26*	**77**
2:45 PM	1	3	2	26	0	*32*	0	0	2	7	0	*9*	0	0	1	1	0	*2*	0	29	3	1	0	*33*	**76**
Hourly Total	1	29	9	112	0	*151*	0	0	8	18	0	*26*	0	4	9	3	0	*16*	0	109	7	8	0	*124*	**317**
3:00 PM	0	7	2	32	0	*41*	0	0	2	6	0	*8*	0	0	2	0	0	*2*	0	30	1	1	0	*32*	**83**
3:15 PM	0	7	2	28	0	*37*	0	0	2	8	0	*10*	0	0	2	0	0	*2*	0	46	3	1	0	*50*	**99**
3:30 PM	0	9	0	47	0	*56*	0	0	1	7	0	*8*	0	3	3	0	0	*6*	0	48	3	2	0	*53*	**123**
3:45 PM	0	2	0	44	0	*46*	0	0	1	9	0	*10*	0	0	3	2	0	*5*	0	42	1	3	0	*46*	**107**
Hourly Total	0	25	4	151	0	*180*	0	0	6	30	0	*36*	0	3	10	2	0	*15*	0	166	8	7	0	*181*	**412**

Riverdale Dr and Southern Ramps
Ramsey MN
Wednesday, October 21, 2020

Time	Southbound Armstorng Blvd						Westbound Riverdale Drive						Northbound Riverdale Dr						Eastbound HWY 10 S Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	6	0	37	0	*43*	0	0	1	9	0	*10*	0	3	2	0	0	*5*	0	41	1	1	0	*43*	**101**
4:15 PM	0	1	2	41	0	*44*	0	0	1	6	0	*7*	0	1	3	0	0	*4*	0	44	2	1	0	*47*	**102**
4:30 PM	0	3	2	78	0	*83*	0	0	3	12	0	*15*	0	4	8	1	0	*13*	0	52	3	1	0	*56*	**167**
4:45 PM	0	11	3	51	0	*65*	0	1	0	9	1	*10*	0	2	2	1	0	*5*	0	67	3	0	0	*70*	**150**
Hourly Total	0	21	7	207	0	*235*	0	1	5	36	1	*42*	0	10	15	2	0	*27*	0	204	9	3	0	*216*	**520**
5:00 PM	0	3	1	42	0	*46*	0	0	5	17	0	*22*	0	3	1	1	0	*5*	0	46	2	1	0	*49*	**122**
5:15 PM	0	8	1	45	0	*54*	0	0	0	8	0	*8*	0	1	3	0	0	*4*	0	64	3	2	0	*69*	**135**
5:30 PM	0	7	2	52	0	*61*	0	0	2	4	0	*6*	0	1	3	0	0	*4*	0	29	3	0	0	*32*	**103**
5:45 PM	0	4	1	40	0	*45*	0	0	3	8	0	*11*	0	3	2	0	0	*5*	0	40	0	0	0	*40*	**101**
Hourly Total	0	22	5	179	0	*206*	0	0	10	37	0	*47*	0	8	9	1	0	*18*	0	179	8	3	0	*190*	**461**
6:00 PM	0	4	0	39	0	*43*	0	1	3	5	0	*9*	0	1	2	0	0	*3*	0	24	1	0	0	*25*	**80**
6:15 PM	0	3	1	42	0	*46*	0	0	0	4	0	*4*	0	2	3	0	0	*5*	0	31	1	1	0	*33*	**88**
6:30 PM	0	4	0	31	0	*35*	0	0	1	3	0	*4*	0	0	1	0	0	*1*	0	27	0	0	0	*27*	**67**
6:45 PM	0	3	0	29	0	*32*	0	0	2	3	0	*5*	0	2	0	0	0	*2*	0	32	1	0	0	*33*	**72**
Hourly Total	0	14	1	141	0	*156*	0	1	6	15	0	*22*	0	5	6	0	0	*11*	0	114	3	1	0	*118*	**307**
7:00 PM	0	3	0	25	0	*28*	0	0	3	5	0	*8*	0	0	0	0	0	*0*	0	26	1	0	0	*27*	**63**
7:15 PM	0	2	0	17	0	*19*	0	0	4	1	0	*5*	0	0	0	0	0	*0*	0	23	0	0	0	*23*	**47**
7:30 PM	0	4	0	32	0	*36*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	21	0	0	0	*21*	**57**
7:45 PM	0	1	0	7	0	*8*	0	0	1	2	0	*3*	0	0	0	0	0	*0*	0	23	0	0	0	*23*	**34**
Hourly Total	0	10	0	81	0	*91*	0	0	8	8	0	*16*	0	0	0	0	0	*0*	0	93	1	0	0	*94*	**201**
8:00 PM	0	1	0	16	0	*17*	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	10	0	0	0	*10*	**30**
8:15 PM	0	2	0	15	0	*17*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	10	0	0	0	*10*	**28**
8:30 PM	0	1	0	7	0	*8*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	11	0	0	0	*11*	**19**
8:45 PM	0	1	0	12	0	*13*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	10	3	0	0	*13*	**28**
Hourly Total	0	5	0	50	0	*55*	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	41	3	0	0	*44*	**105**
9:00 PM	0	0	2	14	0	*16*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	0	5	0	0	0	*5*	**22**
9:15 PM	1	1	0	9	0	*11*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**15**
9:30 PM	0	3	0	6	0	*9*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	0	6	0	0	0	*6*	**16**
9:45 PM	0	0	0	4	0	*4*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	10	0	0	0	*10*	**15**
Hourly Total	1	4	2	33	0	*40*	0	0	2	1	0	*3*	0	0	0	0	0	*0*	0	25	0	0	0	*25*	**68**
10:00 PM	0	0	0	5	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	2	0	0	*6*	**11**
10:15 PM	1	1	0	5	0	*7*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	6	0	0	0	*6*	**13**
10:30 PM	0	0	0	10	0	*10*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**14**
10:45 PM	0	1	0	14	0	*15*	0	0	0	0	0	*0*	0	0	1	0	0	*1*	0	1	0	0	0	*1*	**17**
Hourly Total	1	2	0	34	0	*37*	0	0	0	0	0	*0*	0	0	1	0	0	*1*	0	15	2	0	0	*17*	**55**
11:00 PM	0	0	0	8	0	*8*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**9**
11:15 PM	0	1	1	8	0	*10*	0	0	0	0	0	*0*	0	0	1	0	0	*1*	0	5	0	0	0	*5*	**16**
11:30 PM	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**5**
11:45 PM	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
Hourly Total	0	1	1	17	0	*19*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	9	0	0	0	*9*	**31**
DAILY TOTAL	**7**	**308**	**110**	**2606**	**0**	***3031***	**0**	**12**	**85**	**303**	**1**	***400***	**0**	**57**	**101**	**26**	**0**	***184***	**0**	**1862**	**102**	**63**	**0**	***2027***	**5642**
Cars	6	302	100	2515	0	*2923*	0	10	83	301	1	*394*	0	52	92	24	0	*168*	0	1830	98	60	0	*1988*	**5473**
Heavy Vehicles	1	6	10	91	0	*108*	0	2	2	2	0	*6*	0	5	9	2	0	*16*	0	32	4	3	0	*39*	**169**
Heavy Vehicle %	14.29%	1.95%	9.09%	3.49%	0.00%	*3.56%*	0.00%	16.67%	2.35%	0.66%	0.00%	*1.50%*	0.00%	8.77%	8.91%	7.69%	0.00%	*8.70%*	0.00%	1.72%	3.92%	4.76%	0.00%	*1.92%*	**3.00%**

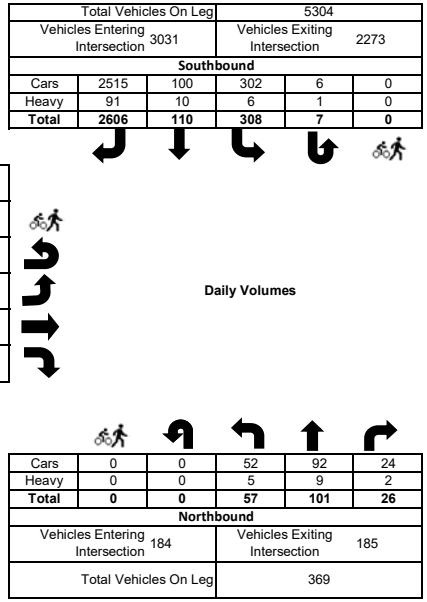
Riverdale Dr and Southern Ramps
Ramsey MN
Wednesday, October 21, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
6:45 AM	0	2	7	60	0	*69*	0	1	1	1	0	*3*	0	0	1	0	0	*1*	0	49	2	7	0	*58*	**131**
7:00 AM	0	2	3	60	0	*65*	0	0	1	2	0	*3*	0	1	2	0	0	*3*	0	34	2	1	0	*37*	**108**
7:15 AM	0	5	0	60	0	*65*	0	0	1	5	0	*6*	0	0	0	0	0	*0*	0	47	0	2	0	*49*	**120**
7:30 AM	0	9	2	54	0	*65*	0	1	1	0	0	*2*	0	0	0	0	0	*0*	0	53	2	0	0	*55*	**122**
Peak Hour Total	0	18	12	234	0	*264*	0	2	4	8	0	*14*	0	1	3	0	0	*4*	0	183	6	10	0	*199*	**481**
PHF	0.000	0.500	0.429	0.975	0.000	*0.957*	0.000	0.500	1.000	0.400	0.000	*0.583*	0.000	0.250	0.375	0.000	0.000	*0.333*	0.000	0.863	0.750	0.357	0.000	*0.858*	**0.918**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:30 PM	0	3	2	78	0	*83*	0	0	3	12	0	*15*	0	4	8	1	0	*13*	0	52	3	1	0	*56*	**167**
4:45 PM	0	11	3	51	0	*65*	0	1	0	9	1	*10*	0	2	2	1	0	*5*	0	67	3	0	0	*70*	**150**
5:00 PM	0	3	1	42	0	*46*	0	0	5	17	0	*22*	0	3	1	1	0	*5*	0	46	2	1	0	*49*	**122**
5:15 PM	0	8	1	45	0	*54*	0	0	0	8	0	*8*	0	1	3	0	0	*4*	0	64	3	2	0	*69*	**135**
Peak Hour Total	0	25	7	216	0	*248*	0	1	8	46	1	*55*	0	10	14	3	0	*27*	0	229	11	4	0	*244*	**574**
PHF	0.000	0.568	0.583	0.692	0.000	*0.747*	0.000	0.250	0.400	0.676	0.250	*0.625*	0.000	0.625	0.438	0.750	0.000	*0.519*	0.000	0.854	0.917	0.500	0.000	*0.871*	**0.859**



Appendix D - Traffic Counts

Riverdale Dr and Southern Ramps
Ramsey MN
Thursday, October 22, 2020

Time	Southbound Armstorng Blvd						Westbound Riverdale Drive						Northbound Riverdale Dr						Eastbound HWY 10 S Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**3**
12:15 AM	0	1	0	2	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
12:30 AM	0	0	0	4	0	*4*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**7**
12:45 AM	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	3	0	0	0	*3*	**4**
Hourly Total	0	1	0	9	0	*10*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	6	0	0	0	*6*	**17**
1:00 AM	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**1**
1:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 AM	0	2	0	3	0	*5*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**8**
1:45 AM	0	1	0	3	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**6**
Hourly Total	0	3	0	7	0	*10*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**15**
2:00 AM	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**4**
2:15 AM	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**3**
2:30 AM	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**6**
2:45 AM	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**4**
Hourly Total	0	0	0	13	0	*13*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**17**
3:00 AM	0	0	0	3	0	*3*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**5**
3:15 AM	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**5**
3:30 AM	0	0	0	7	0	*7*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**9**
3:45 AM	0	0	0	13	0	*13*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**14**
Hourly Total	0	0	0	27	0	*27*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**33**
4:00 AM	0	1	0	10	0	*11*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	**12**
4:15 AM	0	0	0	14	0	*14*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**14**
4:30 AM	0	0	0	25	0	*25*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	5	0	0	0	*5*	**32**
4:45 AM	0	0	0	12	0	*12*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	11	0	0	0	*11*	**23**
Hourly Total	0	1	0	61	0	*62*	0	0	0	2	0	2	0	0	0	0	0	*0*	0	17	0	0	0	*17*	**81**
5:00 AM	0	1	0	29	0	*30*	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	8	1	0	0	*9*	**42**
5:15 AM	0	0	0	29	0	*29*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	14	0	0	0	*14*	**44**
5:30 AM	0	2	0	55	0	*57*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	24	0	0	0	*24*	**82**
5:45 AM	0	0	0	32	0	*32*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	44	0	0	0	*44*	**77**
Hourly Total	0	3	0	145	0	*148*	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	90	1	0	0	*91*	**245**
6:00 AM	0	1	0	55	0	*56*	0	1	1	1	0	*3*	0	0	0	0	0	*0*	0	17	1	0	0	*18*	**77**
6:15 AM	0	2	1	60	0	*63*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	22	0	0	0	*22*	**85**
6:30 AM	0	1	1	61	0	*63*	0	0	0	1	0	*1*	0	0	1	0	0	*1*	0	30	2	2	0	*34*	**99**
6:45 AM	0	3	6	57	0	*66*	0	0	2	5	0	*7*	0	0	0	0	0	*0*	0	53	3	4	0	*60*	**133**
Hourly Total	0	7	8	233	0	*248*	0	1	3	7	0	*11*	0	0	1	0	0	*1*	0	122	6	6	0	*134*	**394**
7:00 AM	0	3	3	66	0	*72*	0	1	1	8	0	*10*	0	0	0	1	0	*1*	0	39	2	2	0	*43*	**126**
7:15 AM	0	4	1	73	0	*78*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	47	1	3	0	*51*	**130**
7:30 AM	0	8	3	56	0	*67*	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	51	1	1	0	*53*	**126**
7:45 AM	0	5	0	55	0	*60*	0	0	1	5	0	*6*	0	0	2	0	0	*2*	1	48	9	2	0	*60*	**128**
Hourly Total	0	20	7	250	0	*277*	0	2	2	19	0	23	0	0	2	1	0	3	1	185	13	8	0	*207*	**510**

Appendix D - Traffic Counts

Riverdale Dr and Southern Ramps
Ramsey MN
Thursday, October 22, 2020

Time	Southbound Armstorng Blvd						Westbound Riverdale Drive						Northbound Riverdale Dr						Eastbound HWY 10 S Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	5	3	63	0	*71*	0	0	2	4	0	*6*	0	0	2	0	0	*2*	0	30	0	2	0	*32*	**111**
8:15 AM	0	4	1	44	0	*49*	0	0	1	4	0	*5*	0	0	0	2	0	*2*	0	21	3	0	0	*24*	**80**
8:30 AM	0	6	1	43	0	*50*	0	0	1	5	0	*6*	0	1	0	0	0	*1*	0	22	0	3	0	*25*	**82**
8:45 AM	0	2	3	39	0	*44*	0	0	1	1	0	*2*	0	1	0	0	0	*1*	0	22	2	1	0	*25*	**72**
Hourly Total	0	17	8	189	0	*214*	0	0	5	14	0	*19*	0	2	2	2	0	*6*	0	95	5	6	0	*106*	**345**
9:00 AM	0	2	2	37	0	*41*	0	1	2	4	0	*7*	0	1	1	0	0	*2*	0	21	5	1	0	*27*	**77**
9:15 AM	0	5	1	39	0	*45*	0	1	1	3	0	*5*	0	1	4	0	0	*5*	0	13	2	2	0	*17*	**72**
9:30 AM	0	5	0	40	0	*45*	0	1	0	1	0	*2*	0	1	0	1	0	*2*	0	11	2	1	0	*14*	**63**
9:45 AM	0	6	1	41	0	*48*	0	0	2	4	0	*6*	0	0	1	1	0	*2*	0	18	5	0	0	*23*	**79**
Hourly Total	0	18	4	157	0	*179*	0	3	5	12	0	*20*	0	3	6	2	0	*11*	0	63	14	4	0	*81*	**291**
10:00 AM	0	5	4	31	0	*40*	0	1	4	8	0	*13*	0	0	0	2	0	*2*	0	18	0	2	0	*20*	**75**
10:15 AM	0	8	0	32	0	*40*	0	0	4	1	0	*5*	0	1	2	2	0	*5*	0	21	1	2	0	*24*	**74**
10:30 AM	1	3	5	39	0	*48*	0	1	2	5	0	*8*	0	0	6	0	0	*6*	0	16	2	0	0	*18*	**80**
10:45 AM	0	3	2	32	0	*37*	0	0	1	5	0	*6*	0	0	0	0	0	*0*	0	19	3	0	0	*22*	**65**
Hourly Total	1	19	11	134	0	*165*	0	2	11	19	0	*32*	0	1	8	4	0	*13*	0	74	6	4	0	*84*	**294**
11:00 AM	0	11	4	36	0	*51*	0	0	0	4	0	*4*	0	1	2	1	0	*4*	0	14	3	2	0	*19*	**78**
11:15 AM	0	8	3	30	0	*41*	0	0	1	6	0	*7*	0	2	1	0	0	*3*	0	16	1	0	0	*17*	**68**
11:30 AM	1	1	4	24	0	*30*	0	0	3	5	0	*8*	0	0	0	2	0	*2*	0	17	3	1	0	*21*	**61**
11:45 AM	0	3	0	28	0	*31*	0	1	3	7	0	*11*	0	0	1	0	0	*1*	0	20	0	0	0	*20*	**63**
Hourly Total	1	23	11	118	0	*153*	0	1	7	22	0	*30*	0	3	4	3	0	*10*	0	67	7	3	0	*77*	**270**
12:00 PM	0	6	0	34	0	*40*	0	0	1	7	0	*8*	0	0	3	0	0	*3*	0	18	3	2	0	*23*	**74**
12:15 PM	0	7	6	23	0	*36*	0	0	0	9	0	*9*	0	0	3	0	0	*3*	0	16	4	0	0	*20*	**68**
12:30 PM	0	8	2	25	0	*35*	0	0	4	4	0	*8*	0	0	7	0	0	*7*	0	15	1	1	0	*17*	**67**
12:45 PM	0	8	2	25	0	*35*	0	0	0	2	0	*2*	0	1	1	0	0	*2*	1	21	3	0	0	*25*	**64**
Hourly Total	0	29	10	107	0	*146*	0	0	5	22	0	*27*	0	1	14	0	0	*15*	1	70	11	3	0	*85*	**273**
1:00 PM	0	7	2	33	0	*42*	0	0	0	5	0	*5*	0	0	4	0	0	*4*	0	20	2	0	0	*22*	**73**
1:15 PM	0	3	5	31	0	*39*	0	0	0	11	0	*11*	0	1	3	1	0	*5*	0	16	1	0	0	*17*	**72**
1:30 PM	0	7	3	30	0	*40*	0	0	2	0	0	*2*	0	1	2	0	0	*3*	0	25	1	0	0	*26*	**71**
1:45 PM	0	6	2	27	0	*35*	0	1	1	2	0	*4*	0	1	0	0	0	*1*	0	16	5	1	0	*22*	**62**
Hourly Total	0	23	12	121	0	*156*	0	1	3	18	0	*22*	0	3	9	1	0	*13*	0	77	9	1	0	*87*	**278**
2:00 PM	0	3	0	27	0	*30*	0	0	1	7	0	*8*	0	0	1	0	0	*1*	0	20	1	1	0	*22*	**61**
2:15 PM	0	3	3	23	0	*29*	0	0	1	4	0	*5*	0	1	3	0	0	*4*	0	17	3	3	0	*23*	**61**
2:30 PM	0	2	0	23	0	*25*	0	0	2	6	0	*8*	0	2	2	1	0	*5*	1	20	1	3	0	*25*	**63**
2:45 PM	0	4	1	26	0	*31*	0	0	2	3	0	*5*	0	0	0	1	0	*1*	0	30	3	1	0	*34*	**71**
Hourly Total	0	12	4	99	0	*115*	0	0	6	20	0	*26*	0	3	6	2	0	*11*	1	87	8	8	0	*104*	**256**
3:00 PM	0	11	2	40	0	*53*	0	0	1	8	0	*9*	0	1	2	1	0	*4*	0	29	2	1	0	*32*	**98**
3:15 PM	0	8	1	20	0	*29*	0	0	3	6	0	*9*	0	1	1	1	0	*3*	0	34	2	1	0	*37*	**78**
3:30 PM	0	7	1	37	0	*45*	0	0	0	9	0	*9*	0	0	4	1	0	*5*	0	25	0	1	0	*26*	**85**
3:45 PM	0	2	1	28	0	*31*	0	0	1	4	0	*5*	0	0	3	1	0	*4*	0	37	6	1	0	*44*	**84**
Hourly Total	0	28	5	125	0	*158*	0	0	5	27	0	*32*	0	2	10	4	0	*16*	0	125	10	4	0	*139*	**345**

Riverdale Dr and Southern Ramps
Ramsey MN
Thursday, October 22, 2020

Time	Southbound Armstorng Blvd						Westbound Riverdale Drive						Northbound Riverdale Dr						Eastbound HWY 10 S Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	4	0	44	0	*48*	0	0	0	10	0	*10*	0	2	2	0	0	*4*	0	45	1	2	0	*48*	**110**
4:15 PM	0	7	0	33	0	*40*	0	0	0	9	0	*9*	0	1	0	0	0	*1*	0	38	3	2	0	*43*	**93**
4:30 PM	0	2	2	69	0	*73*	0	0	5	13	0	*18*	0	3	8	0	0	*11*	0	32	1	3	0	*36*	**138**
4:45 PM	1	3	1	44	0	*49*	1	0	2	6	0	*9*	0	2	5	1	0	*8*	0	39	1	1	0	*41*	**107**
Hourly Total	1	16	3	190	0	*210*	1	0	7	38	0	*46*	0	8	15	1	0	*24*	0	154	6	8	0	*168*	**448**
5:00 PM	0	7	0	53	0	*60*	0	1	5	18	0	*24*	0	2	3	1	0	*6*	0	53	1	0	0	*54*	**144**
5:15 PM	1	6	0	33	0	*40*	0	0	1	8	0	*9*	0	3	1	0	0	*4*	0	33	1	0	0	*34*	**87**
5:30 PM	0	3	0	46	0	*49*	0	0	1	4	0	*5*	0	1	1	0	0	*2*	0	35	3	1	0	*39*	**95**
5:45 PM	0	1	0	19	0	*20*	0	0	1	5	0	*6*	0	0	1	0	0	*1*	0	31	2	0	0	*33*	**60**
Hourly Total	1	17	0	151	0	*169*	0	1	8	35	0	*44*	0	6	6	1	0	*13*	0	152	7	1	0	*160*	**386**
6:00 PM	0	3	2	27	0	*32*	0	0	2	6	0	*8*	0	2	5	2	0	*9*	0	19	0	1	0	*20*	**69**
6:15 PM	0	4	0	28	0	*32*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	25	0	0	0	*25*	**61**
6:30 PM	0	0	2	25	0	*27*	0	0	2	1	0	*3*	0	0	1	0	0	*1*	0	18	0	0	0	*18*	**49**
6:45 PM	0	5	0	21	0	*26*	0	0	1	3	0	*4*	0	0	0	0	0	*0*	0	12	1	0	0	*13*	**43**
Hourly Total	0	12	4	101	0	*117*	0	0	5	14	0	*19*	0	2	6	2	0	*10*	0	74	1	1	0	*76*	**222**
7:00 PM	0	3	0	23	0	*26*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	17	0	0	0	*17*	**46**
7:15 PM	0	1	0	28	0	*29*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	16	0	0	0	*16*	**49**
7:30 PM	0	4	1	16	0	*21*	0	0	1	3	0	*4*	0	1	1	0	0	*2*	0	13	0	0	0	*13*	**40**
7:45 PM	0	1	0	7	0	*8*	0	0	0	4	0	*4*	0	0	0	0	0	*0*	0	16	1	0	0	*17*	**29**
Hourly Total	0	9	1	74	0	*84*	0	0	1	13	0	*14*	0	1	2	0	0	*3*	0	62	1	0	0	*63*	**164**
8:00 PM	0	6	0	13	0	*19*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	14	0	0	0	*14*	**35**
8:15 PM	0	2	0	10	0	*12*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	0	11	0	0	0	*11*	**24**
8:30 PM	1	1	1	26	0	*29*	0	0	0	4	0	*4*	0	1	0	1	0	*2*	1	6	2	1	0	*10*	**45**
8:45 PM	0	0	1	7	0	*8*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	0	6	0	0	0	*6*	**16**
Hourly Total	1	9	2	56	0	*68*	0	0	1	6	0	*7*	0	3	0	1	0	*4*	1	37	2	1	0	*41*	**120**
9:00 PM	0	1	1	9	0	*11*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	9	1	0	0	*10*	**24**
9:15 PM	0	0	0	7	0	*7*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	9	1	0	0	*10*	**17**
9:30 PM	0	0	1	5	0	*6*	0	0	0	0	0	*0*	0	1	0	0	0	*1*	0	7	0	0	0	*7*	**14**
9:45 PM	2	1	0	3	0	*6*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	5	0	0	0	*5*	**11**
Hourly Total	2	2	2	24	0	*30*	0	0	0	2	0	*2*	0	1	1	0	0	*2*	0	30	2	0	0	*32*	**66**
10:00 PM	1	0	0	12	0	*13*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**17**
10:15 PM	0	0	0	4	0	*4*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**9**
10:30 PM	0	1	0	4	0	*5*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	1	1	0	0	*2*	**8**
10:45 PM	0	0	0	3	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	5	1	0	0	*6*	**9**
Hourly Total	1	1	0	23	0	*25*	0	0	0	2	0	*2*	0	0	0	0	0	*0*	0	14	2	0	0	*16*	**43**
11:00 PM	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	6	0	0	0	*6*	**12**
11:15 PM	0	0	0	5	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**7**
11:30 PM	0	1	0	3	0	*4*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	4	0	0	0	*4*	**8**
11:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	2	0	0	0	*2*	**2**
Hourly Total	0	1	0	14	0	*15*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	14	0	0	0	*14*	**29**
DAILY TOTAL	**8**	**271**	**92**	**2428**	**0**	***2799***	**1**	**11**	**74**	**302**	**0**	***388***	**0**	**39**	**92**	**24**	**0**	***155***	**4**	**1627**	**111**	**58**	**0**	***1800***	**5142**
Cars	7	265	80	2345	0	*2697*	1	10	69	296	0	*376*	0	34	79	20	0	*133*	1	1598	106	48	0	*1753*	**4959**
Heavy Vehicles	1	6	12	83	0	*102*	0	1	5	6	0	*12*	0	5	13	4	0	*22*	3	29	5	10	0	*47*	**183**
Heavy Vehicle %	12.50%	2.21%	13.04%	3.42%	0.00%	*3.64%*	0.00%	9.09%	6.76%	1.99%	0.00%	*3.09%*	0.00%	12.82%	14.13%	16.67%	0.00%	*14.19%*	75.00%	1.78%	4.50%	17.24%	0.00%	*2.61%*	**3.56%**

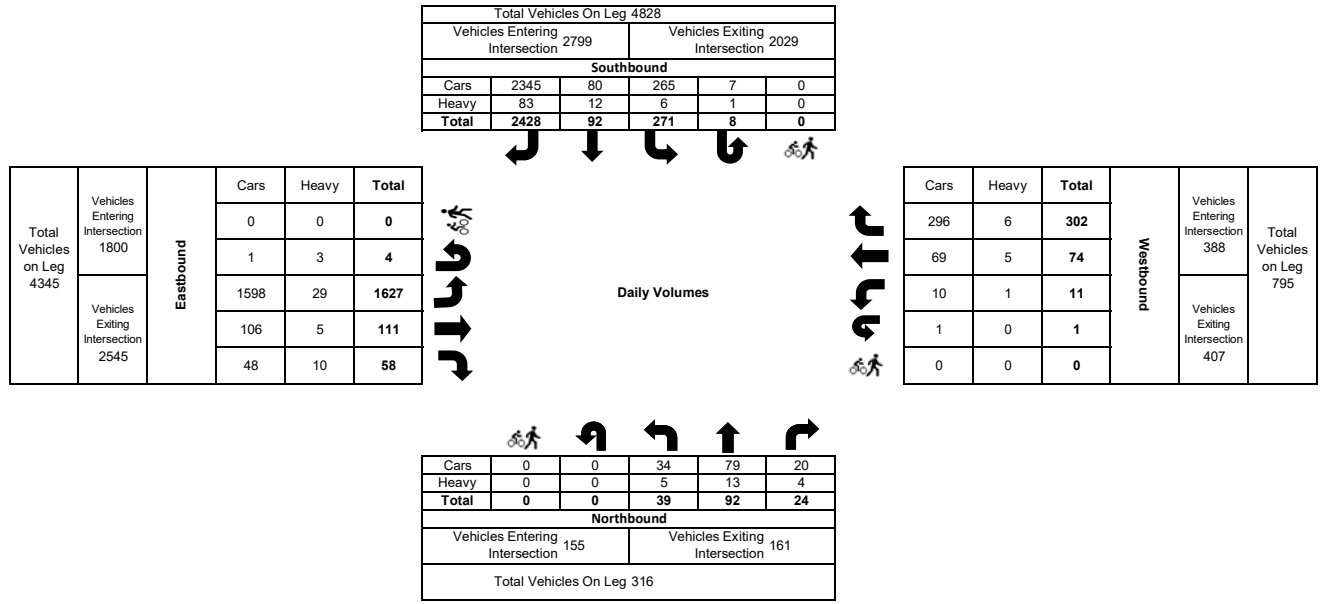
Riverdale Dr and Southern Ramps
Ramsey MN
Thursday, October 22, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
6:45 AM	0	3	6	57	0	*66*	0	0	2	5	0	*7*	0	0	0	0	0	*0*	0	53	3	4	0	*60*	**133**
7:00 AM	0	3	3	66	0	*72*	0	1	1	8	0	*10*	0	0	0	1	0	*1*	0	39	2	2	0	*43*	**126**
7:15 AM	0	4	1	73	0	*78*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	0	47	1	3	0	*51*	**130**
7:30 AM	0	8	3	56	0	*67*	0	0	0	6	0	*6*	0	0	0	0	0	*0*	0	51	1	1	0	*53*	**126**
Peak Hour Total	0	18	13	252	0	*283*	0	2	3	19	0	*24*	0	0	0	1	0	*1*	0	190	7	10	0	*207*	**515**
PHF	0.000	0.563	0.542	0.863	0.000	*0.907*	0.000	0.500	0.375	0.594	0.000	*0.600*	0.000	0.000	0.000	0.250	0.000	*0.250*	0.000	0.896	0.583	0.625	0.000	*0.863*	**0.968**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:15 PM	0	7	0	33	0	*40*	0	0	0	9	0	*9*	0	1	0	0	0	*1*	0	38	3	2	0	*43*	**93**
4:30 PM	0	2	2	69	0	*73*	0	0	5	13	0	*18*	0	3	8	0	0	*11*	0	32	1	3	0	*36*	**138**
4:45 PM	1	3	1	44	0	*49*	1	0	2	6	0	*9*	0	2	5	1	0	*8*	0	39	1	1	0	*41*	**107**
5:00 PM	0	7	0	53	0	*60*	0	1	5	18	0	*24*	0	2	3	1	0	*6*	0	53	1	0	0	*54*	**144**
Peak Hour Total	1	19	3	199	0	*222*	1	1	12	46	0	*60*	0	8	16	2	0	*26*	0	162	6	6	0	*174*	**482**
PHF	0.250	0.679	0.375	0.721	0.000	*0.760*	0.250	0.250	0.600	0.639	0.000	*0.625*	0.000	0.667	0.500	0.500	0.000	*0.591*	0.000	0.764	0.500	0.500	0.000	*0.806*	**0.837**



04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Tuesday, October 13, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Tuesday, October 13, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
1:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
2:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:00 PM	0	0	42	49	0	*91*	0	3	0	67	0	*70*	0	2	43	0	0	*45*	0	0	0	0	0	*0*	**206**
3:15 PM	0	0	35	33	0	*68*	0	0	1	68	0	*69*	0	5	43	0	0	*48*	0	0	0	0	0	*0*	**185**
3:30 PM	0	0	46	70	0	*116*	0	4	0	61	0	*65*	0	3	42	0	0	*45*	0	0	0	0	0	*0*	**226**
3:45 PM	0	0	36	49	0	*85*	0	7	0	76	0	*83*	0	7	44	0	0	*51*	0	0	0	0	0	*0*	**219**
Hourly Total	0	0	159	201	0	*360*	0	14	1	272	0	*287*	0	17	172	0	0	*189*	0	0	0	0	0	*0*	**836**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Tuesday, October 13, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	28	40	0	*68*	0	6	1	70	0	*77*	0	3	55	0	0	*58*	0	0	0	0	0	*0*	**203**
4:15 PM	0	0	47	60	0	*107*	0	2	0	94	1	*96*	1	5	48	0	0	*54*	0	0	0	0	0	*0*	**257**
4:30 PM	0	0	72	83	0	*155*	0	9	0	74	1	*83*	0	6	53	0	0	*59*	0	0	0	0	0	*0*	**297**
4:45 PM	0	0	48	67	0	*115*	0	8	1	81	0	*90*	1	5	61	0	0	*67*	0	0	0	0	0	*0*	**272**
Hourly Total	0	0	195	250	0	*445*	0	25	2	319	2	*346*	2	19	217	0	0	*238*	0	0	0	0	0	*0*	**1029**
5:00 PM	0	0	43	61	0	*104*	0	2	1	74	0	*77*	0	17	60	0	0	*77*	0	0	0	0	0	*0*	**258**
5:15 PM	0	0	29	65	0	*94*	0	2	0	80	1	*82*	0	9	61	0	0	*70*	0	0	0	0	0	*0*	**246**
5:30 PM	0	0	52	46	0	*98*	0	2	0	68	0	*70*	0	5	52	0	0	*57*	0	0	0	0	0	*0*	**225**
5:45 PM	0	0	35	31	0	*66*	0	5	0	76	0	*81*	0	3	36	0	0	*39*	0	0	0	0	0	*0*	**186**
Hourly Total	0	0	159	203	0	*362*	0	11	1	298	1	*310*	0	34	209	0	0	*243*	0	0	0	0	0	*0*	**915**
6:00 PM	1	0	35	36	0	*72*	0	7	0	52	1	*59*	0	5	36	0	0	*41*	0	0	0	0	0	*0*	**172**
6:15 PM	0	0	38	36	0	*74*	0	5	0	55	0	*60*	0	8	40	0	0	*48*	0	0	0	0	0	*0*	**182**
6:30 PM	0	0	31	45	0	*76*	0	3	0	39	0	*42*	0	1	29	0	0	*30*	0	0	0	0	0	*0*	**148**
6:45 PM	0	0	23	29	0	*52*	0	2	0	58	0	*60*	0	1	25	0	0	*26*	0	0	0	0	0	*0*	**138**
Hourly Total	1	0	127	146	0	*274*	0	17	0	204	1	*221*	0	15	130	0	0	*145*	0	0	0	0	0	*0*	**640**
7:00 PM	0	0	27	17	0	*44*	0	0	0	48	0	*48*	0	1	23	0	0	*24*	0	0	0	0	0	*0*	**116**
7:15 PM	0	0	12	19	0	*31*	0	1	0	36	0	*37*	0	2	24	0	0	*26*	0	0	0	0	0	*0*	**94**
7:30 PM	0	0	22	13	0	*35*	0	0	0	33	0	*33*	0	0	23	0	0	*23*	0	0	0	0	0	*0*	**91**
7:45 PM	0	0	27	13	0	*40*	0	0	0	38	0	*38*	0	1	15	0	0	*16*	0	0	0	0	0	*0*	**94**
Hourly Total	0	0	88	62	0	*150*	0	1	0	155	0	*156*	0	4	85	0	0	*89*	0	0	0	0	0	*0*	**395**
8:00 PM	0	0	19	11	0	*30*	0	0	0	21	0	*21*	0	2	22	0	0	*24*	0	0	0	0	0	*0*	**75**
8:15 PM	0	0	16	16	0	*32*	0	4	0	27	0	*31*	0	0	6	0	0	*6*	0	0	0	0	0	*0*	**69**
8:30 PM	0	0	10	7	0	*17*	0	0	0	28	0	*28*	0	1	15	0	0	*16*	0	0	0	0	0	*0*	**61**
8:45 PM	0	0	9	10	0	*19*	0	1	0	20	0	*21*	0	0	9	0	0	*9*	0	0	0	0	0	*0*	**49**
Hourly Total	0	0	54	44	0	*98*	0	5	0	96	0	*101*	0	3	52	0	0	*55*	0	0	0	0	0	*0*	**254**
9:00 PM	0	0	19	7	0	*26*	0	2	0	4	0	*6*	0	0	11	0	0	*11*	0	0	0	0	0	*0*	**43**
9:15 PM	0	0	16	17	0	*33*	0	0	0	16	0	*16*	0	0	9	0	0	*9*	0	0	0	0	0	*0*	**58**
9:30 PM	0	0	7	8	0	*15*	0	0	0	12	0	*12*	0	0	6	0	0	*6*	0	0	0	0	0	*0*	**33**
9:45 PM	0	0	5	3	0	*8*	0	0	0	21	0	*21*	0	0	8	0	0	*8*	0	0	0	0	0	*0*	**37**
Hourly Total	0	0	47	35	0	*82*	0	2	0	53	0	*55*	0	0	34	0	0	*34*	0	0	0	0	0	*0*	**171**
10:00 PM	0	0	8	4	0	*12*	0	0	0	16	0	*16*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**31**
10:15 PM	0	0	7	3	0	*10*	0	1	0	15	0	*16*	0	0	8	0	0	*8*	0	0	0	0	0	*0*	**34**
10:30 PM	0	0	7	2	0	*9*	0	3	0	12	0	*15*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**27**
10:45 PM	0	0	5	2	0	*7*	0	0	0	16	0	*16*	0	0	4	0	0	*4*	0	0	0	0	0	*0*	**27**
Hourly Total	0	0	27	11	0	*38*	0	4	0	59	0	*63*	0	0	18	0	0	*18*	0	0	0	0	0	*0*	**119**
11:00 PM	0	0	5	1	0	*6*	0	0	0	4	0	*4*	0	0	2	0	0	*2*	0	0	0	0	0	*0*	**12**
11:15 PM	0	0	8	3	0	*11*	0	1	0	11	0	*12*	0	0	6	0	0	*6*	0	0	0	0	0	*0*	**29**
11:30 PM	0	0	1	0	0	*1*	0	0	0	13	0	*13*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**15**
11:45 PM	0	0	3	1	0	*4*	0	1	0	6	0	*7*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**12**
Hourly Total	0	0	17	5	0	*22*	0	2	0	34	0	*36*	0	0	10	0	0	*10*	0	0	0	0	0	*0*	**68**
DAILY TOTAL	**1**	**0**	**873**	**957**	**0**	***1831***	**0**	**81**	**4**	**1490**	**4**	***1575***	**2**	**92**	**927**	**0**	**0**	***1021***	**0**	**0**	**0**	**0**	**0**	***0***	**4427**
Cars	1	0	855	949	0	*1805*	0	80	3	1459	3	*1542*	2	89	913	0	0	*1004*	0	0	0	0	0	*0*	**4351**
Heavy Vehicles	0	0	18	8	0	*26*	0	1	1	31	1	*33*	0	3	14	0	0	*17*	0	0	0	0	0	*0*	**76**
Heavy Vehicle %	0.00%	0.00%	2.06%	0.84%	0.00%	*1.42%*	0.00%	1.23%	25.00%	2.08%	25.00%	*2.10%*	0.00%	3.26%	1.51%	0.00%	0.00%	*1.67%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**1.72%**

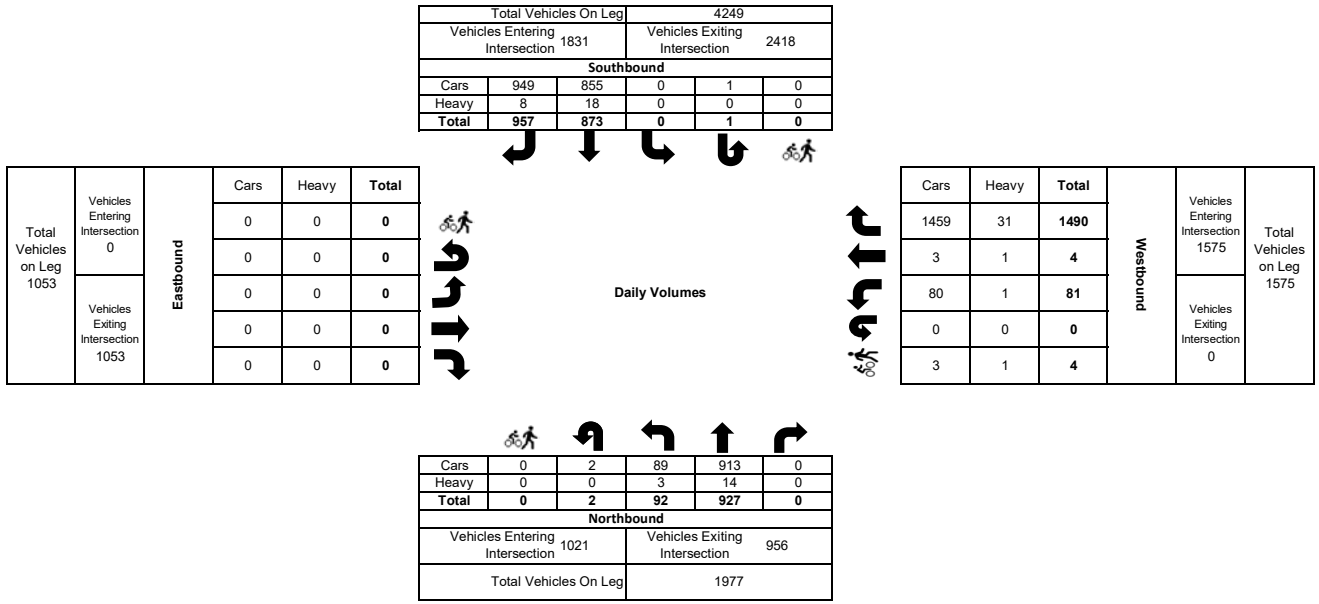
04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Tuesday, October 13, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Peak Hour Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
PHF	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.000**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:15 PM	0	0	47	60	0	*107*	0	2	0	94	1	*96*	1	5	48	0	0	*54*	0	0	0	0	0	*0*	**257**
4:30 PM	0	0	72	83	0	*155*	0	9	0	74	1	*83*	0	6	53	0	0	*59*	0	0	0	0	0	*0*	**297**
4:45 PM	0	0	48	67	0	*115*	0	8	1	81	0	*90*	1	5	61	0	0	*67*	0	0	0	0	0	*0*	**272**
5:00 PM	0	0	43	61	0	*104*	0	2	1	74	0	*77*	0	17	60	0	0	*77*	0	0	0	0	0	*0*	**258**
Peak Hour Total	0	0	210	271	0	*481*	0	21	2	323	2	*346*	2	33	222	0	0	*257*	0	0	0	0	0	*0*	**1084**
PHF	0.000	0.000	0.729	0.816	0.000	*0.776*	0.000	0.583	0.500	0.859	0.500	*0.901*	0.500	0.485	0.910	0.000	0.000	*0.834*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.912**



04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Wednesday, October 14, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	3	0	0	*3*	0	0	0	5	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**8**
12:15 AM	0	0	2	1	0	*3*	0	0	0	4	0	*4*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**8**
12:30 AM	0	0	1	0	0	*1*	0	0	0	5	0	*5*	0	0	2	0	0	*2*	0	0	0	0	0	*0*	**8**
12:45 AM	0	0	1	1	0	*2*	0	0	0	5	0	*5*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**7**
Hourly Total	0	0	7	2	0	*9*	0	0	0	19	0	*19*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**31**
1:00 AM	0	0	1	0	0	*1*	0	0	0	1	0	*1*	0	1	3	0	0	*4*	0	0	0	0	0	*0*	**6**
1:15 AM	0	0	0	0	0	*0*	0	0	0	1	0	*1*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**2**
1:30 AM	0	0	1	0	0	*1*	0	0	0	1	0	*1*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**3**
1:45 AM	0	0	6	0	0	*6*	0	2	0	4	0	*6*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**13**
Hourly Total	0	0	8	0	0	*8*	0	2	0	7	0	*9*	0	1	6	0	0	*7*	0	0	0	0	0	*0*	**24**
2:00 AM	0	0	0	2	0	*2*	0	1	0	2	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**
2:15 AM	0	0	0	0	0	*0*	0	0	0	3	0	*3*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**4**
2:30 AM	0	0	0	2	0	*2*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**5**
2:45 AM	0	0	3	0	0	*3*	0	0	0	1	0	*1*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	**5**
Hourly Total	0	0	3	4	0	*7*	0	1	0	8	0	*9*	0	1	2	0	0	*3*	0	0	0	0	0	*0*	**19**
3:00 AM	0	0	4	0	0	*4*	0	0	0	0	0	*0*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**5**
3:15 AM	0	0	3	1	0	*4*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**
3:30 AM	0	0	8	2	0	*10*	0	0	0	1	0	*1*	0	0	2	0	0	*2*	0	0	0	0	0	*0*	**13**
3:45 AM	0	0	3	0	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**3**
Hourly Total	0	0	18	3	0	*21*	0	0	0	2	0	*2*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**26**
4:00 AM	0	0	15	1	0	*16*	0	0	0	1	0	*1*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**18**
4:15 AM	0	0	20	4	0	*24*	0	0	0	2	0	*2*	0	1	1	0	0	*2*	0	0	0	0	0	*0*	**28**
4:30 AM	0	0	20	8	0	*28*	0	0	0	1	0	*1*	0	2	7	0	0	*9*	0	0	0	0	0	*0*	**38**
4:45 AM	0	0	24	0	0	*24*	0	0	0	1	0	*1*	0	0	8	0	0	*8*	0	0	0	0	0	*0*	**33**
Hourly Total	0	0	79	13	0	*92*	0	0	0	5	0	*5*	0	3	17	0	0	*20*	0	0	0	0	0	*0*	**117**
5:00 AM	0	0	33	2	0	*35*	0	0	0	4	0	*4*	0	0	8	0	0	*8*	0	0	0	0	0	*0*	**47**
5:15 AM	0	0	43	19	0	*62*	0	0	0	7	0	*7*	0	0	20	0	0	*20*	0	0	0	0	0	*0*	**89**
5:30 AM	0	0	56	14	0	*70*	0	1	0	5	0	*6*	0	2	28	0	0	*30*	0	0	0	0	0	*0*	**106**
5:45 AM	0	0	35	10	0	*45*	0	1	0	11	0	*12*	0	0	41	0	0	*41*	0	0	0	0	0	*0*	**98**
Hourly Total	0	0	167	45	0	*212*	0	2	0	27	0	*29*	0	2	97	0	0	*99*	0	0	0	0	0	*0*	**340**
6:00 AM	0	0	62	15	0	*77*	0	1	0	10	0	*11*	0	1	28	0	0	*29*	0	0	0	0	0	*0*	**117**
6:15 AM	0	0	76	21	0	*97*	0	3	1	19	0	*23*	0	0	27	0	0	*27*	0	0	0	0	0	*0*	**147**
6:30 AM	0	0	73	24	0	*97*	0	0	0	24	0	*24*	0	2	36	0	0	*38*	0	0	0	0	0	*0*	**159**
6:45 AM	0	0	66	19	0	*85*	0	1	0	30	0	*31*	0	2	50	0	0	*52*	0	0	0	0	0	*0*	**168**
Hourly Total	0	0	277	79	0	*356*	0	5	1	83	0	*89*	0	5	141	0	0	*146*	0	0	0	0	0	*0*	**591**
7:00 AM	0	0	71	18	0	*89*	0	2	0	16	0	*18*	0	2	46	0	0	*48*	0	0	0	0	0	*0*	**155**
7:15 AM	0	0	62	21	0	*83*	0	3	0	27	0	*30*	0	2	79	0	0	*81*	0	0	0	0	0	*0*	**194**
7:30 AM	1	0	71	30	0	*102*	0	6	1	30	0	*37*	0	6	81	0	0	*87*	0	0	0	0	0	*0*	**226**
7:45 AM	0	0	64	19	0	*83*	0	8	0	53	0	*61*	0	1	86	0	0	*87*	0	0	0	0	0	*0*	**231**
Hourly Total	1	0	268	88	0	*357*	0	19	1	126	0	*146*	0	11	292	0	0	*303*	0	0	0	0	0	*0*	**806**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Wednesday, October 14, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	51	27	0	*78*	0	8	1	35	0	*44*	0	2	34	0	0	*36*	0	0	0	0	0	*0*	**158**
8:15 AM	0	0	47	16	0	*63*	0	3	0	33	0	*36*	0	2	26	0	0	*28*	0	0	0	0	0	*0*	**127**
8:30 AM	0	0	41	29	0	*70*	0	4	0	25	0	*29*	0	1	20	0	0	*21*	0	0	0	0	0	*0*	**120**
8:45 AM	0	0	43	19	0	*62*	0	9	0	25	0	*34*	0	2	17	0	0	*19*	0	0	0	0	0	*0*	**115**
Hourly Total	0	0	182	91	0	*273*	0	24	1	118	0	*143*	0	7	97	0	0	*104*	0	0	0	0	0	*0*	**520**
9:00 AM	0	0	44	16	0	*60*	0	2	0	18	0	*20*	0	2	24	0	0	*26*	0	0	0	0	0	*0*	**106**
9:15 AM	0	0	29	23	0	*52*	0	4	1	26	0	*31*	0	1	29	0	0	*30*	0	0	0	0	0	*0*	**113**
9:30 AM	0	0	48	21	0	*69*	0	6	0	24	0	*30*	0	2	21	0	0	*23*	0	0	0	0	0	*0*	**122**
9:45 AM	0	0	25	24	0	*49*	0	8	0	21	0	*29*	0	7	29	0	0	*36*	0	0	0	0	0	*0*	**114**
Hourly Total	0	0	146	84	0	*230*	0	20	1	89	0	*110*	0	12	103	0	0	*115*	0	0	0	0	0	*0*	**455**
10:00 AM	0	0	44	26	0	*70*	0	2	0	27	0	*29*	0	3	27	0	0	*30*	0	0	0	0	0	*0*	**129**
10:15 AM	0	0	56	18	0	*74*	0	7	0	23	0	*30*	0	2	18	0	0	*20*	0	0	0	0	0	*0*	**124**
10:30 AM	0	0	31	30	0	*61*	0	3	0	33	0	*36*	0	1	12	0	0	*13*	0	0	0	0	0	*0*	**110**
10:45 AM	0	0	30	19	0	*49*	0	8	1	20	0	*29*	0	1	16	0	0	*17*	0	0	0	0	0	*0*	**95**
Hourly Total	0	0	161	93	0	*254*	0	20	1	103	0	*124*	0	7	73	0	0	*80*	0	0	0	0	0	*0*	**458**
11:00 AM	0	0	44	31	0	*75*	0	7	0	23	0	*30*	0	2	26	0	0	*28*	0	0	0	0	0	*0*	**133**
11:15 AM	0	0	46	16	0	*62*	0	9	1	35	0	*45*	0	2	33	0	0	*35*	0	0	0	0	0	*0*	**142**
11:30 AM	0	0	42	24	0	*66*	0	9	0	34	0	*43*	1	5	30	0	0	*36*	0	0	0	0	0	*0*	**145**
11:45 AM	0	0	39	31	0	*70*	0	11	0	35	0	*46*	0	5	33	0	0	*38*	0	0	0	0	0	*0*	**154**
Hourly Total	0	0	171	102	0	*273*	0	36	1	127	0	*164*	1	14	122	0	0	*137*	0	0	0	0	0	*0*	**574**
12:00 PM	0	0	44	23	0	*67*	0	8	0	28	0	*36*	0	6	36	0	0	*42*	0	0	0	0	0	*0*	**145**
12:15 PM	0	0	54	30	0	*84*	0	8	0	44	0	*52*	0	3	34	0	0	*37*	0	0	0	0	0	*0*	**173**
12:30 PM	0	0	46	33	0	*79*	0	16	0	39	0	*55*	0	3	34	0	0	*37*	0	0	0	0	0	*0*	**171**
12:45 PM	0	0	37	13	0	*50*	0	11	0	36	0	*47*	0	2	22	0	0	*24*	0	0	0	0	0	*0*	**121**
Hourly Total	0	0	181	99	0	*280*	0	43	0	147	0	*190*	0	14	126	0	0	*140*	0	0	0	0	0	*0*	**610**
1:00 PM	0	0	40	23	0	*63*	0	5	0	42	0	*47*	0	8	23	0	0	*31*	0	0	0	0	0	*0*	**141**
1:15 PM	0	0	53	20	0	*73*	0	9	1	35	0	*45*	0	5	36	0	0	*41*	0	0	0	0	0	*0*	**159**
1:30 PM	0	0	50	24	0	*74*	0	9	0	47	0	*56*	0	4	37	0	0	*41*	0	0	0	0	0	*0*	**171**
1:45 PM	0	0	43	27	0	*70*	0	9	0	38	0	*47*	0	5	48	0	0	*53*	0	0	0	0	0	*0*	**170**
Hourly Total	0	0	186	94	0	*280*	0	32	1	162	0	*195*	0	22	144	0	0	*166*	0	0	0	0	0	*0*	**641**
2:00 PM	0	0	40	27	0	*67*	0	5	0	40	0	*45*	0	3	15	0	0	*18*	0	0	0	0	0	*0*	**130**
2:15 PM	0	0	36	29	0	*65*	0	7	0	41	0	*48*	0	4	31	0	0	*35*	0	0	0	0	0	*0*	**148**
2:30 PM	0	0	45	50	0	*95*	0	1	1	56	0	*58*	0	4	34	0	0	*38*	0	0	0	0	0	*0*	**191**
2:45 PM	0	0	30	32	0	*62*	0	7	0	48	0	*55*	2	2	45	0	0	*49*	0	0	0	0	0	*0*	**166**
Hourly Total	0	0	151	138	0	*289*	0	20	1	185	0	*206*	2	13	125	0	0	*140*	0	0	0	0	0	*0*	**635**
3:00 PM	0	0	26	42	0	*68*	0	7	0	63	0	*70*	0	5	39	0	0	*44*	0	0	0	0	0	*0*	**182**
3:15 PM	0	0	38	48	0	*86*	0	9	0	63	0	*72*	0	5	51	0	0	*56*	0	0	0	0	0	*0*	**214**
3:30 PM	0	0	63	58	0	*121*	0	3	0	61	0	*64*	1	7	47	0	0	*55*	0	0	0	0	0	*0*	**240**
3:45 PM	0	0	53	47	0	*100*	0	7	2	78	0	*87*	0	1	51	0	0	*52*	0	0	0	0	0	*0*	**239**
Hourly Total	0	0	180	195	0	*375*	0	26	2	265	0	*293*	1	18	188	0	0	*207*	0	0	0	0	0	*0*	**875**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Wednesday, October 14, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	38	70	0	*108*	0	5	0	51	0	*56*	0	6	48	0	0	*54*	0	0	0	0	0	*0*	**218**
4:15 PM	0	0	32	60	0	*92*	0	6	0	66	0	*72*	0	7	56	0	0	*63*	0	0	0	0	0	*0*	**227**
4:30 PM	0	0	76	73	0	*149*	0	6	0	77	0	*83*	1	11	54	0	0	*66*	0	0	0	0	0	*0*	**298**
4:45 PM	0	0	55	66	0	*121*	0	3	0	94	0	*97*	0	4	80	0	0	*84*	0	0	0	0	0	*0*	**302**
Hourly Total	0	0	201	269	0	*470*	0	20	0	288	0	*308*	1	28	238	0	0	*267*	0	0	0	0	0	*0*	**1045**
5:00 PM	0	0	50	62	0	*112*	0	4	0	74	0	*78*	0	11	57	0	0	*68*	0	0	0	0	0	*0*	**258**
5:15 PM	0	0	47	36	0	*83*	0	3	1	86	0	*90*	1	5	69	0	0	*75*	0	0	0	0	0	*0*	**248**
5:30 PM	0	0	46	47	0	*93*	0	5	2	83	0	*90*	0	5	63	0	0	*68*	0	0	0	0	0	*0*	**251**
5:45 PM	0	0	56	38	0	*94*	0	3	0	57	0	*60*	0	4	58	0	0	*62*	0	0	0	0	0	*0*	**216**
Hourly Total	0	0	199	183	0	*382*	0	15	3	300	0	*318*	1	25	247	0	0	*273*	0	0	0	0	0	*0*	**973**
6:00 PM	0	0	58	43	0	*101*	0	10	0	57	0	*67*	0	5	31	0	0	*36*	0	0	0	0	0	*0*	**204**
6:15 PM	0	0	34	44	0	*78*	0	3	0	53	0	*56*	0	1	41	0	0	*42*	0	0	0	0	0	*0*	**176**
6:30 PM	0	0	28	22	0	*50*	0	3	0	55	0	*58*	0	2	31	0	0	*33*	0	0	0	0	0	*0*	**141**
6:45 PM	0	0	22	24	0	*46*	0	4	1	33	0	*38*	0	0	30	0	0	*30*	0	0	0	0	0	*0*	**114**
Hourly Total	0	0	142	133	0	*275*	0	20	1	198	0	*219*	0	8	133	0	0	*141*	0	0	0	0	0	*0*	**635**
7:00 PM	0	0	12	29	0	*41*	0	2	0	43	0	*45*	0	2	37	0	0	*39*	0	0	0	0	0	*0*	**125**
7:15 PM	0	0	32	13	0	*45*	0	2	0	39	0	*41*	0	2	17	0	0	*19*	0	0	0	0	0	*0*	**105**
7:30 PM	0	0	27	21	0	*48*	0	2	0	35	0	*37*	0	0	19	0	0	*19*	0	0	0	0	0	*0*	**104**
7:45 PM	0	0	20	8	0	*28*	0	2	0	32	0	*34*	0	1	26	0	0	*27*	0	0	0	0	0	*0*	**89**
Hourly Total	0	0	91	71	0	*162*	0	8	0	149	0	*157*	0	5	99	0	0	*104*	0	0	0	0	0	*0*	**423**
8:00 PM	0	0	14	28	0	*42*	0	2	1	23	0	*26*	0	1	18	0	0	*19*	0	0	0	0	0	*0*	**87**
8:15 PM	0	0	12	13	0	*25*	0	3	1	19	0	*23*	0	0	10	0	0	*10*	0	0	0	0	0	*0*	**58**
8:30 PM	0	0	11	10	0	*21*	0	1	0	22	0	*23*	0	0	12	0	0	*12*	0	0	0	0	0	*0*	**56**
8:45 PM	0	0	10	5	0	*15*	0	0	0	22	0	*22*	0	2	12	0	0	*14*	0	0	0	0	0	*0*	**51**
Hourly Total	0	0	47	56	0	*103*	0	6	2	86	0	*94*	0	3	52	0	0	*55*	0	0	0	0	0	*0*	**252**
9:00 PM	0	0	9	4	0	*13*	0	0	1	26	0	*27*	0	3	7	0	0	*10*	0	0	0	0	0	*0*	**50**
9:15 PM	0	0	2	4	0	*6*	0	0	0	21	0	*21*	0	0	9	0	0	*9*	0	0	0	0	0	*0*	**36**
9:30 PM	0	0	12	9	0	*21*	0	1	0	13	0	*14*	0	0	6	0	0	*6*	0	0	0	0	0	*0*	**41**
9:45 PM	0	0	13	3	0	*16*	0	0	0	19	0	*19*	0	0	7	0	0	*7*	0	0	0	0	0	*0*	**42**
Hourly Total	0	0	36	20	0	*56*	0	1	1	79	0	*81*	0	3	29	0	0	*32*	0	0	0	0	0	*0*	**169**
10:00 PM	0	0	5	4	0	*9*	0	0	0	10	0	*10*	0	0	5	0	0	*5*	0	0	0	0	0	*0*	**24**
10:15 PM	0	0	8	0	0	*8*	0	0	0	9	0	*9*	0	1	5	0	0	*6*	0	0	0	0	0	*0*	**23**
10:30 PM	0	0	3	3	0	*6*	0	0	0	13	0	*13*	0	0	4	0	0	*4*	0	0	0	0	0	*0*	**23**
10:45 PM	0	0	4	2	0	*6*	0	0	0	8	0	*8*	0	0	4	0	0	*4*	0	0	0	0	0	*0*	**18**
Hourly Total	0	0	20	9	0	*29*	0	0	0	40	0	*40*	0	1	18	0	0	*19*	0	0	0	0	0	*0*	**88**
11:00 PM	0	0	5	1	0	*6*	0	0	0	4	0	*4*	0	0	2	0	0	*2*	0	0	0	0	0	*0*	**12**
11:15 PM	0	0	5	1	0	*6*	0	1	0	5	0	*6*	0	0	7	0	0	*7*	0	0	0	0	0	*0*	**19**
11:30 PM	0	0	3	1	0	*4*	0	0	0	10	0	*10*	0	0	2	0	0	*2*	0	0	0	0	0	*0*	**16**
11:45 PM	0	0	4	2	0	*6*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**9**
Hourly Total	0	0	17	5	0	*22*	0	1	0	21	0	*22*	0	0	12	0	0	*12*	0	0	0	0	0	*0*	**56**
DAILY TOTAL	**1**	**0**	**2938**	**1876**	**0**	***4815***	**0**	**321**	**17**	**2634**	**0**	***2972***	**6**	**203**	**2367**	**0**	**0**	***2576***	**0**	**0**	**0**	**0**	**0**	***0***	**10363**
Cars	1	0	2846	1843	0	*4690*	0	300	12	2531	0	*2843*	6	199	2321	0	0	*2526*	0	0	0	0	0	*0*	**10059**
Heavy Vehicles	0	0	92	33	0	*125*	0	21	5	103	0	*129*	0	4	46	0	0	*50*	0	0	0	0	0	*0*	**304**
Heavy Vehicle %	0.00%	0.00%	3.13%	1.76%	0.00%	*2.60%*	0.00%	6.54%	29.41%	3.91%	0.00%	*4.34%*	0.00%	1.97%	1.94%	0.00%	0.00%	*1.94%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**2.93%**

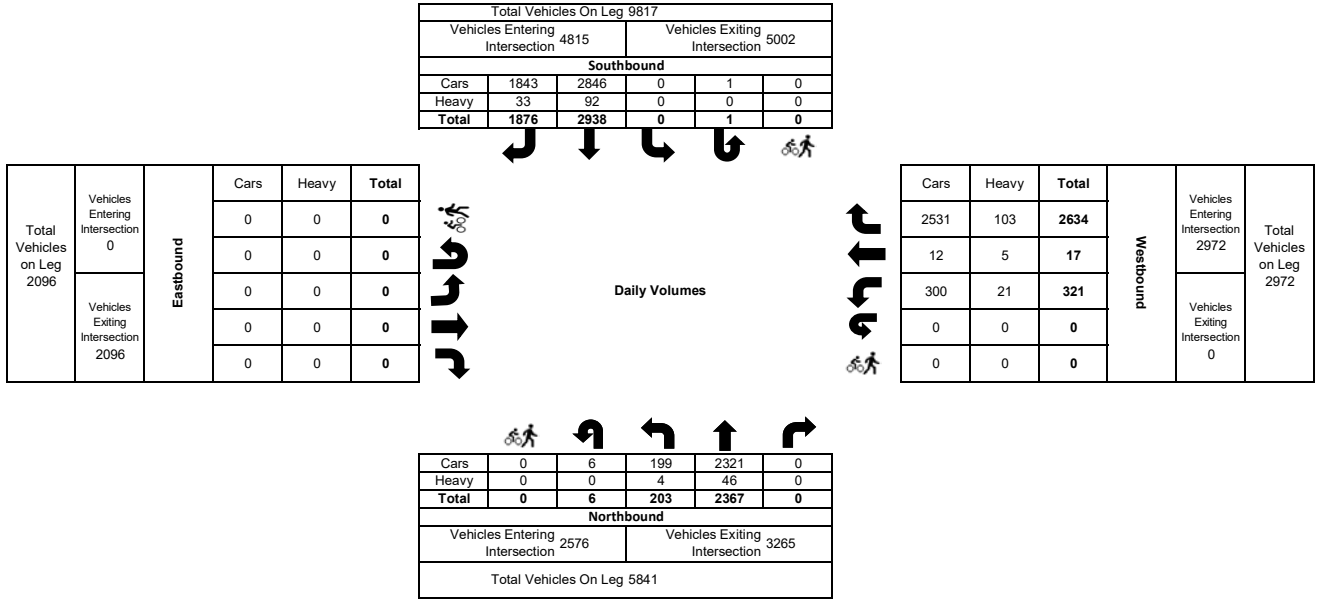
04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Wednesday, October 14, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:15 AM	0	0	62	21	0	*83*	0	3	0	27	0	*30*	0	2	79	0	0	*81*	0	0	0	0	0	*0*	**194**
7:30 AM	1	0	71	30	0	*102*	0	6	1	30	0	*37*	0	6	81	0	0	*87*	0	0	0	0	0	*0*	**226**
7:45 AM	0	0	64	19	0	*83*	0	8	0	53	0	*61*	0	1	86	0	0	*87*	0	0	0	0	0	*0*	**231**
8:00 AM	0	0	51	27	0	*78*	0	8	1	35	0	*44*	0	2	34	0	0	*36*	0	0	0	0	0	*0*	**158**
Peak Hour Total	1	0	248	97	0	*346*	0	25	2	145	0	*172*	0	11	280	0	0	*291*	0	0	0	0	0	*0*	**809**
PHF	0.250	0.000	0.873	0.808	0.000	*0.848*	0.000	0.781	0.500	0.684	0.000	*0.705*	0.000	0.458	0.814	0.000	0.000	*0.836*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.876**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:30 PM	0	0	76	73	0	*149*	0	6	0	77	0	*83*	1	11	54	0	0	*66*	0	0	0	0	0	*0*	**298**
4:45 PM	0	0	55	66	0	*121*	0	3	0	94	0	*97*	0	4	80	0	0	*84*	0	0	0	0	0	*0*	**302**
5:00 PM	0	0	50	62	0	*112*	0	4	0	74	0	*78*	0	11	57	0	0	*68*	0	0	0	0	0	*0*	**258**
5:15 PM	0	0	47	36	0	*83*	0	3	1	86	0	*90*	1	5	69	0	0	*75*	0	0	0	0	0	*0*	**248**
Peak Hour Total	0	0	228	237	0	*465*	0	16	1	331	0	*348*	2	31	260	0	0	*293*	0	0	0	0	0	*0*	**1106**
PHF	0.000	0.000	0.750	0.812	0.000	*0.780*	0.000	0.667	0.250	0.880	0.000	*0.897*	0.500	0.705	0.813	0.000	0.000	*0.872*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.916**



04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Thursday, October 15, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	4	0	*4*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**5**
12:15 AM	0	0	3	1	0	*4*	0	0	0	9	0	*9*	1	0	3	0	0	*4*	0	0	0	0	0	*0*	**17**
12:30 AM	0	0	3	2	0	*5*	0	0	0	5	0	*5*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**11**
12:45 AM	0	0	3	0	0	*3*	0	0	0	6	0	*6*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**10**
Hourly Total	0	0	9	3	0	*12*	0	0	0	24	0	*24*	1	0	6	0	0	*7*	0	0	0	0	0	*0*	**43**
1:00 AM	0	0	3	0	0	*3*	0	0	0	3	0	*3*	0	0	2	0	0	*2*	0	0	0	0	0	*0*	**8**
1:15 AM	0	0	1	0	0	*1*	0	0	0	4	0	*4*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**6**
1:30 AM	0	0	0	2	0	*2*	0	1	0	2	0	*3*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**5**
1:45 AM	0	0	5	0	0	*5*	0	0	0	1	0	*1*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**9**
Hourly Total	0	0	9	2	0	*11*	0	1	0	10	0	*11*	0	0	6	0	0	*6*	0	0	0	0	0	*0*	**28**
2:00 AM	0	0	1	0	0	*1*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**4**
2:15 AM	0	0	1	0	0	*1*	0	1	0	5	0	*6*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**8**
2:30 AM	0	0	0	1	0	*1*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**2**
2:45 AM	0	0	1	0	0	*1*	0	0	0	3	0	*3*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**5**
Hourly Total	0	0	3	1	0	*4*	0	1	0	11	0	*12*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**19**
3:00 AM	0	0	5	2	0	*7*	0	0	0	1	0	*1*	0	1	0	0	0	*1*	0	0	0	0	0	*0*	**9**
3:15 AM	0	0	4	3	0	*7*	0	0	0	2	0	*2*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**10**
3:30 AM	0	0	7	4	0	*11*	0	1	0	2	0	*3*	0	0	1	0	0	*1*	0	0	0	0	0	*0*	**15**
3:45 AM	0	0	9	0	0	*9*	0	0	0	1	0	*1*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**10**
Hourly Total	0	0	25	9	0	*34*	0	1	0	6	0	*7*	0	1	2	0	0	*3*	0	0	0	0	0	*0*	**44**
4:00 AM	0	0	10	3	0	*13*	0	1	0	1	0	*2*	0	0	3	0	0	*3*	0	0	0	0	0	*0*	**18**
4:15 AM	0	0	14	1	0	*15*	0	0	0	0	0	*0*	0	1	3	0	0	*4*	0	0	0	0	0	*0*	**19**
4:30 AM	0	0	25	6	0	*31*	0	0	0	1	0	*1*	0	2	4	0	0	*6*	0	0	0	0	0	*0*	**38**
4:45 AM	0	0	19	1	0	*20*	0	0	0	1	0	*1*	0	0	6	0	0	*6*	0	0	0	0	0	*0*	**27**
Hourly Total	0	0	68	11	0	*79*	0	1	0	3	0	*4*	0	3	16	0	0	*19*	0	0	0	0	0	*0*	**102**
5:00 AM	0	0	23	7	0	*30*	0	0	0	3	0	*3*	0	1	10	0	0	*11*	0	0	0	0	0	*0*	**44**
5:15 AM	0	0	34	9	0	*43*	0	1	0	3	0	*4*	0	0	16	0	0	*16*	0	0	0	0	0	*0*	**63**
5:30 AM	0	0	51	18	0	*69*	0	1	0	7	0	*8*	0	1	29	0	0	*30*	0	0	0	0	0	*0*	**107**
5:45 AM	0	0	38	5	0	*43*	0	0	0	10	0	*10*	0	0	37	0	0	*37*	0	0	0	0	0	*0*	**90**
Hourly Total	0	0	146	39	0	*185*	0	2	0	23	0	*25*	0	2	92	0	0	*94*	0	0	0	0	0	*0*	**304**
6:00 AM	0	0	52	13	0	*65*	0	3	0	16	0	*19*	0	1	20	0	0	*21*	0	0	0	0	0	*0*	**105**
6:15 AM	0	0	67	17	0	*84*	0	3	0	17	0	*20*	0	0	27	0	0	*27*	0	0	0	0	0	*0*	**131**
6:30 AM	0	0	81	20	0	*101*	0	1	0	19	0	*20*	0	1	35	0	0	*36*	0	0	0	0	0	*0*	**157**
6:45 AM	0	0	45	22	0	*67*	0	1	1	32	0	*34*	0	2	57	0	0	*59*	0	0	0	0	0	*0*	**160**
Hourly Total	0	0	245	72	0	*317*	0	8	1	84	0	*93*	0	4	139	0	0	*143*	0	0	0	0	0	*0*	**553**
7:00 AM	0	0	63	24	0	*87*	0	4	0	12	0	*16*	0	0	43	0	0	*43*	0	0	0	0	0	*0*	**146**
7:15 AM	0	0	55	26	0	*81*	0	2	0	23	1	*25*	0	2	40	0	0	*42*	0	0	0	0	0	*0*	**148**
7:30 AM	0	0	65	25	0	*90*	0	4	1	22	0	*27*	0	2	41	0	0	*43*	0	0	0	0	0	*0*	**160**
7:45 AM	0	0	44	19	0	*63*	0	5	0	35	0	*40*	0	1	48	0	0	*49*	0	0	0	0	0	*0*	**152**
Hourly Total	0	0	227	94	0	*321*	0	15	1	92	1	*108*	0	5	172	0	0	*177*	0	0	0	0	0	*0*	**606**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Thursday, October 15, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	63	25	0	*88*	0	4	1	43	0	*48*	0	3	30	0	0	*33*	0	0	0	0	0	*0*	**169**
8:15 AM	0	0	50	18	0	*68*	0	9	0	22	0	*31*	1	6	24	0	0	*31*	0	0	0	0	0	*0*	**130**
8:30 AM	0	0	40	17	0	*57*	0	8	0	21	0	*29*	0	4	22	0	0	*26*	0	0	0	0	0	*0*	**112**
8:45 AM	0	0	36	20	0	*56*	0	8	0	29	1	*37*	0	2	27	0	0	*29*	0	0	0	0	0	*0*	**122**
Hourly Total	0	0	189	80	0	*269*	0	29	1	115	1	*145*	1	15	103	0	0	*119*	0	0	0	0	0	*0*	**533**
9:00 AM	0	0	37	22	0	*59*	0	6	0	22	0	*28*	0	2	13	0	0	*15*	0	0	0	0	0	*0*	**102**
9:15 AM	0	0	44	28	0	*72*	0	7	0	24	0	*31*	0	7	23	0	0	*30*	0	0	0	0	0	*0*	**133**
9:30 AM	0	0	34	26	0	*60*	0	6	0	21	0	*27*	0	5	15	0	0	*20*	0	0	0	0	0	*0*	**107**
9:45 AM	0	0	56	26	0	*82*	0	7	0	27	0	*34*	0	3	30	0	0	*33*	0	0	0	0	0	*0*	**149**
Hourly Total	0	0	171	102	0	*273*	0	26	0	94	0	*120*	0	17	81	0	0	*98*	0	0	0	0	0	*0*	**491**
10:00 AM	0	0	35	18	0	*53*	0	6	0	25	1	*31*	0	3	20	0	0	*23*	0	0	0	0	0	*0*	**107**
10:15 AM	0	0	43	31	0	*74*	0	9	1	30	0	*40*	0	7	27	0	0	*34*	0	0	0	0	0	*0*	**148**
10:30 AM	0	0	41	31	0	*72*	0	7	1	24	0	*32*	0	5	25	0	0	*30*	0	0	0	0	0	*0*	**134**
10:45 AM	0	0	35	24	0	*59*	0	7	0	30	0	*37*	0	2	34	0	0	*36*	0	0	0	0	0	*0*	**132**
Hourly Total	0	0	154	104	0	*258*	0	29	2	109	1	*140*	0	17	106	0	0	*123*	0	0	0	0	0	*0*	**521**
11:00 AM	0	0	46	32	0	*78*	0	12	0	42	0	*54*	1	5	25	0	0	*31*	0	0	0	0	0	*0*	**163**
11:15 AM	0	0	35	26	0	*61*	0	4	0	38	0	*42*	0	0	29	0	0	*29*	0	0	0	0	0	*0*	**132**
11:30 AM	0	0	32	25	0	*57*	0	5	0	51	0	*56*	0	10	33	0	0	*43*	0	0	0	0	0	*0*	**156**
11:45 AM	0	0	32	29	0	*61*	0	7	0	36	0	*43*	0	5	23	0	0	*28*	0	0	0	0	0	*0*	**132**
Hourly Total	0	0	145	112	0	*257*	0	28	0	167	0	*195*	1	20	110	0	0	*131*	0	0	0	0	0	*0*	**583**
12:00 PM	0	0	52	30	0	*82*	0	10	0	42	0	*52*	0	5	31	0	0	*36*	0	0	0	0	0	*0*	**170**
12:15 PM	0	0	41	31	0	*72*	0	9	0	51	1	*60*	0	2	34	0	0	*36*	0	0	0	0	0	*0*	**168**
12:30 PM	0	0	47	34	0	*81*	0	15	0	39	0	*54*	0	5	35	0	0	*40*	0	0	0	0	0	*0*	**175**
12:45 PM	0	0	41	28	0	*69*	0	8	0	46	0	*54*	0	10	34	0	0	*44*	0	0	0	0	0	*0*	**167**
Hourly Total	0	0	181	123	0	*304*	0	42	0	178	1	*220*	0	22	134	0	0	*156*	0	0	0	0	0	*0*	**680**
1:00 PM	0	0	40	36	0	*76*	0	10	0	38	0	*48*	0	2	25	0	0	*27*	0	0	0	0	0	*0*	**151**
1:15 PM	0	0	36	20	0	*56*	0	7	0	46	0	*53*	0	1	27	0	0	*28*	0	0	0	0	0	*0*	**137**
1:30 PM	0	0	30	23	0	*53*	0	3	0	45	0	*48*	0	5	28	0	0	*33*	0	0	0	0	0	*0*	**134**
1:45 PM	0	0	48	34	0	*82*	0	9	0	63	0	*72*	0	3	28	0	0	*31*	0	0	0	0	0	*0*	**185**
Hourly Total	0	0	154	113	0	*267*	0	29	0	192	0	*221*	0	11	108	0	0	*119*	0	0	0	0	0	*0*	**607**
2:00 PM	0	0	45	23	0	*68*	0	9	1	47	0	*57*	0	8	28	0	0	*36*	0	0	0	0	0	*0*	**161**
2:15 PM	0	0	36	32	0	*68*	0	7	0	50	0	*57*	0	5	38	0	0	*43*	0	0	0	0	0	*0*	**168**
2:30 PM	1	0	26	44	0	*71*	0	7	0	44	0	*51*	0	4	41	0	0	*45*	0	0	0	0	0	*0*	**167**
2:45 PM	0	0	35	46	0	*81*	0	12	0	66	0	*78*	0	2	37	0	0	*39*	0	0	0	0	0	*0*	**198**
Hourly Total	1	0	142	145	0	*288*	0	35	1	207	0	*243*	0	19	144	0	0	*163*	0	0	0	0	0	*0*	**694**
3:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
3:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Thursday, October 15, 2020

Time	Southbound Armstrong Blvd						Westbound HWY 10 Off Ramp						Northbound Armstrong Blvd						Eastbound HWY 10 On Ramp						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
4:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
5:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
6:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
7:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
8:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
9:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
10:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:00 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:15 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:30 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
11:45 PM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Hourly Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
DAILY TOTAL	**1**	**0**	**1868**	**1010**	**0**	***2879***	**0**	**247**	**6**	**1315**	**4**	***1568***	**3**	**136**	**1222**	**0**	**0**	***1361***	**0**	**0**	**0**	**0**	**0**	***0***	**5808**
Cars	1	0	1797	979	0	*2777*	0	222	3	1240	3	*1465*	3	128	1193	0	0	*1324*	0	0	0	0	0	*0*	**5566**
Heavy Vehicles	0	0	71	31	0	*102*	0	25	3	75	1	*103*	0	8	29	0	0	*37*	0	0	0	0	0	*0*	**242**
Heavy Vehicle %	0.00%	0.00%	3.80%	3.07%	0.00%	*3.54%*	0.00%	10.12%	50.00%	5.70%	25.00%	*6.57%*	0.00%	5.88%	2.37%	0.00%	0.00%	*2.72%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**4.17%**

04 HWY 10 North Ramps and Armstorng Blvd
Ramsey MN
Thursday, October 15, 2020

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:15 AM	0	0	55	26	0	*81*	0	2	0	23	1	*25*	0	2	40	0	0	*42*	0	0	0	0	0	*0*	**148**
7:30 AM	0	0	65	25	0	*90*	0	4	1	22	0	*27*	0	2	41	0	0	*43*	0	0	0	0	0	*0*	**160**
7:45 AM	0	0	44	19	0	*63*	0	5	0	35	0	*40*	0	1	48	0	0	*49*	0	0	0	0	0	*0*	**152**
8:00 AM	0	0	63	25	0	*88*	0	4	1	43	0	*48*	0	3	30	0	0	*33*	0	0	0	0	0	*0*	**169**
Peak Hour Total	0	0	227	95	0	*322*	0	15	2	123	1	*140*	0	8	159	0	0	*167*	0	0	0	0	0	*0*	**629**
PHF	0.000	0.000	0.873	0.913	0.000	*0.894*	0.000	0.750	0.500	0.715	0.250	*0.729*	0.000	0.667	0.828	0.000	0.000	*0.852*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.930**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
2:00 PM	0	0	45	23	0	*68*	0	9	1	47	0	*57*	0	8	28	0	0	*36*	0	0	0	0	0	*0*	**161**
2:15 PM	0	0	36	32	0	*68*	0	7	0	50	0	*57*	0	5	38	0	0	*43*	0	0	0	0	0	*0*	**168**
2:30 PM	1	0	26	44	0	*71*	0	7	0	44	0	*51*	0	4	41	0	0	*45*	0	0	0	0	0	*0*	**167**
2:45 PM	0	0	35	46	0	*81*	0	12	0	66	0	*78*	0	2	37	0	0	*39*	0	0	0	0	0	*0*	**198**
Peak Hour Total	1	0	142	145	0	*288*	0	35	1	207	0	*243*	0	19	144	0	0	*163*	0	0	0	0	0	*0*	**694**
PHF	0.250	0.000	0.789	0.788	0.000	*0.889*	0.000	0.729	0.250	0.784	0.000	*0.779*	0.000	0.594	0.878	0.000	0.000	*0.906*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.876**

Total Vehicles On Leg 5417					
Vehicles Entering Intersection 2879			Vehicles Exiting Intersection 2538		
Southbound					
Cars	979	1797	0	1	0
Heavy	31	71	0	0	0
Total	**1010**	**1868**	**0**	**1**	**0**

Total Vehicles on Leg 1152	Vehicles Entering Intersection 0	**Eastbound**	Cars	Heavy	**Total**
			0	0	**0**
			0	0	**0**
	Vehicles Exiting Intersection 1152		0	0	**0**
			0	0	**0**
			0	0	**0**

Daily Volumes

Cars	Heavy	**Total**	**Westbound**	Vehicles Entering Intersection 1568	Total Vehicles on Leg 1568
1240	75	**1315**			
3	3	**6**			
222	25	**247**		Vehicles Exiting Intersection 0	
0	0	**0**			
3	1	**4**			

Cars	0	3	128	1193	0
Heavy	0	0	8	29	0
Total	**0**	**3**	**136**	**1222**	**0**
Northbound					
Vehicles Entering Intersection 1361			Vehicles Exiting Intersection 2118		
Total Vehicles On Leg 3479					

Spack SOLUTIONS

Forecast Trip Generation - ITE

Gross Volumes

LAND USE	ITE CODE #	DEVELOPMENT UNITS	QUANTITY	DAILY			AM PEAK HOUR			PM PEAK HOUR		
				TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Single Family Detached Housing	210	DU	165.0	1,558	779	779	122	31	92	163	103	60
Single Family Detached Housing	210	DU	78.0	736	368	368	58	14	43	77	49	29
TOTAL				2294	1147	1147	180	45	135	241	152	89

Trips After Internal Reductions

LAND USE	ITE CODE #	DEVELOPMENT UNITS	QUANTITY	DAILY			AM PEAK HOUR			PM PEAK HOUR		
				TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Single Family Detached Housing	210	DU	165.0	1,558	779	779	122	31	92	163	103	60
Single Family Detached Housing	210	DU	78.0	736	368	368	58	14	43	77	49	29
TOTAL				2294	1147	1147	180	45	135	241	152	89

Internal Reduction
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%

Trips After Internal & Pass-By Reductions (Net New)

LAND USE	ITE CODE #	DEVELOPMENT UNITS	QUANTITY	DAILY			AM PEAK HOUR			PM PEAK HOUR		
				TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Single Family Detached Housing	210	DU	165.0	1,558	779	779	122	31	92	163	103	60
Single Family Detached Housing	210	DU	78.0	736	368	368	58	14	43	77	49	29
TOTAL				2294	1147	1147	180	45	135	241	152	89

NOTES:

1. KSF2 = 1,000 square feet. DU = dwelling units. VFP = Vehicle Fueling Positions, the number of vehicles able to fill at one time.
2. All trip generation rates based on "Trip Generation", Institute of Transportation Engineers, 10th Edition unless otherwise noted.
3. Reduction for pass-by and internal trips are based on "Trip Generation Handbook", Institute of Transportation Engineers, 3rd Edition.
4. A.M. Trip Generation is for the peak hour of adjacent street traffic (one hour between 7 and 9 a.m.).
5. P.M. Trip Generation is for the peak hour of adjacent street traffic (one hour between 4 and 6 p.m.).

Spack SOLUTIONS

Forecast Trip Generation - Local

Gross Volumes

LAND USE	DEVELOPMENT UNITS	QUANTITY	DAILY			AM PEAK HOUR			PM PEAK HOUR		
			TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Single Family Detached Housing	Units	165.0	1,487	744	744	104	29	75	145	83	62
Townhomes	Units	78.0	423	212	212	36	9	27	41	26	15
TOTAL			1910	956	956	140	38	102	186	109	77

Trips After Internal Reductions

LAND USE	DEVELOPMENT UNITS	QUANTITY	DAILY			AM PEAK HOUR			PM PEAK HOUR		
			TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Single Family Detached Housing	Units	165.0	1,487	744	744	104	29	75	145	83	62
Townhomes	Units	78.0	423	212	212	36	9	27	41	26	15
TOTAL			1910	956	956	140	38	102	186	109	77

Internal Reduction
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%
0.00%

Trips After Internal & Pass-By Reductions (Net New)

LAND USE	DEVELOPMENT UNITS	QUANTITY	DAILY			AM PEAK HOUR			PM PEAK HOUR		
			TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
Single Family Detached Housing	Units	165.0	1,487	744	744	104	29	75	145	83	62
Townhomes	Units	78.0	423	212	212	36	9	27	41	26	15
TOTAL			1910	956	956	140	38	102	186	109	77

NOTES:

1. KSF2 = 1,000 square feet. DU = dwelling units. VFP = Vehicle Fueling Positions, the number of vehicles able to fill at one time.
2. All trip generation rates based on data collected by Spack Solutions unless otherwise noted.
3. Reduction for pass-by and internal trips are based on "Trip Generation Handbook", Institute of Transportation Engineers, 3rd Edition.
4. A.M. Trip Generation is for the peak hour of adjacent street traffic (one hour between 7 and 9 a.m.).
5. P.M. Trip Generation is for the peak hour of adjacent street traffic (one hour between 4 and 6 p.m.).

Level of Service (LOS)

Level of Service (LOS) is a qualitative description, similar to typical school grades, that traffic engineers use to communicate how good or bad traffic operations are on a corridor, intersection, or interchange.

Common Factors

Traffic can be a hard thing to quantify as everyone has a different tolerance for congestion. What seems excessively long to one person may seem good enough for another. These differences are readily apparent when comparing small towns or rural areas, where five cars an hour can be the norm, to big cities or downtowns, where less than hundred cars an hour, even in the middle of night, is rare.

To combat this issue and provide a consistent measuring tool for traffic studies, a "Level of Service" rating was developed. Level of Service ratings are based on the roadway or intersection characteristics and the amount of traffic. Just like grade school, LOS A represents the best traffic operations, where traffic flows freely. LOS F, on the other hand, represents failing operations, where the road or intersection is congested and running beyond maximum capacity. LOS E is typically considered "at capacity" which means the amount of traffic is right at the level the roadway or intersection can adequately accommodate. Using Level of Service letter grades provides an easy way to convey road operations to the general public and has been adopted across the United States.

Common Factors Impacting Level of Service

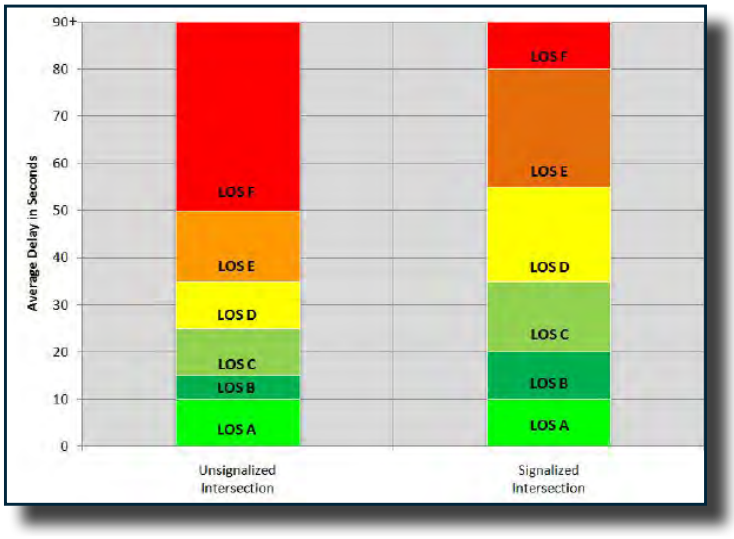
- **Number of Lanes.**
- **Traffic Volumes.**
- **Intersection Control (stop sign, signal, roundabout, interchange.)**
- **Amount of access on a corridor.**
- **Percentage of turning traffic.**
- **Traffic signal cycle length (green time devoted to each approach) and phasing (one green for all approach movements or separate green arrows.)**
- **Percentage of heavy trucks.**
- **Roadway Grades.**
- **Distribution of traffic within a peak hour as well as over the course of a day.**
- **Pedestrian activity.**
- **Bicycle activity.**

Level of Service criteria have been developed for multiple types of traffic operations including:

- Intersections
- Urban Corridors
- Freeways
- Transit Service
- Bicycle Operations
- Pedestrian Operations

The most common LOS criteria used is for car operations at intersections; both signalized and unsignalized. For an intersection Level of Service analysis, average delay for cars travelling through the intersection is used to determine the appropriate grade. A high delay results in a poor LOS rating and equates to poor operations. Similarly, low delay results in a good LOS rating and equates to good or great operations.

LOS can be determined for the intersection as a whole, or for individual movements. It is common during peak periods in major population areas for an intersection to have an acceptable overall LOS rating, but fail to achieve a good grade for individual movements.



LOS A

LOS C

LOS D = Acceptable

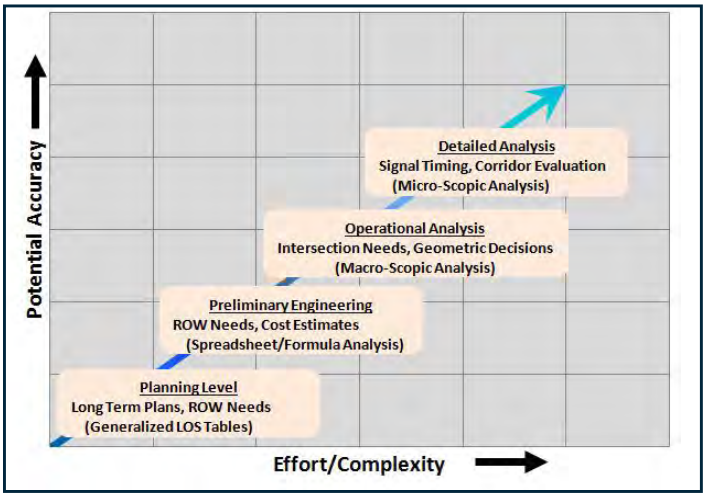
LOS F = Unacceptable

Source: City of San Jose, CA.

Although a Level of Service rating of A represents the best traffic operations, it is not always the most desirable. Providing LOS A for all corridors and all operations at all times would require a significant amount of land to be devoted to the road infrastructure, which makes it extremely costly to build and maintain. During non-peak times, like overnight, much of that infrastructure would sit unused.

On the opposite side of the spectrum, a Level of Service rating of E and F represent traffic operations close to breaking down, or that already have. These ratings mean high delays, long queues, and slow speeds, not to mention driver frustration. Instead of trying to achieve one or the other, government agencies try to strike a balance between providing acceptable operations, neither falling nor flowing too freely. Because of this, **LOS D is typically considered the lowest LOS acceptable by government agencies** and is reflective of a balanced approach between cost and benefit.

There are many tools and guidelines used to determine a roads Level of Service rating. Simple tools like generalized roadway capacities allow for planning-level efforts. While inexpensive and quick to complete, they are not as accurate as other options. More complicated tools, such as micro-simulations, provide more accurate results, but cost more and take more time. It is important to understand the trade-offs between the analysis types as well as the purpose of the study.



Source: Florida Deptarment of Transportation

Resources

- Highway Capacity Manual, fifth edition
- Nation Cooperative Highway Research Program Report 616; Multimodal Level of Service Analysis for Urban Streets
- http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf
- Florida Department of Transportation Quality/Level of Service Handbook
- http://www.dot.state.fl.us/planning/systems/programs/sm/los/pdfs/2009FDOTQLOS_Handbook.pdf

About This Brief

Spack Solutions prepared this brief as part of our company's vision to significantly improve the practice of traffic engineering and transportation planning. Transportation professionals from around the world have assisted us in developing this document. We are providing this brief under the Creative Commons Attribution License. Feel free to use-modify-share this guide, but please give us some credit in your document. To request our whole series of Design Briefs and to be included on our distribution list for new materials, please email mspack@spacksolutions.com. And please reach out if you have any comments or questions related to this Design Brief.

Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\Exist AM.pdf

Scenario 1 AM Exist
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	0.160	130.3	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	WB Left	0.004	7.2	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.007	11.1	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.144	10.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	130.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	5	16	1	1736	2	0	4	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	16	1	1736	2	0	4	895
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	0	458	1	0	1	236
Total Analysis Volume [veh/h]	5	17	1	1833	2	0	4	945
Pedestrian Volume [ped/h]	0		0			0		

Appendix F - Capacity Analysis Backup

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.06	0.00	0.02	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	130.31	28.19	18.22	0.00	0.00	62.20	16.10	0.00
Movement LOS	F	D	C	A	A	F	C	A
95th-Percentile Queue Length [veh/ln]	0.79	0.79	0.01	0.00	0.00	0.04	0.04	0.00
95th-Percentile Queue Length [ft/ln]	19.78	19.78	0.28	0.00	0.00	0.92	0.92	0.00
d_A, Approach Delay [s/veh]	51.40		0.01			0.07		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	0.43							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	2	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	7	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.60	9.11	8.32	8.60	9.11	8.32	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32
d_A, Approach Delay [s/veh]	8.68			8.68			2.41			7.23		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.23											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name												
Approach	Southbound				Northeastbound				Southwestbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.9430	1.0000	0.9430	0.9430	0.9430	0.9430	1.0000	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	1	0	5	3	0	64
Total Analysis Volume [veh/h]	0	0	0	0	1	0	2	1	19	14	0	258
Pedestrian Volume [ped/h]	0				0				0			

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	7.79	0.00	0.00	0.00	7.25	0.00	0.00	0.00
Movement LOS					A		A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.89	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				1.95				0.47			
Approach LOS	A				A				A			
d_I, Intersection Delay [s/veh]	4.67											
Intersection LOS	B											

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Intersection Setup

Name								
Approach	Northwestbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name								
Base Volume Input [veh/h]	2	4	0	14	187	0	7	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	0	14	187	0	7	10
Peak Hour Factor	0.9430	0.9430	1.0000	0.9430	0.9430	1.0000	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	0	4	50	0	2	3
Total Analysis Volume [veh/h]	2	4	0	15	198	0	7	11
Pedestrian Volume [ped/h]	0				0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.01	0.22	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	9.84	11.10	0.00	8.37	10.04	0.00	9.41	8.41
Movement LOS	A	B		A	B		A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.02	0.00	0.04	0.83	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.20	0.51	0.00	1.05	20.63	0.00	0.64	0.78
d_A, Approach Delay [s/veh]	9.03				9.94			
Approach LOS	A				A			
d_I, Intersection Delay [s/veh]	4.67							
Intersection LOS	B							

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.144

Intersection Setup

Name													
Approach	Northbound			Southbound				Eastbound			Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.00	100.00	100.00	100.0	100.0	100.0	315.0	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00				30.00			30.00		
Grade [%]	0.00			0.00				0.00			0.00		
Curb Present	No			No							No		
Crosswalk	No			No				No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Peak Hour Factor	0.9310	0.9310	1.0000	0.931	1.000	0.931	0.931	1.0000	1.0000	1.0000	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	59	0	0	0	64	26	0	0	0	5	1	36
Total Analysis Volume [veh/h]	11	236	0	1	0	256	103	0	0	0	21	2	144
Presence of On-Street Parking	No		No	No			No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0				0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0				0			0		
v_co, Outbound Pedestrian Volume crossing	0			0				0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0				0			0		
Bicycle Volume [bicycles/h]	0			0				0			0		

Appendix F - Capacity Analysis Backup

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Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	10	0	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	20	35	0	0	0	35	0	0	0	0	0	30	0
Amber [s]	3.0	5.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	2.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	4.5	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall	No	Yes				Yes						No	
Maximum Recall	No	No				No						No	
Pedestrian Recall	No	No				No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	R		C	R
C, Cycle Length [s]	38	38	38	38	38		38	38
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	1	16	10	10	10		8	8
g / C, Green / Cycle	0.02	0.43	0.27	0.27	0.27		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.08	0.08	0.07		0.01	0.06
s, saturation flow rate [veh/h]	1603	3204	1656	1532	1431		1610	2532
c, Capacity [veh/h]	35	1393	532	410	383		357	562
d1, Uniform Delay [s]	18.24	6.53	11.03	11.04	10.94		11.63	12.15
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	5.00	0.06	0.24	0.41	0.37		0.07	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.17	0.25	0.30	0.27		0.06	0.26
d, Delay for Lane Group [s/veh]	23.24	6.59	11.28	11.45	11.32		11.70	12.39
Lane Group LOS	C	A	B	B	B		B	B
Critical Lane Group	Yes	No	No	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	0.37	0.70	0.66	0.55		0.13	0.42
50th-Percentile Queue Length [ft/ln]	3.20	9.24	17.47	16.47	13.66		3.27	10.54
95th-Percentile Queue Length [veh/ln]	0.23	0.67	1.26	1.19	0.98		0.24	0.76
95th-Percentile Queue Length [ft/ln]	5.75	16.64	31.45	29.65	24.59		5.88	18.98

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.24	6.59	0.00	11.28	0.00	11.36	11.32	0.00	0.00	0.00	11.70	11.70	12.39
Movement LOS	C	A		B		B	B				B	B	B
d_A, Approach Delay [s/veh]	7.33			11.35				0.00			12.30		
Approach LOS	A			B				A			B		
d_I, Intersection Delay [s/veh]	10.27												
Intersection LOS	B												
Intersection V/C	0.144												

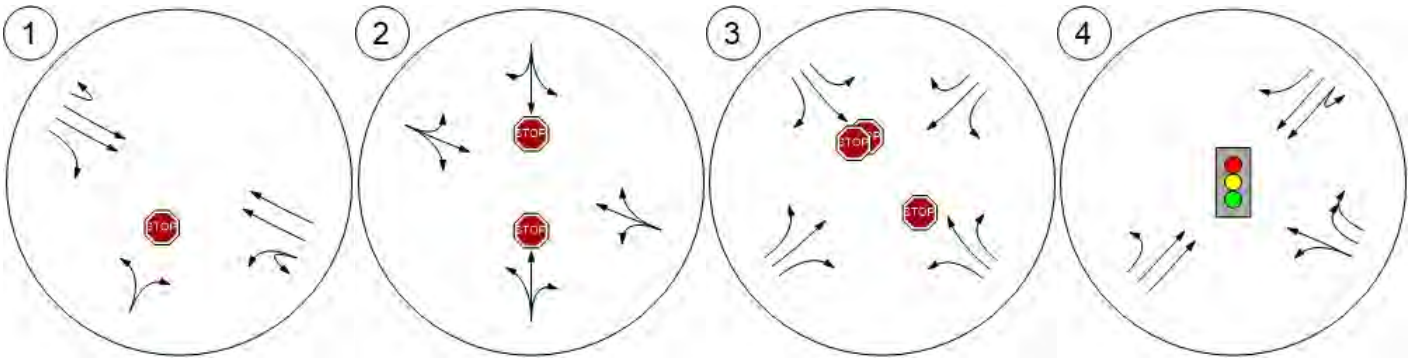
Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.994
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.763	1.857	4.132	1.835
Bicycle LOS	A	A	D	A

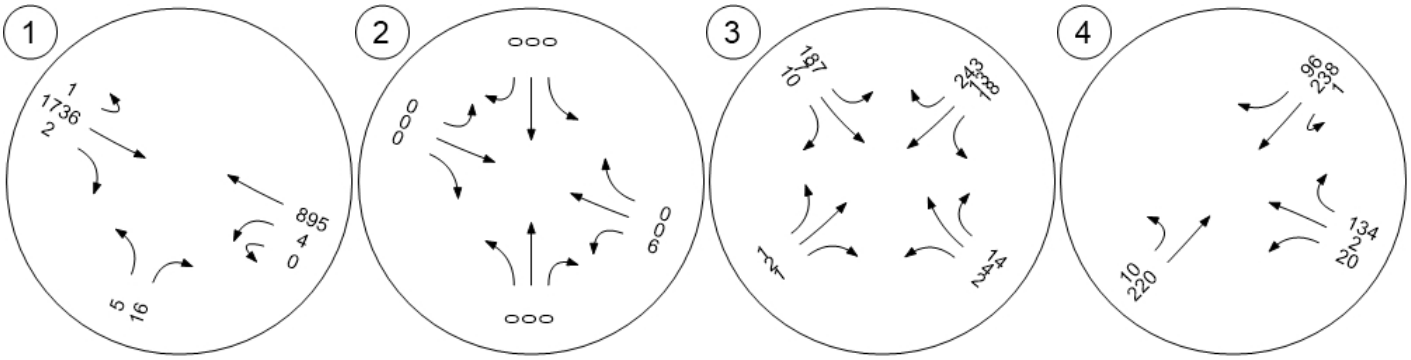
Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\Exist PM.pdf

Scenario 2 PM Exist
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	0.298	208.9	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	SB Left	0.003	8.6	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.023	11.5	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.359	13.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	208.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.298

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	6	17	1	1367	7	1	16	2051
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	17	1	1367	7	1	16	2051
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	0	360	2	0	4	540
Total Analysis Volume [veh/h]	6	18	1	1439	7	1	17	2159
Pedestrian Volume [ped/h]	0		0			0		

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.30	0.05	0.03	0.01	0.00	0.01	0.04	0.02
d_M, Delay for Movement [s/veh]	208.91	40.04	97.90	0.00	0.00	35.45	13.17	0.00
Movement LOS	F	E	F	A	A	E	B	A
95th-Percentile Queue Length [veh/ln]	1.29	1.29	0.08	0.00	0.00	0.14	0.14	0.00
95th-Percentile Queue Length [ft/ln]	32.33	32.33	1.91	0.00	0.00	3.52	3.52	0.00
d_A, Approach Delay [s/veh]	82.26		0.07			0.12		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	0.64							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name													
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Crosswalk	Yes			Yes			Yes			Yes			

Volumes

Name													
Base Volume Input [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	0	0	0	0	0	1
Total Analysis Volume [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Pedestrian Volume [ped/h]	0			0			0			0			

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	9.07	8.32	8.56	9.06	8.34	7.23	0.00	0.00	8.12	7.22	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.22	0.22	0.22	0.00	0.00	0.00	0.11	0.11	0.11	0.11
d_A, Approach Delay [s/veh]	8.32			8.56			2.41			2.56			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	4.93												
Intersection LOS	A												

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name													
Approach	Southbound				Northeastbound				Southwestbound				
Lane Configuration													
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	U-turn	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00				
Grade [%]	0.00				0.00				0.00				
Crosswalk	Yes				Yes				Yes				

Volumes

Name													
Base Volume Input [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.8610	1.0000	0.8610	0.8610	0.861	0.861	0.861	1.000	0.861
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	3	0	5	1	0	6	1	0	60
Total Analysis Volume [veh/h]	0	0	0	0	12	0	19	3	1	26	6	0	242
Pedestrian Volume [ped/h]	0				0				0				

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	7.76	0.00	0.00	0.00	8.42	7.30	0.00	0.00	0.00
Movement LOS					A		A	A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00	1.32	1.32	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				2.74				0.72				
Approach LOS	A				A				A				
d_I, Intersection Delay [s/veh]	5.81												
Intersection LOS	B												

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Intersection Setup

Name									
Approach	Northwestbound					Southeastbound			
Lane Configuration									
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00			
Grade [%]	0.00					0.00			
Crosswalk	Yes					Yes			

Volumes

Name									
Base Volume Input [veh/h]	1	1	11	0	46	193	0	8	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	11	0	46	193	0	8	4
Peak Hour Factor	0.8610	0.8610	0.8610	1.0000	0.8610	0.8610	1.0000	0.8610	0.8610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	3	0	13	56	0	2	1
Total Analysis Volume [veh/h]	1	1	13	0	53	224	0	9	5
Pedestrian Volume [ped/h]	0					0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.05	0.28	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.14	10.14	11.55	0.00	8.58	11.29	0.00	9.77	8.36
Movement LOS	B	B	B		A	B		A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.07	0.00	0.16	1.16	0.00	0.04	0.01
95th-Percentile Queue Length [ft/ln]	0.21	0.21	1.77	0.00	3.95	28.94	0.00	0.89	0.35
d_A, Approach Delay [s/veh]	9.19					11.17			
Approach LOS	A					B			
d_I, Intersection Delay [s/veh]	5.81								
Intersection LOS	B								

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.359

Intersection Setup

Name													
Approach	Northbound				Southbound			Eastbound			Westbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.0	100.0	100.0	100.0	100.00	100.00	315.00	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00			30.00			30.00		
Grade [%]	0.00				0.00			0.00			0.00		
Curb Present	No				No						No		
Crosswalk	No				No			No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Peak Hour Factor	0.916	0.916	0.916	1.000	1.0000	0.9160	0.9160	1.0000	1.0000	1.0000	0.9160	0.9160	0.9160
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	68	0	0	57	70	0	0	0	5	1	87
Total Analysis Volume [veh/h]	2	37	271	0	0	229	281	0	0	0	21	2	349
Presence of On-Street Parking	No			No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0				0			0			0		
v_co, Outbound Pedestrian Volume crossing	0				0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0				0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Appendix F - Capacity Analysis Backup

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Version 2020 (SP 0-3)

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Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	5	2	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	0	20	35	0	0	35	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	20	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall		No	Yes			Yes						No	
Maximum Recall		No	No			No						No	
Pedestrian Recall		No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	42	42	42	42		42	42
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	3	19	11	11		10	10
g / C, Green / Cycle	0.06	0.45	0.26	0.26		0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.02	0.08	0.07	0.20		0.01	0.14
s, saturation flow rate [veh/h]	1603	3204	3204	1431		1610	2532
c, Capacity [veh/h]	99	1452	832	371		380	598
d1, Uniform Delay [s]	18.87	6.84	12.35	14.28		12.38	14.15
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.50	0.06	0.18	3.16		0.07	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.19	0.28	0.76		0.06	0.58
d, Delay for Lane Group [s/veh]	21.37	6.90	12.53	17.44		12.45	15.06
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	0.38	0.49	0.70	2.25		0.15	1.28
50th-Percentile Queue Length [ft/ln]	9.50	12.32	17.43	56.13		3.66	32.11
95th-Percentile Queue Length [veh/ln]	0.68	0.89	1.25	4.04		0.26	2.31
95th-Percentile Queue Length [ft/ln]	17.10	22.17	31.37	101.04		6.59	57.79

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.37	21.37	6.90	0.00	0.00	12.53	17.44	0.00	0.00	0.00	12.45	12.45	15.06
Movement LOS	C	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	8.72				15.24			0.00			14.90		
Approach LOS	A				B			A			B		
d_I, Intersection Delay [s/veh]	13.44												
Intersection LOS	B												
Intersection V/C	0.359												

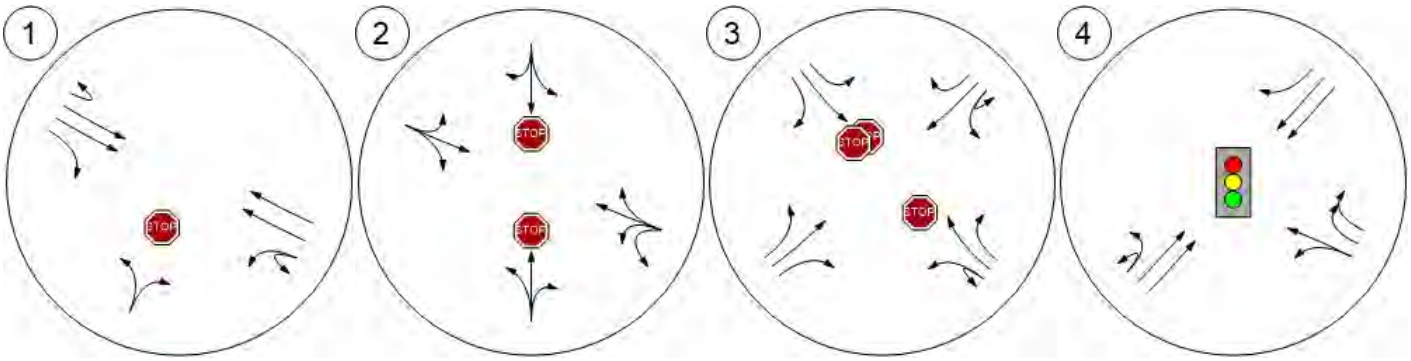
Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.061
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
I_b,int, Bicycle LOS Score for Intersection	1.785	1.980	4.132	2.173
Bicycle LOS	A	A	D	B

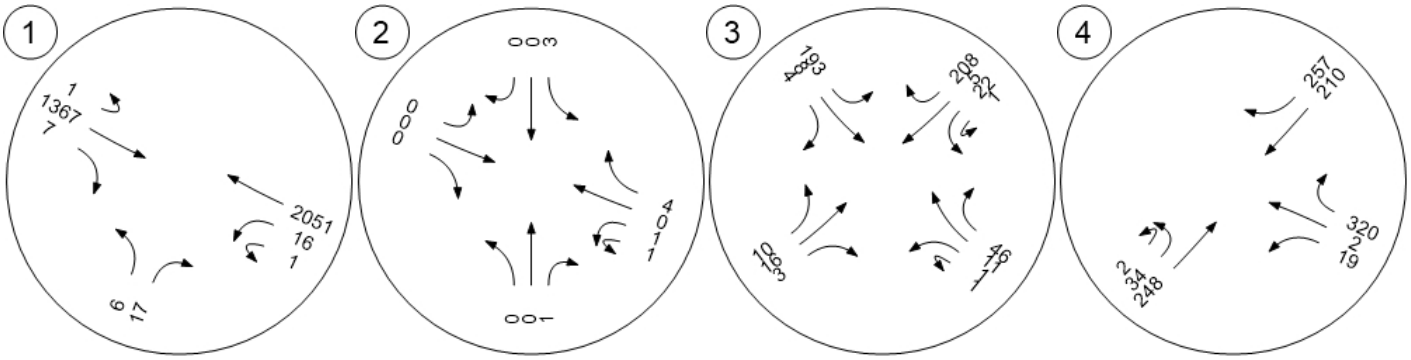
Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2022 AM nobuild.pdf

Scenario 3 2022 AM No-Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	0.185	151.6	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	WB Left	0.004	7.2	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.007	11.2	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.149	10.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	151.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.185

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	5	16	1	1736	2	0	4	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	17	1	1805	2	0	4	931
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	0	477	1	0	1	246
Total Analysis Volume [veh/h]	5	18	1	1906	2	0	4	983
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.07	0.00	0.02	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	151.57	31.98	19.02	0.00	0.00	69.83	16.86	0.00
Movement LOS	F	D	C	A	A	F	C	A
95th-Percentile Queue Length [veh/ln]	0.92	0.92	0.01	0.00	0.00	0.04	0.04	0.00
95th-Percentile Queue Length [ft/ln]	23.09	23.09	0.29	0.00	0.00	0.99	0.99	0.00
d_A, Approach Delay [s/veh]	57.98		0.01			0.07		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	0.49							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	2	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	7	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Version 2020 (SP 0-3)

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.60	9.11	8.32	8.60	9.11	8.32	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32
d_A, Approach Delay [s/veh]	8.68			8.68			2.41			7.23		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.23											
Intersection LOS	A											

Generated with PTV VISTRO
Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name												
Approach	Southbound				Northeastbound				Southwestbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0	2	1	19	14	0	253
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.9430	1.0000	0.9430	0.9430	0.9430	0.9430	1.0000	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	1	0	5	4	0	67
Total Analysis Volume [veh/h]	0	0	0	0	1	0	2	1	20	15	0	268
Pedestrian Volume [ped/h]	0				0				0			

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	7.82	0.00	0.00	0.00	7.25	0.00	0.00	0.00
Movement LOS					A		A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.94	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				1.95				0.48			
Approach LOS	A				A				A			
d_I, Intersection Delay [s/veh]	4.70											
Intersection LOS	B											

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Intersection Setup

Name								
Approach	Northwestbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name								
Base Volume Input [veh/h]	2	4	0	14	187	0	7	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0000	1.0400	1.0400	1.0000	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	0	15	194	0	7	10
Peak Hour Factor	0.9430	0.9430	1.0000	0.9430	0.9430	1.0000	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	0	4	51	0	2	3
Total Analysis Volume [veh/h]	2	4	0	16	206	0	7	11
Pedestrian Volume [ped/h]	0				0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.01	0.23	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	9.90	11.21	0.00	8.38	10.14	0.00	9.43	8.42
Movement LOS	A	B		A	B		A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.02	0.00	0.05	0.87	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.20	0.52	0.00	1.13	21.86	0.00	0.65	0.78
d_A, Approach Delay [s/veh]	9.03				10.03			
Approach LOS	A				B			
d_I, Intersection Delay [s/veh]	4.70							
Intersection LOS	B							

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.149

Intersection Setup

Name													
Approach	Northbound			Southbound				Eastbound			Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.00	100.00	100.00	100.0	100.0	100.0	315.0	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00				30.00			30.00		
Grade [%]	0.00			0.00				0.00			0.00		
Curb Present	No			No							No		
Crosswalk	No			No				No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0000	1.040	1.000	1.040	1.040	1.0000	1.0000	1.0000	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	229	0	1	0	248	100	0	0	0	21	2	139
Peak Hour Factor	0.9310	0.9310	1.0000	0.931	1.000	0.931	0.931	1.0000	1.0000	1.0000	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	61	0	0	0	67	27	0	0	0	6	1	37
Total Analysis Volume [veh/h]	11	246	0	1	0	266	107	0	0	0	23	2	149
Presence of On-Street Parking	No		No	No			No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0		
v_co, Outbound Pedestrian Volume crossing		0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0		
Bicycle Volume [bicycles/h]		0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	10	0	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	20	35	0	0	0	35	0	0	0	0	0	30	0
Amber [s]	3.0	5.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	2.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	4.5	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall	No	Yes				Yes						No	
Maximum Recall	No	No				No						No	
Pedestrian Recall	No	No				No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	R		C	R
C, Cycle Length [s]	38	38	38	38	38		38	38
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	1	16	10	10	10		8	8
g / C, Green / Cycle	0.02	0.43	0.27	0.27	0.27		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.01	0.08	0.08	0.08	0.07		0.02	0.06
s, saturation flow rate [veh/h]	1603	3204	1656	1532	1431		1609	2532
c, Capacity [veh/h]	35	1391	532	410	383		361	568
d1, Uniform Delay [s]	18.33	6.60	11.12	11.13	11.02		11.63	12.17
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	5.02	0.06	0.26	0.43	0.39		0.08	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.18	0.26	0.31	0.28		0.07	0.26
d, Delay for Lane Group [s/veh]	23.35	6.66	11.37	11.56	11.42		11.71	12.41
Lane Group LOS	C	A	B	B	B		B	B
Critical Lane Group	Yes	No	No	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	0.39	0.73	0.69	0.57		0.14	0.44
50th-Percentile Queue Length [ft/ln]	3.21	9.80	18.37	17.32	14.36		3.57	10.97
95th-Percentile Queue Length [veh/ln]	0.23	0.71	1.32	1.25	1.03		0.26	0.79
95th-Percentile Queue Length [ft/ln]	5.79	17.63	33.07	31.18	25.84		6.42	19.74

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.35	6.66	0.00	11.37	0.00	11.46	11.42	0.00	0.00	0.00	11.71	11.71	12.41
Movement LOS	C	A		B		B	B				B	B	B
d_A, Approach Delay [s/veh]	7.37			11.45				0.00			12.31		
Approach LOS	A			B				A			B		
d_I, Intersection Delay [s/veh]	10.34												
Intersection LOS	B												
Intersection V/C	0.149												

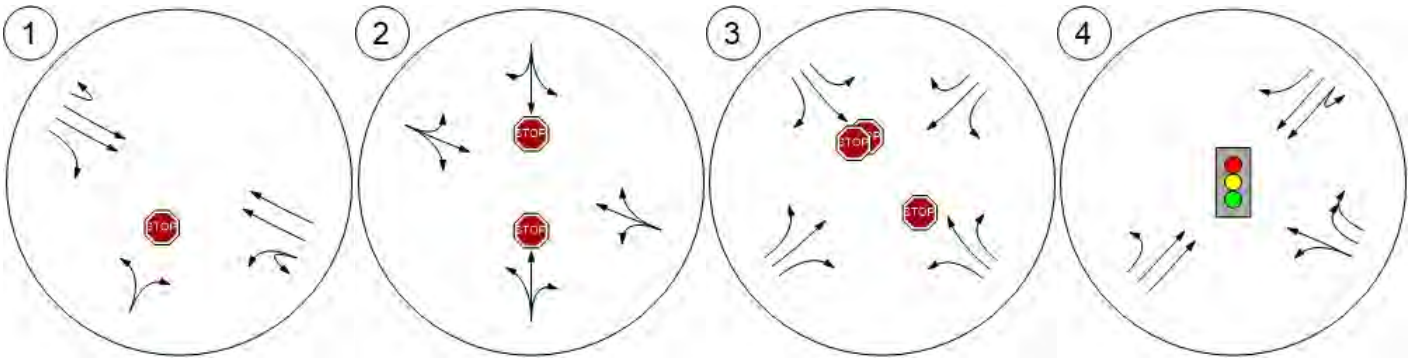
Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	1.996
Crosswalk LOS	F	F	F	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.772	1.868	4.132	1.847
Bicycle LOS	A	A	D	A

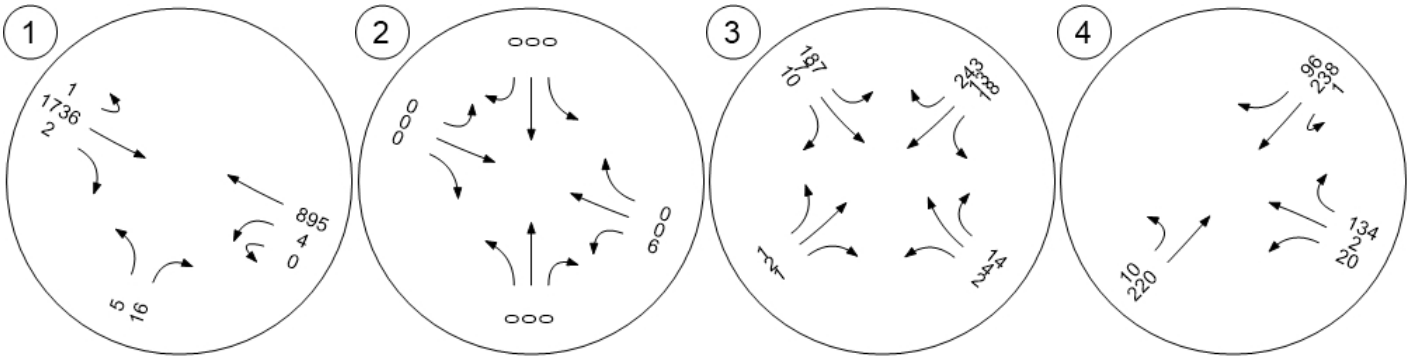
Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

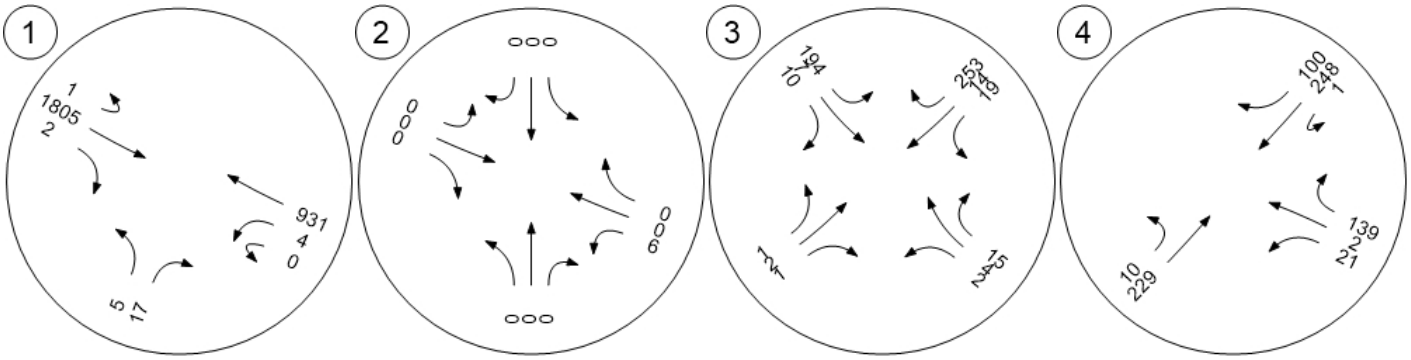
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2022 PM nobuild.pdf

Scenario 4 2022 PM No-Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	0.354	253.2	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	SB Left	0.003	8.6	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.023	11.7	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.372	13.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	253.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	6	17	1	1367	7	1	16	2051
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	18	1	1422	7	1	17	2133
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	5	0	374	2	0	4	561
Total Analysis Volume [veh/h]	6	19	1	1497	7	1	18	2245
Pedestrian Volume [ped/h]	0		0			0		

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Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.35	0.05	0.03	0.01	0.00	0.01	0.04	0.02
d_M, Delay for Movement [s/veh]	253.15	50.80	112.24	0.00	0.00	38.59	13.66	0.00
Movement LOS	F	F	F	A	A	E	B	A
95th-Percentile Queue Length [veh/ln]	1.54	1.54	0.09	0.00	0.00	0.16	0.16	0.00
95th-Percentile Queue Length [ft/ln]	38.54	38.54	2.19	0.00	0.00	3.93	3.93	0.00
d_A, Approach Delay [s/veh]	99.37		0.07			0.13		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	0.76							
Intersection LOS	F							

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Version 2020 (SP 0-3)

Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name													
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Crosswalk	Yes			Yes			Yes			Yes			

Volumes

Name													
Base Volume Input [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.040	1.040	1.040	1.040
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	0	0	0	0	0	1
Total Analysis Volume [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Pedestrian Volume [ped/h]	0			0			0			0			

Generated with PTV VISTRO
Version 2020 (SP 0-3)

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	9.07	8.32	8.56	9.06	8.34	7.23	0.00	0.00	8.12	7.22	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.22	0.22	0.22	0.00	0.00	0.00	0.11	0.11	0.11	0.11
d_A, Approach Delay [s/veh]	8.32			8.56			2.41			2.56			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	4.93												
Intersection LOS	A												

Generated with PTV VISTRO
Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name													
Approach	Southbound				Northeastbound				Southwestbound				
Lane Configuration													
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	U-turn	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00				
Grade [%]	0.00				0.00				0.00				
Crosswalk	Yes				Yes				Yes				

Volumes

Name													
Base Volume Input [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0400	1.0000	1.0400	1.0400	1.040	1.040	1.040	1.000	1.040
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	10	0	17	3	1	23	5	0	216
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.8610	1.0000	0.8610	0.8610	0.861	0.861	0.861	1.000	0.861
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	3	0	5	1	0	7	1	0	63
Total Analysis Volume [veh/h]	0	0	0	0	12	0	20	3	1	27	6	0	251
Pedestrian Volume [ped/h]	0				0				0				

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Version 2020 (SP 0-3)

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	7.78	0.00	0.00	0.00	8.43	7.30	0.00	0.00	0.00
Movement LOS					A		A	A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00	1.37	1.37	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				2.67				0.72				
Approach LOS	A				A				A				
d_I, Intersection Delay [s/veh]	5.88												
Intersection LOS	B												

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Version 2020 (SP 0-3)

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Intersection Setup

Name									
Approach	Northwestbound					Southeastbound			
Lane Configuration									
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00			
Grade [%]	0.00					0.00			
Crosswalk	Yes					Yes			

Volumes

Name									
Base Volume Input [veh/h]	1	1	11	0	46	193	0	8	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400	1.0000	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	11	0	48	201	0	8	4
Peak Hour Factor	0.8610	0.8610	0.8610	1.0000	0.8610	0.8610	1.0000	0.8610	0.8610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	3	0	14	58	0	2	1
Total Analysis Volume [veh/h]	1	1	13	0	56	233	0	9	5
Pedestrian Volume [ped/h]	0					0			

Generated with PTV VISTRO
Version 2020 (SP 0-3)

Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.00	0.05	0.30	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.21	10.21	11.66	0.00	8.59	11.47	0.00	9.79	8.36
Movement LOS	B	B	B		A	B		A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.07	0.00	0.17	1.24	0.00	0.04	0.01
95th-Percentile Queue Length [ft/ln]	0.22	0.22	1.80	0.00	4.19	30.90	0.00	0.90	0.35
d_A, Approach Delay [s/veh]	9.20					11.34			
Approach LOS	A					B			
d_I, Intersection Delay [s/veh]	5.88								
Intersection LOS	B								

Generated with PTV VISTRO
Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	13.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.372

Intersection Setup

Name													
Approach	Northbound				Southbound			Eastbound			Westbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.0	100.0	100.0	100.0	100.00	100.00	315.00	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00			30.00			30.00		
Grade [%]	0.00				0.00			0.00			0.00		
Curb Present	No				No						No		
Crosswalk	No				No			No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.040	1.040	1.040	1.000	1.0000	1.0400	1.0400	1.0000	1.0000	1.0000	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	35	258	0	0	218	267	0	0	0	20	2	333
Peak Hour Factor	0.916	0.916	0.916	1.000	1.0000	0.9160	0.9160	1.0000	1.0000	1.0000	0.9160	0.9160	0.9160
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	70	0	0	59	73	0	0	0	5	1	91
Total Analysis Volume [veh/h]	2	38	282	0	0	238	291	0	0	0	22	2	364
Presence of On-Street Parking	No			No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0				0			0			0		
v_co, Outbound Pedestrian Volume crossing	0				0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0				0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Appendix F - Capacity Analysis Backup

Generated with PTV VISTRO
Version 2020 (SP 0-3)

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Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	5	2	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	0	20	35	0	0	35	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	20	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall		No	Yes			Yes						No	
Maximum Recall		No	No			No						No	
Pedestrian Recall		No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	42	42	42	42		42	42
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	3	19	11	11		10	10
g / C, Green / Cycle	0.06	0.46	0.27	0.27		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.02	0.09	0.07	0.20		0.01	0.14
s, saturation flow rate [veh/h]	1603	3204	3204	1431		1609	2532
c, Capacity [veh/h]	101	1472	854	381		377	593
d1, Uniform Delay [s]	19.08	6.79	12.32	14.32		12.62	14.52
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.49	0.06	0.18	3.20		0.07	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.19	0.28	0.76		0.06	0.61
d, Delay for Lane Group [s/veh]	21.57	6.86	12.50	17.51		12.69	15.56
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	0.39	0.52	0.73	2.35		0.16	1.39
50th-Percentile Queue Length [ft/ln]	9.86	12.89	18.25	58.85		3.91	34.63
95th-Percentile Queue Length [veh/ln]	0.71	0.93	1.31	4.24		0.28	2.49
95th-Percentile Queue Length [ft/ln]	17.74	23.21	32.86	105.93		7.03	62.33

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.57	21.57	6.86	0.00	0.00	12.50	17.51	0.00	0.00	0.00	12.69	12.69	15.56
Movement LOS	C	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	8.69				15.26			0.00			15.39		
Approach LOS	A				B			A			B		
d_I, Intersection Delay [s/veh]	13.59												
Intersection LOS	B												
Intersection V/C	0.372												

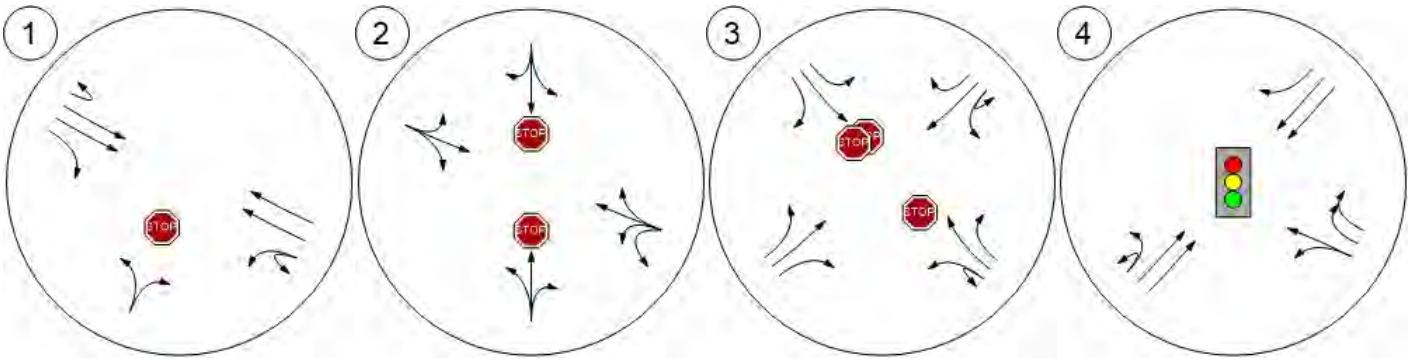
Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.066
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.794	1.996	4.132	2.200
Bicycle LOS	A	A	D	B

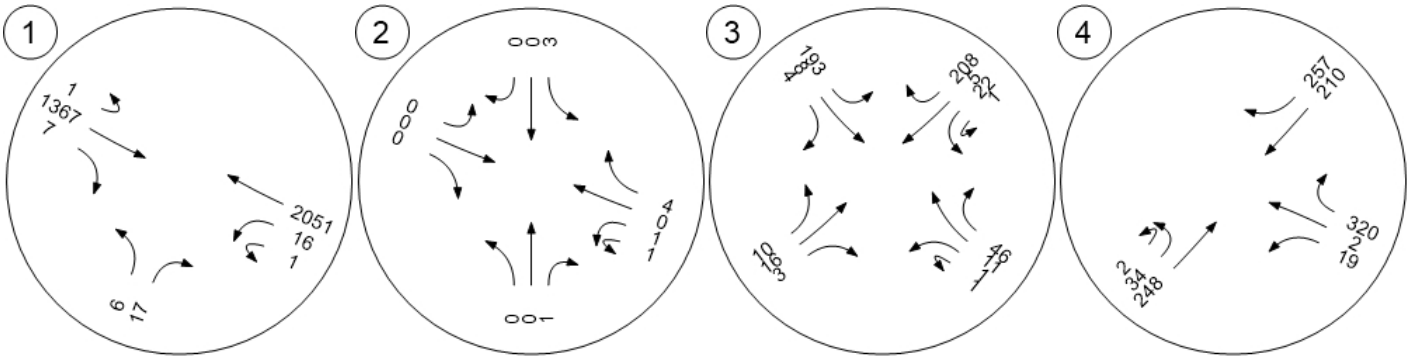
Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

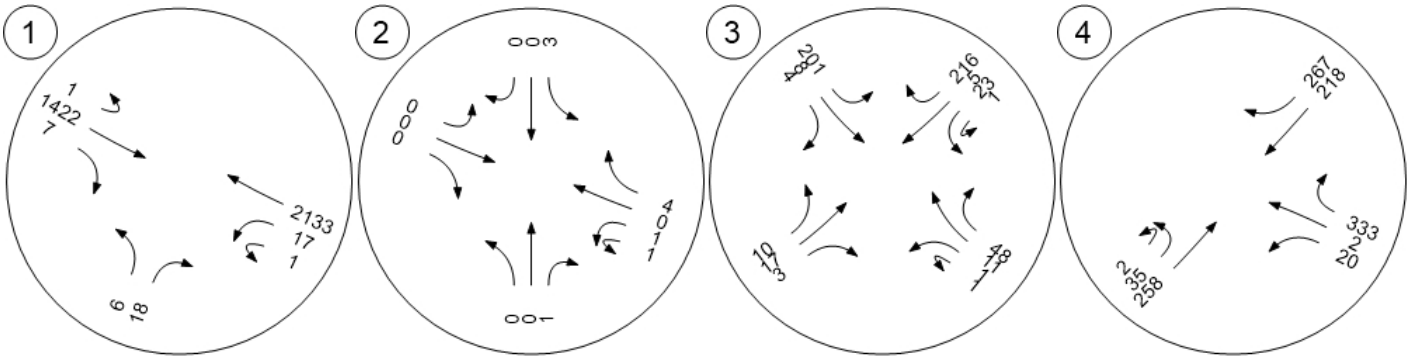
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2040 AM nobuild.pdf

Scenario 5 2040 AM No-Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	1.449	1,285.7	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	WB Left	0.006	7.2	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.012	12.5	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.215	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	1,285.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.449

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	5	16	1	1736	2	0	4	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	24	1	2587	3	0	6	1334
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	6	0	683	1	0	2	352
Total Analysis Volume [veh/h]	7	25	1	2732	3	0	6	1409
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop		Free			Free		
Flared Lane	No							
Storage Area [veh]	0		0			0		
Two-Stage Gap Acceptance	No							
Number of Storage Spaces in Median	0		0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.45	0.18	0.01	0.03	0.00	0.00	0.04	0.01
d_M, Delay for Movement [s/veh]	1285.71	566.88	32.45	0.00	0.00	289.15	30.99	0.00
Movement LOS	F	F	D	A	A	F	D	A
95th-Percentile Queue Length [veh/ln]	4.32	4.32	0.02	0.00	0.00	0.13	0.13	0.00
95th-Percentile Queue Length [ft/ln]	108.09	108.09	0.57	0.00	0.00	3.22	3.22	0.00
d_A, Approach Delay [s/veh]	724.13		0.01			0.13		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	5.59							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	0	0	9	0	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	0	0	3	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	0	0	10	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.64	9.15	8.32	8.64	9.15	8.32	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.46	0.46
d_A, Approach Delay [s/veh]	8.70			8.70			2.41			7.23		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.23											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

Name												
Approach	Southbound				Northeastbound				Southwestbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.4900	1.0000	1.4900	1.4900	1.4900	1.4900	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0	3	1	27	19	0	362
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.9430	1.0000	0.9430	0.9430	0.9430	0.9430	1.0000	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	1	0	7	5	0	96
Total Analysis Volume [veh/h]	0	0	0	0	1	0	3	1	29	20	0	384
Pedestrian Volume [ped/h]	0				0				0			

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	8.12	0.00	0.00	0.00	7.27	0.00	0.00	0.00
Movement LOS					A		A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	1.37	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				1.62				0.49			
Approach LOS	A				A				A			
d_I, Intersection Delay [s/veh]	5.20											
Intersection LOS	B											

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Intersection Setup

Name								
Approach	Northwestbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name								
Base Volume Input [veh/h]	2	4	0	14	187	0	7	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.0000	1.4900	1.4900	1.0000	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	6	0	21	279	0	10	15
Peak Hour Factor	0.9430	0.9430	1.0000	0.9430	0.9430	1.0000	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	0	6	74	0	3	4
Total Analysis Volume [veh/h]	3	6	0	22	296	0	11	16
Pedestrian Volume [ped/h]	0				0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.02	0.34	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	10.67	12.53	0.00	8.40	11.36	0.00	9.62	8.46
Movement LOS	B	B		A	B		A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.04	0.00	0.06	1.54	0.00	0.04	0.05
95th-Percentile Queue Length [ft/ln]	0.35	0.94	0.00	1.56	38.50	0.00	1.06	1.15
d_A, Approach Delay [s/veh]	9.42				11.16			
Approach LOS	A				B			
d_I, Intersection Delay [s/veh]	5.20							
Intersection LOS	B							

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.215

Intersection Setup

Name													
Approach	Northbound			Southbound				Eastbound			Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.00	100.00	100.00	100.0	100.0	100.0	315.0	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00				30.00			30.00		
Grade [%]	0.00			0.00				0.00			0.00		
Curb Present	No			No							No		
Crosswalk	No			No				No			Yes		

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Volumes

Name													
Base Volume Input [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.0000	1.490	1.000	1.490	1.490	1.0000	1.0000	1.0000	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	328	0	1	0	355	143	0	0	0	30	3	200
Peak Hour Factor	0.9310	0.9310	1.0000	0.931	1.000	0.931	0.931	1.0000	1.0000	1.0000	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	88	0	0	0	95	38	0	0	0	8	1	54
Total Analysis Volume [veh/h]	16	352	0	1	0	381	154	0	0	0	32	3	215
Presence of On-Street Parking	No		No	No			No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0				0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0				0			0		
v_co, Outbound Pedestrian Volume crossing	0			0				0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0				0			0		
Bicycle Volume [bicycles/h]	0			0				0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	10	0	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	20	35	0	0	0	35	0	0	0	0	0	30	0
Amber [s]	3.0	5.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	2.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	4.5	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall	No	Yes				Yes						No	
Maximum Recall	No	No				No						No	
Pedestrian Recall	No	No				No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	R		C	R
C, Cycle Length [s]	40	40	40	40	40		40	40
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	1	17	11	11	11		9	9
g / C, Green / Cycle	0.03	0.44	0.27	0.27	0.27		0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.01	0.11	0.12	0.12	0.11		0.02	0.08
s, saturation flow rate [veh/h]	1603	3204	1645	1532	1431		1609	2532
c, Capacity [veh/h]	51	1404	524	412	385		382	602
d1, Uniform Delay [s]	18.99	7.11	12.13	12.16	11.99		11.91	12.73
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	3.51	0.09	0.45	0.76	0.67		0.10	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.25	0.38	0.45	0.40		0.09	0.36
d, Delay for Lane Group [s/veh]	22.50	7.20	12.58	12.92	12.66		12.01	13.09
Lane Group LOS	C	A	B	B	B		B	B
Critical Lane Group	Yes	No	No	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.17	0.64	1.18	1.13	0.93		0.21	0.68
50th-Percentile Queue Length [ft/ln]	4.32	15.90	29.61	28.26	23.32		5.26	17.12
95th-Percentile Queue Length [veh/ln]	0.31	1.15	2.13	2.03	1.68		0.38	1.23
95th-Percentile Queue Length [ft/ln]	7.78	28.63	53.30	50.87	41.97		9.46	30.82

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.50	7.20	0.00	12.58	0.00	12.74	12.66	0.00	0.00	0.00	12.01	12.01	13.09
Movement LOS	C	A		B		B	B				B	B	B
d_A, Approach Delay [s/veh]	7.87			12.72				0.00			12.94		
Approach LOS	A			B				A			B		
d_I, Intersection Delay [s/veh]	11.22												
Intersection LOS	B												
Intersection V/C	0.215												

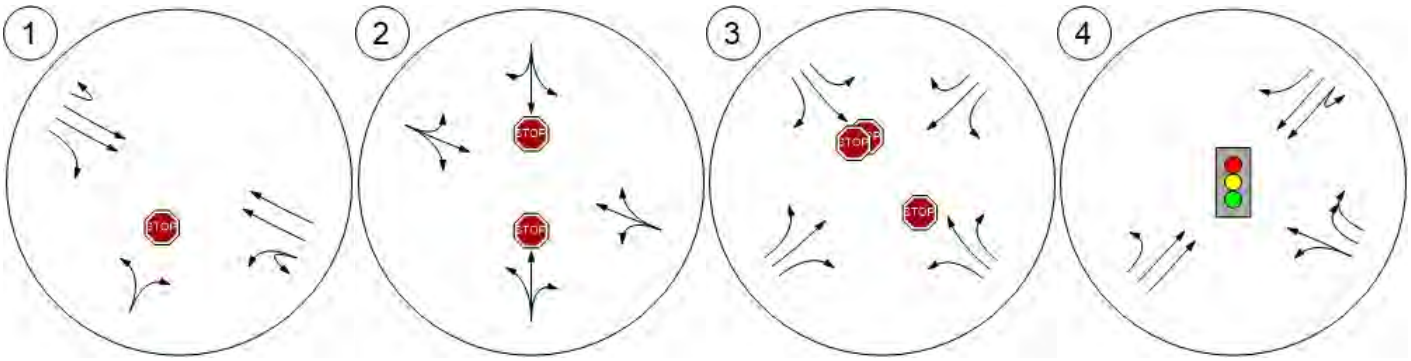
Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.021
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.863	2.002	4.132	1.972
Bicycle LOS	A	B	D	A

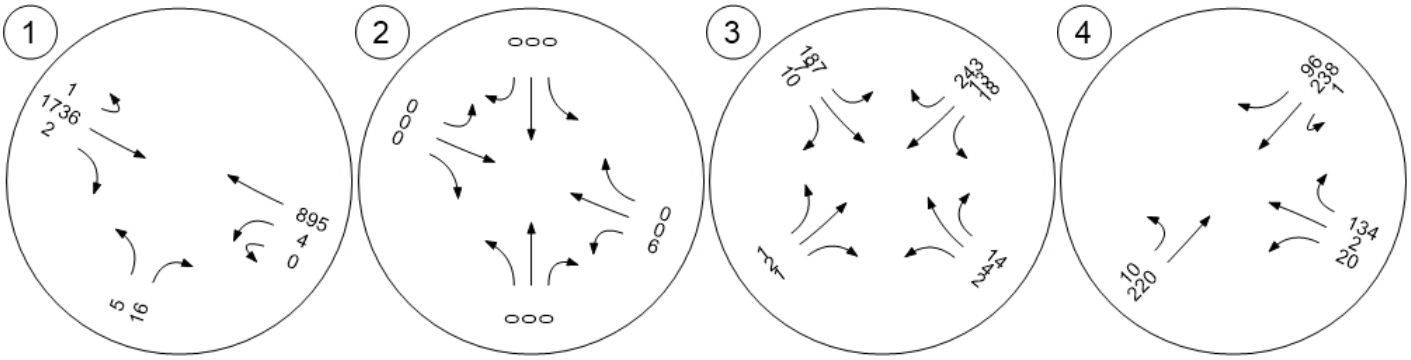
Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

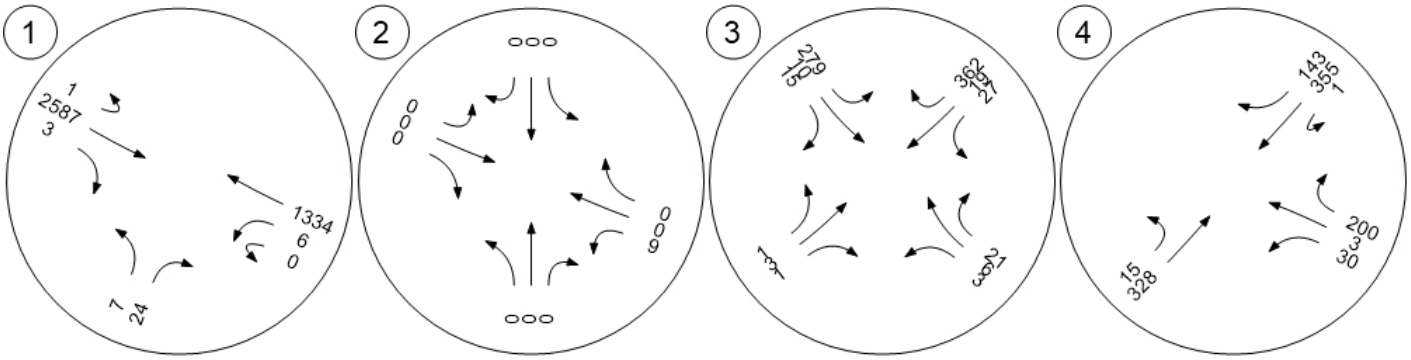
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2040 PM nobuild.pdf

Scenario 6 2040 PM No-Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	4.293	3,711.8	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	SB Left	0.004	8.6	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	SEB Left	0.477	14.7	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.535	17.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	3,711.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	4.293

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	6	17	1	1367	7	1	16	2051
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	25	1	2037	10	1	24	3056
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	7	0	536	3	0	6	804
Total Analysis Volume [veh/h]	9	26	1	2144	11	1	25	3217
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	4.29	0.12	0.14	0.02	0.00	0.03	0.10	0.03
d_M, Delay for Movement [s/veh]	3711.85	2011.10	596.59	0.00	0.00	108.14	22.29	0.00
Movement LOS	F	F	F	A	A	F	C	A
95th-Percentile Queue Length [veh/ln]	5.69	5.69	0.34	0.00	0.00	0.44	0.44	0.00
95th-Percentile Queue Length [ft/ln]	142.26	142.26	8.62	0.00	0.00	10.95	10.95	0.00
d_A, Approach Delay [s/veh]	2448.43		0.28			0.21		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	16.00							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name													
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Crosswalk	Yes			Yes			Yes			Yes			

Volumes

Name													
Base Volume Input [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.490	1.490	1.490	1.490
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	4	0	0	0	0	0	1	1	0	6
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	0	0	0	0	0	2
Total Analysis Volume [veh/h]	0	0	1	4	0	0	0	0	0	1	1	0	7
Pedestrian Volume [ped/h]	0			0			0			0			

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.55	9.08	8.32	8.57	9.08	8.35	7.23	0.00	0.00	8.12	7.22	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.30	0.30	0.30	0.00	0.00	0.00	0.11	0.11	0.11	0.11
d_A, Approach Delay [s/veh]	8.32			8.57			2.41			1.71			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	4.14												
Intersection LOS	A												

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.477

Intersection Setup

Name													
Approach	Southbound				Northeastbound				Southwestbound				
Lane Configuration													
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	U-turn	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00				
Grade [%]	0.00				0.00				0.00				
Crosswalk	Yes				Yes				Yes				

Volumes

Name													
Base Volume Input [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.4900	1.0000	1.4900	1.4900	1.490	1.490	1.490	1.000	1.490
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	15	0	24	4	1	33	7	0	310
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.8610	1.0000	0.8610	0.8610	0.861	0.861	0.861	1.000	0.861
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	4	0	7	1	0	10	2	0	90
Total Analysis Volume [veh/h]	0	0	0	0	17	0	28	5	1	38	8	0	360
Pedestrian Volume [ped/h]	0				0				0				

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	8.07	0.00	0.00	0.00	8.58	7.34	0.00	0.00	0.00
Movement LOS					A		A	A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.09	0.00	0.00	0.00	1.93	1.93	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				2.74				0.71				
Approach LOS	A				A				A				
d_I, Intersection Delay [s/veh]	7.14												
Intersection LOS	B												

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Intersection Setup

Name									
Approach	Northwestbound					Southeastbound			
Lane Configuration									
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00			
Grade [%]	0.00					0.00			
Crosswalk	Yes					Yes			

Volumes

Name									
Base Volume Input [veh/h]	1	1	11	0	46	193	0	8	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.0000	1.4900	1.4900	1.0000	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1	16	0	69	288	0	12	6
Peak Hour Factor	0.8610	0.8610	0.8610	1.0000	0.8610	0.8610	1.0000	0.8610	0.8610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	5	0	20	84	0	3	2
Total Analysis Volume [veh/h]	1	1	19	0	80	334	0	14	7
Pedestrian Volume [ped/h]	0					0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.04	0.00	0.08	0.48	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	11.16	11.16	13.36	0.00	8.72	14.72	0.00	10.17	8.37
Movement LOS	B	B	B		A	B		B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.13	0.00	0.25	2.59	0.00	0.06	0.02
95th-Percentile Queue Length [ft/ln]	0.26	0.26	3.30	0.00	6.19	64.64	0.00	1.51	0.49
d_A, Approach Delay [s/veh]	9.64					14.42			
Approach LOS	A					B			
d_I, Intersection Delay [s/veh]	7.14								
Intersection LOS	B								

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name													
Approach	Northbound				Southbound			Eastbound			Westbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.0	100.0	100.0	100.0	100.00	100.00	315.00	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00			30.00			30.00		
Grade [%]	0.00				0.00			0.00			0.00		
Curb Present	No				No						No		
Crosswalk	No				No			No			Yes		

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Volumes

Name													
Base Volume Input [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.490	1.490	1.490	1.000	1.0000	1.4900	1.4900	1.0000	1.0000	1.0000	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	51	370	0	0	313	383	0	0	0	28	3	477
Peak Hour Factor	0.916	0.916	0.916	1.000	1.0000	0.9160	0.9160	1.0000	1.0000	1.0000	0.9160	0.9160	0.9160
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	14	101	0	0	85	105	0	0	0	8	1	130
Total Analysis Volume [veh/h]	3	56	404	0	0	342	418	0	0	0	31	3	521
Presence of On-Street Parking	No			No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0				0			0			0		
v_co, Outbound Pedestrian Volume crossing	0				0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0				0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	5	2	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	0	20	35	0	0	35	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	20	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall		No	Yes			Yes						No	
Maximum Recall		No	No			No						No	
Pedestrian Recall		No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	57	57	57	57		57	57
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	4	29	19	19		14	14
g / C, Green / Cycle	0.08	0.51	0.34	0.34		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.13	0.11	0.29		0.02	0.21
s, saturation flow rate [veh/h]	1603	3204	3204	1431		1610	2532
c, Capacity [veh/h]	121	1649	1097	490		412	649
d1, Uniform Delay [s]	25.18	7.65	13.73	17.33		16.03	19.75
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	3.04	0.08	0.16	4.35		0.08	2.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.25	0.31	0.85		0.08	0.80
d, Delay for Lane Group [s/veh]	28.22	7.72	13.90	21.68		16.11	22.13
Lane Group LOS	C	A	B	C		B	C
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	0.80	1.06	1.41	4.86		0.32	3.10
50th-Percentile Queue Length [ft/ln]	20.04	26.56	35.22	121.54		7.89	77.58
95th-Percentile Queue Length [veh/ln]	1.44	1.91	2.54	8.48		0.57	5.59
95th-Percentile Queue Length [ft/ln]	36.07	47.82	63.39	211.94		14.20	139.65

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.22	28.22	7.72	0.00	0.00	13.90	21.68	0.00	0.00	0.00	16.11	16.11	22.13
Movement LOS	C	C	A			B	C				B	B	C
d_A, Approach Delay [s/veh]	10.34				18.18			0.00			21.76		
Approach LOS	B				B			A			C		
d_I, Intersection Delay [s/veh]	17.25												
Intersection LOS	B												
Intersection V/C	0.535												

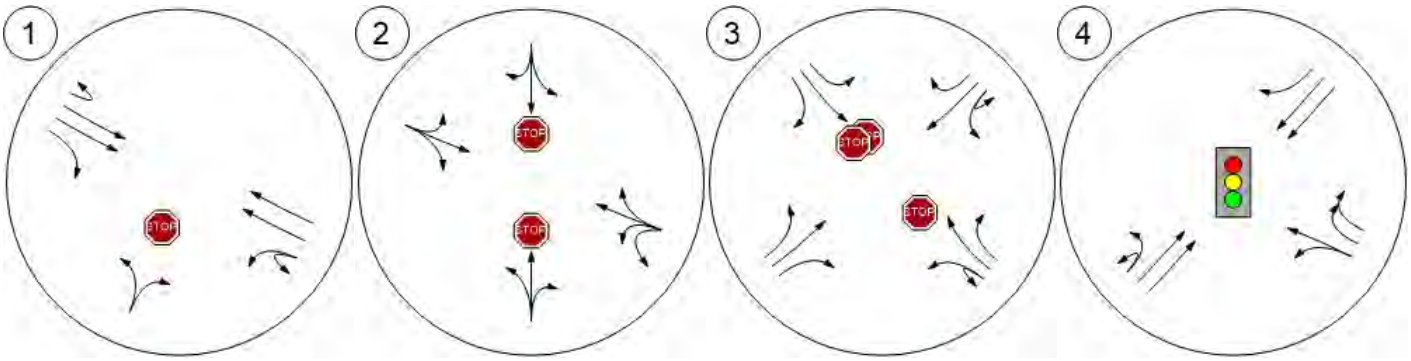
Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.120
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.895	2.187	4.132	2.475
Bicycle LOS	A	B	D	B

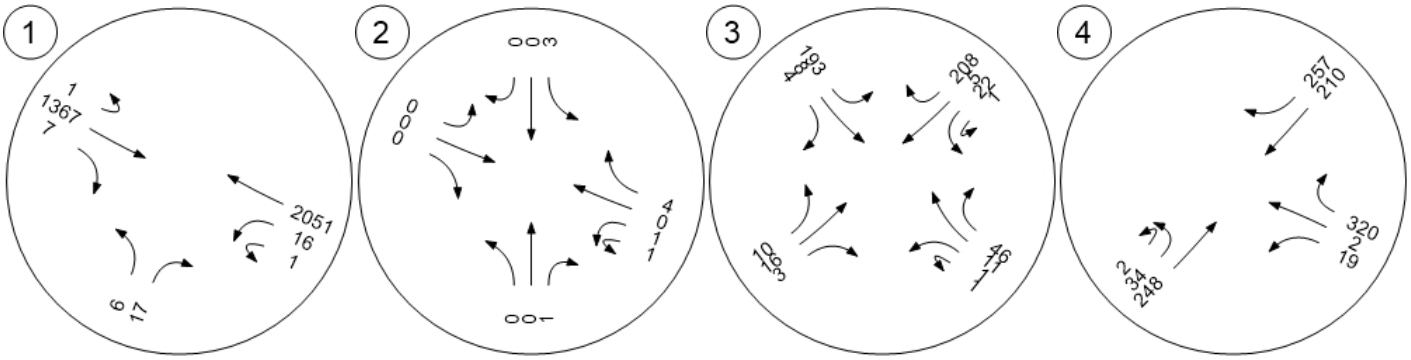
Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

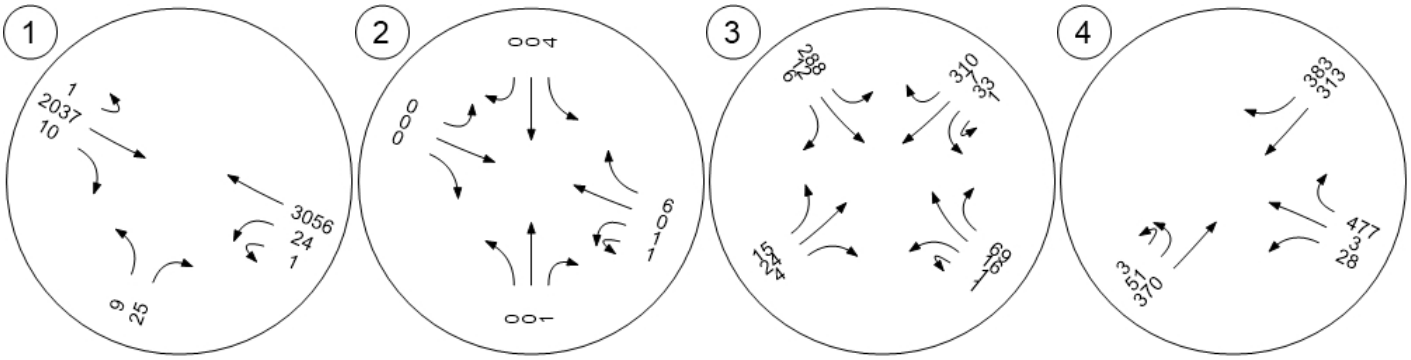
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2022 AM Build.pdf

Scenario 7 2022 AM Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	1.179	438.7	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	WB Left	0.005	7.3	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.008	12.2	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.166	11.2	B
8	Bower Dr and Riverdale Dr	Two-way stop	HCM 6th Edition	EB Left	0.025	9.0	A
9	Riverdale Drive and Western Site Access	Two-way stop	HCM 6th Edition	NB Left	0.020	9.0	A
10	Riverdale Drive and Eastern Site Access	Two-way stop	HCM 6th Edition	NB Left	0.031	9.1	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	438.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.179

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	5	16	1	1736	2	0	4	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	23	0	0	17	0	5	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	40	1	1805	19	0	9	954
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	11	0	477	5	0	2	252
Total Analysis Volume [veh/h]	30	42	1	1906	20	0	10	1007
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.18	0.16	0.00	0.02	0.00	0.00	0.03	0.01
d_M, Delay for Movement [s/veh]	438.67	311.00	19.56	0.00	0.00	77.21	17.31	0.00
Movement LOS	F	F	C	A	A	F	C	A
95th-Percentile Queue Length [veh/ln]	6.47	6.47	0.01	0.00	0.00	0.10	0.10	0.00
95th-Percentile Queue Length [ft/ln]	161.64	161.64	0.30	0.00	0.00	2.56	2.56	0.00
d_A, Approach Delay [s/veh]	364.20		0.01			0.17		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	8.76							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	57	0	0	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	57	0	6	16	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	16	0	2	4	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	63	0	7	18	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.07	9.55	8.59	9.07	9.55	8.39	7.25	0.00	0.00	7.35	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.34
d_A, Approach Delay [s/veh]	9.07			9.00			0.00			2.06		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.58											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name												
Approach	Southbound				Northeastbound				Southwestbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0400	1.0000	1.0400	1.0400	1.0400	1.0400	1.0000	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	23	0	34	1	0	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	24	0	36	2	19	30	0	253
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.9430	1.0000	0.9430	0.9430	0.9430	0.9430	1.0000	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	6	0	10	1	5	8	0	67
Total Analysis Volume [veh/h]	0	0	0	0	25	0	38	2	20	32	0	268
Pedestrian Volume [ped/h]	0				0				0			

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	7.91	0.00	0.00	0.00	7.32	0.00	0.00	0.00
Movement LOS					A		A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.52	0.00	0.00	0.00	0.97	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				3.04				0.46			
Approach LOS	A				A				A			
d_I, Intersection Delay [s/veh]	4.86											
Intersection LOS	B											

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Intersection Setup

Name								
Approach	Northwestbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name								
Base Volume Input [veh/h]	2	4	0	14	187	0	7	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0000	1.0400	1.0400	1.0000	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	4	0	15	194	0	7	10
Peak Hour Factor	0.9430	0.9430	1.0000	0.9430	0.9430	1.0000	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	0	4	51	0	2	3
Total Analysis Volume [veh/h]	2	4	0	16	206	0	7	11
Pedestrian Volume [ped/h]	0				0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.02	0.27	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	10.81	12.22	0.00	8.54	11.43	0.00	10.14	8.49
Movement LOS	B	B		A	B		B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.02	0.00	0.05	1.09	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.24	0.60	0.00	1.18	27.20	0.00	0.75	0.80
d_A, Approach Delay [s/veh]	9.41				11.24			
Approach LOS	A				B			
d_I, Intersection Delay [s/veh]	4.86							
Intersection LOS	B							

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.166

Intersection Setup

Name													
Approach	Northbound			Southbound				Eastbound			Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.00	100.00	100.00	100.0	100.0	100.0	315.0	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00				30.00			30.00		
Grade [%]	0.00			0.00				0.00			0.00		
Curb Present	No			No							No		
Crosswalk	No			No				No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0000	1.040	1.000	1.040	1.040	1.0000	1.0000	1.0000	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	11	0	0	0	4	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	240	0	1	0	252	100	0	0	0	33	2	139
Peak Hour Factor	0.9310	0.9310	1.0000	0.931	1.000	0.931	0.931	1.0000	1.0000	1.0000	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	64	0	0	0	68	27	0	0	0	9	1	37
Total Analysis Volume [veh/h]	35	258	0	1	0	271	107	0	0	0	35	2	149
Presence of On-Street Parking	No		No	No			No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0				0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0				0			0		
v_co, Outbound Pedestrian Volume crossing	0			0				0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0				0			0		
Bicycle Volume [bicycles/h]	0			0				0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	10	0	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	20	35	0	0	0	35	0	0	0	0	0	30	0
Amber [s]	3.0	5.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	2.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	4.5	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall	No	Yes				Yes						No	
Maximum Recall	No	No				No						No	
Pedestrian Recall	No	No				No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	R		C	R
C, Cycle Length [s]	40	40	40	40	40		40	40
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	2	18	10	10	10		9	9
g / C, Green / Cycle	0.06	0.45	0.26	0.26	0.26		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.02	0.08	0.09	0.09	0.07		0.02	0.06
s, saturation flow rate [veh/h]	1603	3204	1641	1532	1431		1607	2532
c, Capacity [veh/h]	97	1455	501	393	367		357	563
d1, Uniform Delay [s]	18.13	6.51	12.11	12.14	12.00		12.43	12.90
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.26	0.06	0.30	0.50	0.44		0.13	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.18	0.28	0.33	0.29		0.10	0.26
d, Delay for Lane Group [s/veh]	20.38	6.57	12.42	12.63	12.43		12.55	13.15
Lane Group LOS	C	A	B	B	B		B	B
Critical Lane Group	Yes	No	No	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.32	0.43	0.83	0.79	0.64		0.23	0.47
50th-Percentile Queue Length [ft/ln]	8.07	10.66	20.78	19.77	15.96		5.76	11.87
95th-Percentile Queue Length [veh/ln]	0.58	0.77	1.50	1.42	1.15		0.41	0.85
95th-Percentile Queue Length [ft/ln]	14.53	19.19	37.41	35.58	28.72		10.37	21.37

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.38	6.57	0.00	12.42	0.00	12.52	12.43	0.00	0.00	0.00	12.55	12.55	13.15
Movement LOS	C	A		B		B	B				B	B	B
d_A, Approach Delay [s/veh]	8.22			12.50				0.00			13.03		
Approach LOS	A			B				A			B		
d_I, Intersection Delay [s/veh]	11.15												
Intersection LOS	B												
Intersection V/C	0.166												

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.000
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.801	1.872	4.132	1.867
Bicycle LOS	A	A	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report
Intersection 8: Bower Dr and Riverdale Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	6	21	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	22	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	45	22	6	22	0
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	12	6	2	6	0
Total Analysis Volume [veh/h]	0	48	23	6	23	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	7.27	0.00	0.00	0.00	8.97	8.53
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.90	1.90
d_A, Approach Delay [s/veh]	0.00		0.00		8.97	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.06					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 9: Riverdale Drive and Western Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0400	1.0000	1.0000	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	23	13	9	4	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	23	13	9	4	27
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	6	3	2	1	7
Total Analysis Volume [veh/h]	19	24	14	10	4	29
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.95	8.56	0.00	0.00	7.27	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	3.34	3.34	0.00	0.00	0.19	0.19
d_A, Approach Delay [s/veh]	8.73		0.00		0.88	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.05					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 10: Riverdale Drive and Eastern Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0400	1.0000	1.0000	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	34	23	13	12	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	34	23	13	12	4
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	9	6	3	3	1
Total Analysis Volume [veh/h]	29	36	24	14	13	4
Pedestrian Volume [ped/h]	0		0		0	

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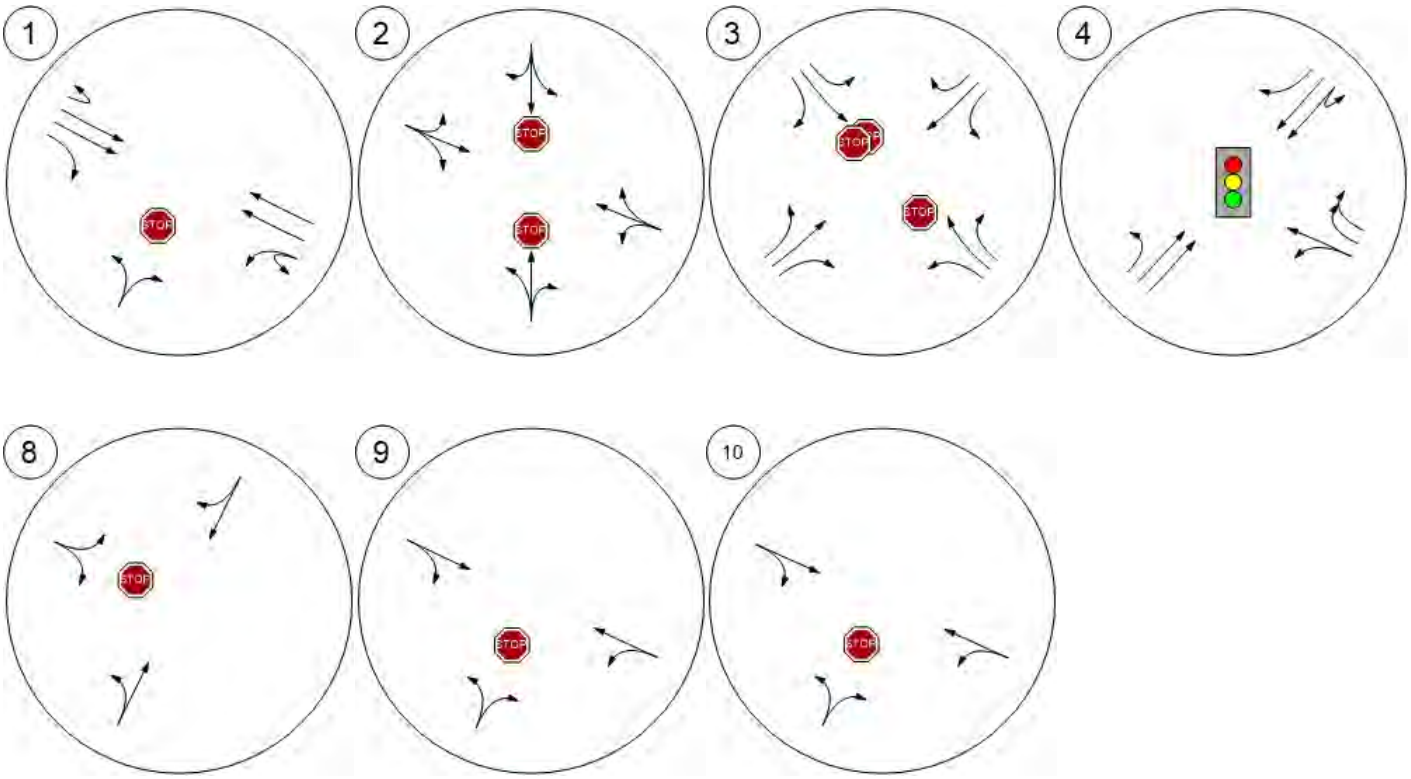
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

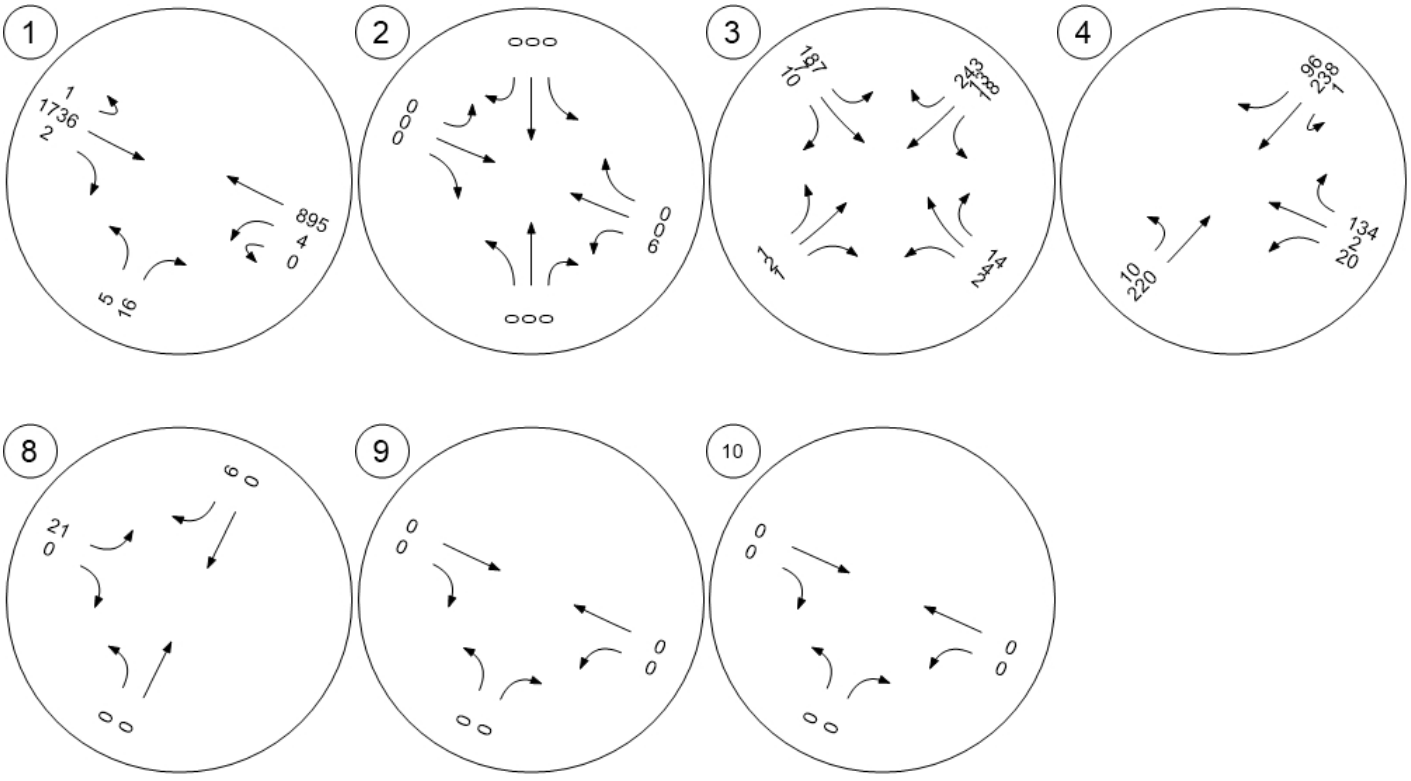
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.09	8.70	0.00	0.00	7.31	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.21	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	5.24	5.24	0.00	0.00	0.63	0.63
d_A, Approach Delay [s/veh]	8.88		0.00		5.59	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.60					
Intersection LOS	A					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume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5
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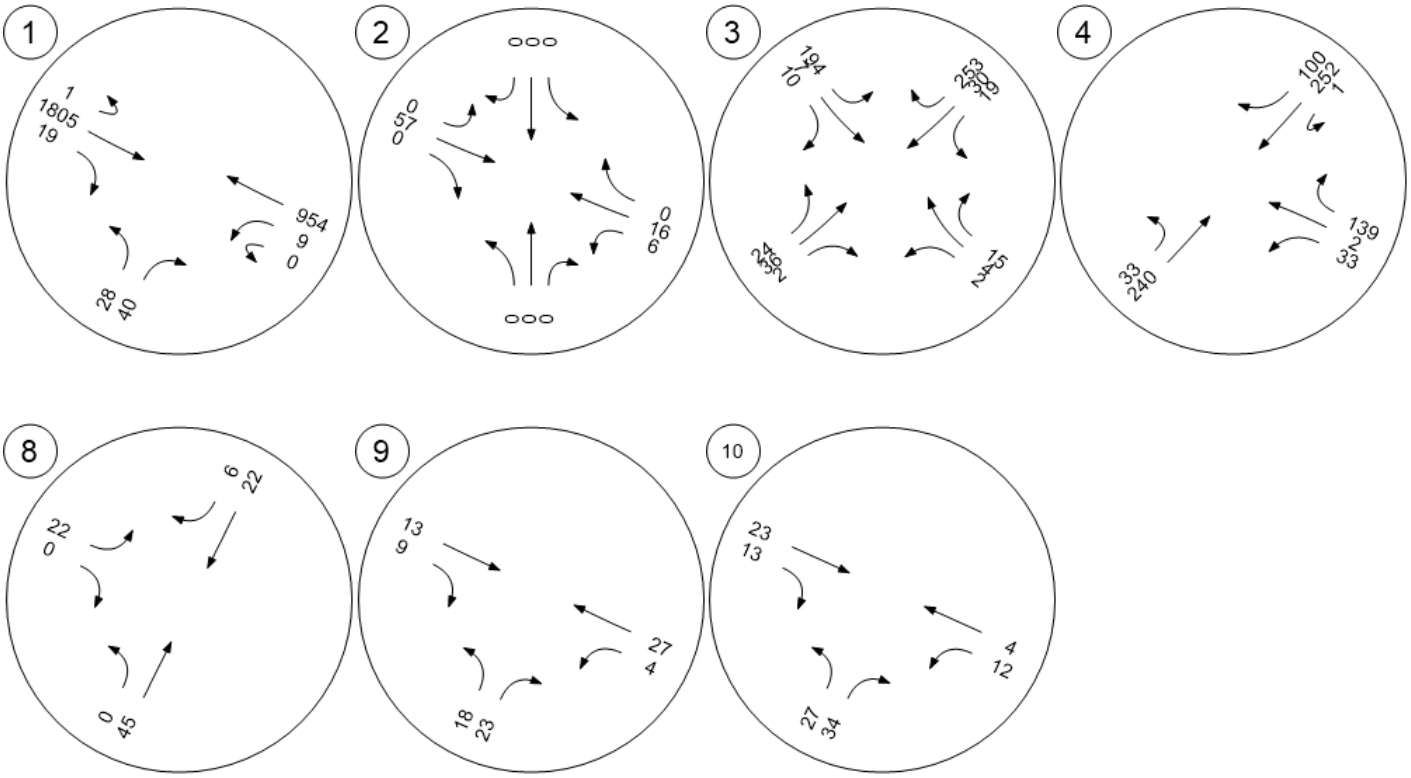
0
0
3
187
10
243
14
4
4
4

Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2022 PM Build.pdf

Scenario 8 2022 PM Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	1.572	705.4	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	SB Left	0.003	9.1	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	SEB Left	0.361	13.7	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.384	14.1	B
8	Bower Dr and Riverdale Dr	Two-way stop	HCM 6th Edition	EB Left	0.028	9.2	A
9	Riverdale Drive and Western Site Access	Two-way stop	HCM 6th Edition	NB Left	0.017	9.2	A
10	Riverdale Drive and Eastern Site Access	Two-way stop	HCM 6th Edition	NB Left	0.025	9.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	705.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.572

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	6	17	1	1367	7	1	16	2051
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	17	0	0	48	0	14	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	35	1	1422	55	1	31	2150
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	9	0	374	14	0	8	566
Total Analysis Volume [veh/h]	24	37	1	1497	58	1	33	2263
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.57	0.10	0.03	0.01	0.00	0.01	0.08	0.02
d_M, Delay for Movement [s/veh]	705.43	479.84	115.52	0.00	0.00	40.86	14.43	0.00
Movement LOS	F	F	F	A	A	E	B	A
95th-Percentile Queue Length [veh/ln]	6.56	6.56	0.09	0.00	0.00	0.29	0.29	0.00
95th-Percentile Queue Length [ft/ln]	164.04	164.04	2.25	0.00	0.00	7.19	7.19	0.00
d_A, Approach Delay [s/veh]	568.59		0.07			0.23		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	9.02							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name													
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Crosswalk	Yes			Yes			Yes			Yes			

Volumes

Name													
Base Volume Input [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400	1.040	1.040	1.040	1.040
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	43	0	0	0	47	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	3	0	0	0	43	0	1	1	47	4
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	12	0	0	0	13	1
Total Analysis Volume [veh/h]	0	0	1	3	0	0	0	48	0	1	1	52	4
Pedestrian Volume [ped/h]	0			0			0			0			

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.12	9.61	8.53	9.14	9.61	8.57	7.32	0.00	0.00	8.36	7.31	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.26	0.26	0.26	0.00	0.00	0.00	0.12	0.12	0.12	0.12
d_A, Approach Delay [s/veh]	8.53			9.14			0.00			0.27			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	0.47												
Intersection LOS	A												

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.361

Intersection Setup

Name													
Approach	Southbound				Northeastbound				Southwestbound				
Lane Configuration													
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	U-turn	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00				
Grade [%]	0.00				0.00				0.00				
Crosswalk	Yes				Yes				Yes				

Volumes

Name													
Base Volume Input [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0400	1.0000	1.0400	1.0400	1.040	1.040	1.040	1.000	1.040
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	17	0	25	1	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	27	0	42	4	1	23	51	0	216
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.8610	1.0000	0.8610	0.8610	0.861	0.861	0.861	1.000	0.861
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	8	0	12	1	0	7	15	0	63
Total Analysis Volume [veh/h]	0	0	0	0	31	0	49	5	1	27	59	0	251
Pedestrian Volume [ped/h]	0				0				0				

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	7.95	0.00	0.00	0.00	8.59	7.36	0.00	0.00	0.00
Movement LOS					A		A	A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.91	0.00	0.00	0.00	1.40	1.40	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				2.90				0.61				
Approach LOS	A				A				A				
d_I, Intersection Delay [s/veh]	6.03												
Intersection LOS	B												

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Intersection Setup

Name									
Approach	Northwestbound					Southeastbound			
Lane Configuration									
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00			
Grade [%]	0.00					0.00			
Crosswalk	Yes					Yes			

Volumes

Name									
Base Volume Input [veh/h]	1	1	11	0	46	193	0	8	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0000	1.0400	1.0400	1.0000	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	11	0	48	201	0	8	4
Peak Hour Factor	0.8610	0.8610	0.8610	1.0000	0.8610	0.8610	1.0000	0.8610	0.8610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	3	0	14	58	0	2	1
Total Analysis Volume [veh/h]	1	2	13	0	56	233	0	9	5
Pedestrian Volume [ped/h]	0					0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.00	0.05	0.36	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.35	11.35	12.94	0.00	8.74	13.69	0.00	10.70	8.59
Movement LOS	B	B	B		A	B		B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.09	0.00	0.17	1.64	0.00	0.04	0.01
95th-Percentile Queue Length [ft/ln]	0.40	0.40	2.15	0.00	4.35	41.02	0.00	1.07	0.37
d_A, Approach Delay [s/veh]	9.60					13.47			
Approach LOS	A					B			
d_I, Intersection Delay [s/veh]	6.03								
Intersection LOS	B								

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name													
Approach	Northbound				Southbound			Eastbound			Westbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.0	100.0	100.0	100.0	100.00	100.00	315.00	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00			30.00			30.00		
Grade [%]	0.00				0.00			0.00			0.00		
Curb Present	No				No						No		
Crosswalk	No				No			No			Yes		

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Volumes

Name													
Base Volume Input [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.040	1.040	1.040	1.000	1.0000	1.0400	1.0400	1.0000	1.0000	1.0000	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	8	0	0	12	0	0	0	0	34	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	52	266	0	0	230	267	0	0	0	54	2	333
Peak Hour Factor	0.916	0.916	0.916	1.000	1.0000	0.9160	0.9160	1.0000	1.0000	1.0000	0.9160	0.9160	0.9160
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	14	73	0	0	63	73	0	0	0	15	1	91
Total Analysis Volume [veh/h]	2	57	290	0	0	251	291	0	0	0	59	2	364
Presence of On-Street Parking	No			No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0				0			0			0		
v_co, Outbound Pedestrian Volume crossing	0				0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0				0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	5	2	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	0	20	35	0	0	35	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	20	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall		No	Yes			Yes						No	
Maximum Recall		No	No			No						No	
Pedestrian Recall		No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	44	44	44	44		44	44
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	4	21	12	12		10	10
g / C, Green / Cycle	0.08	0.47	0.26	0.26		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.08	0.20		0.04	0.14
s, saturation flow rate [veh/h]	1603	3204	3204	1431		1605	2532
c, Capacity [veh/h]	133	1520	850	379		366	578
d1, Uniform Delay [s]	19.07	6.64	12.79	14.80		13.53	15.20
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.30	0.06	0.19	3.27		0.21	1.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.19	0.30	0.77		0.17	0.63
d, Delay for Lane Group [s/veh]	21.37	6.70	12.98	18.07		13.74	16.34
Lane Group LOS	C	A	B	B		B	B
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	0.57	0.53	0.81	2.46		0.43	1.46
50th-Percentile Queue Length [ft/ln]	14.37	13.33	20.29	61.53		10.78	36.61
95th-Percentile Queue Length [veh/ln]	1.03	0.96	1.46	4.43		0.78	2.64
95th-Percentile Queue Length [ft/ln]	25.87	24.00	36.52	110.76		19.40	65.90

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.37	21.37	6.70	0.00	0.00	12.98	18.07	0.00	0.00	0.00	13.74	13.74	16.34
Movement LOS	C	C	A			B	B				B	B	B
d_A, Approach Delay [s/veh]	9.18				15.72			0.00			15.96		
Approach LOS	A				B			A			B		
d_I, Intersection Delay [s/veh]	14.06												
Intersection LOS	B												
Intersection V/C	0.384												

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.078
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.801	2.007	4.132	2.261
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report
Intersection 8: Bower Dr and Riverdale Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	23	23	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0400	1.0400	1.0400	1.0400	1.0400	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	34	62	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	34	62	24	24	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	9	16	6	6	0
Total Analysis Volume [veh/h]	0	36	65	25	25	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00
d_M, Delay for Movement [s/veh]	7.39	0.00	0.00	0.00	9.20	8.78
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.18	2.18
d_A, Approach Delay [s/veh]	0.00		0.00		9.20	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.52					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 9: Riverdale Drive and Western Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0400	1.0000	1.0000	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	17	36	26	13	20
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	17	36	26	13	20
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	9	7	3	5
Total Analysis Volume [veh/h]	15	18	38	27	14	21
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.18	8.68	0.00	0.00	7.36	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	2.68	2.68	0.00	0.00	0.69	0.69
d_A, Approach Delay [s/veh]	8.91		0.00		2.95	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.98					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 10: Riverdale Drive and Eastern Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0400	1.0000	1.0000	1.0400
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	26	17	36	34	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	26	17	36	34	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	7	4	9	9	3
Total Analysis Volume [veh/h]	21	27	18	38	36	14
Pedestrian Volume [ped/h]	0		0		0	

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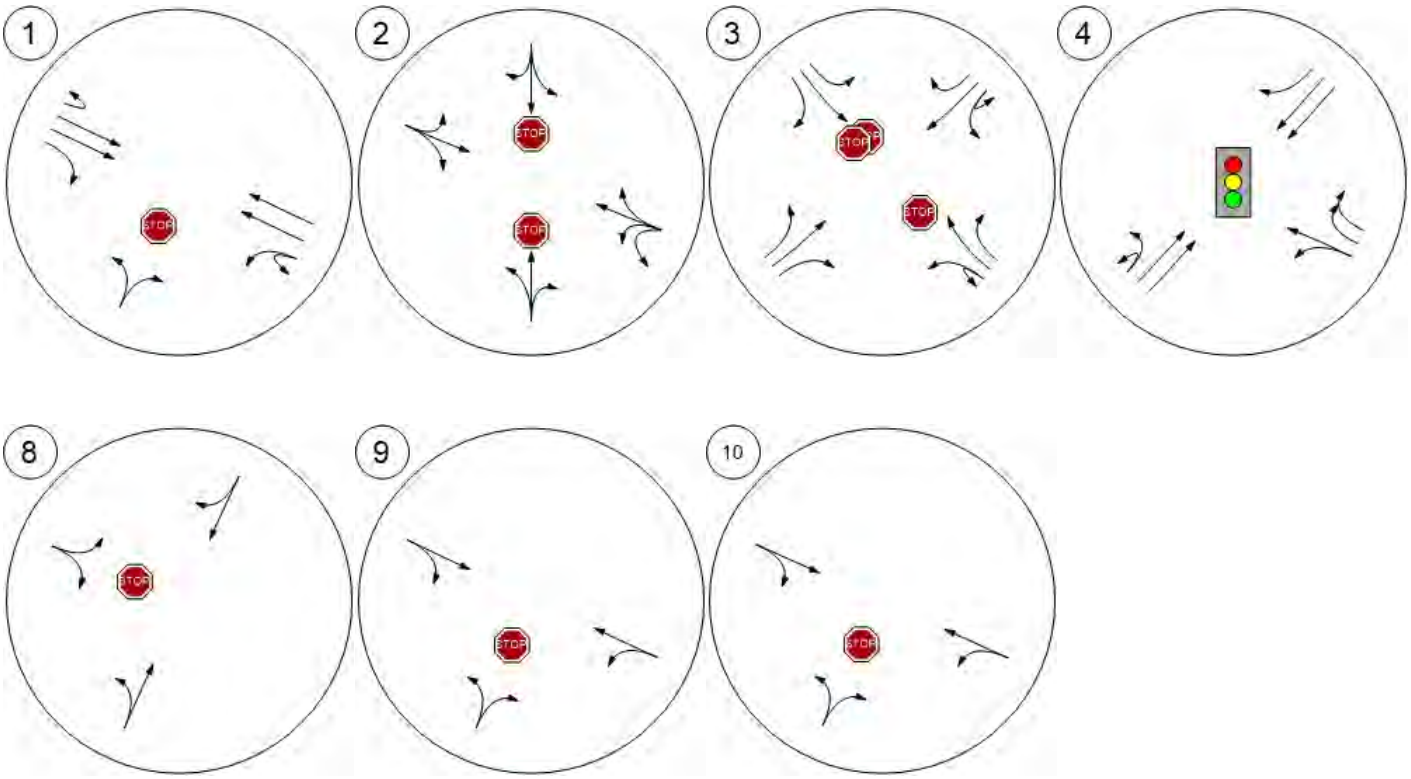
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

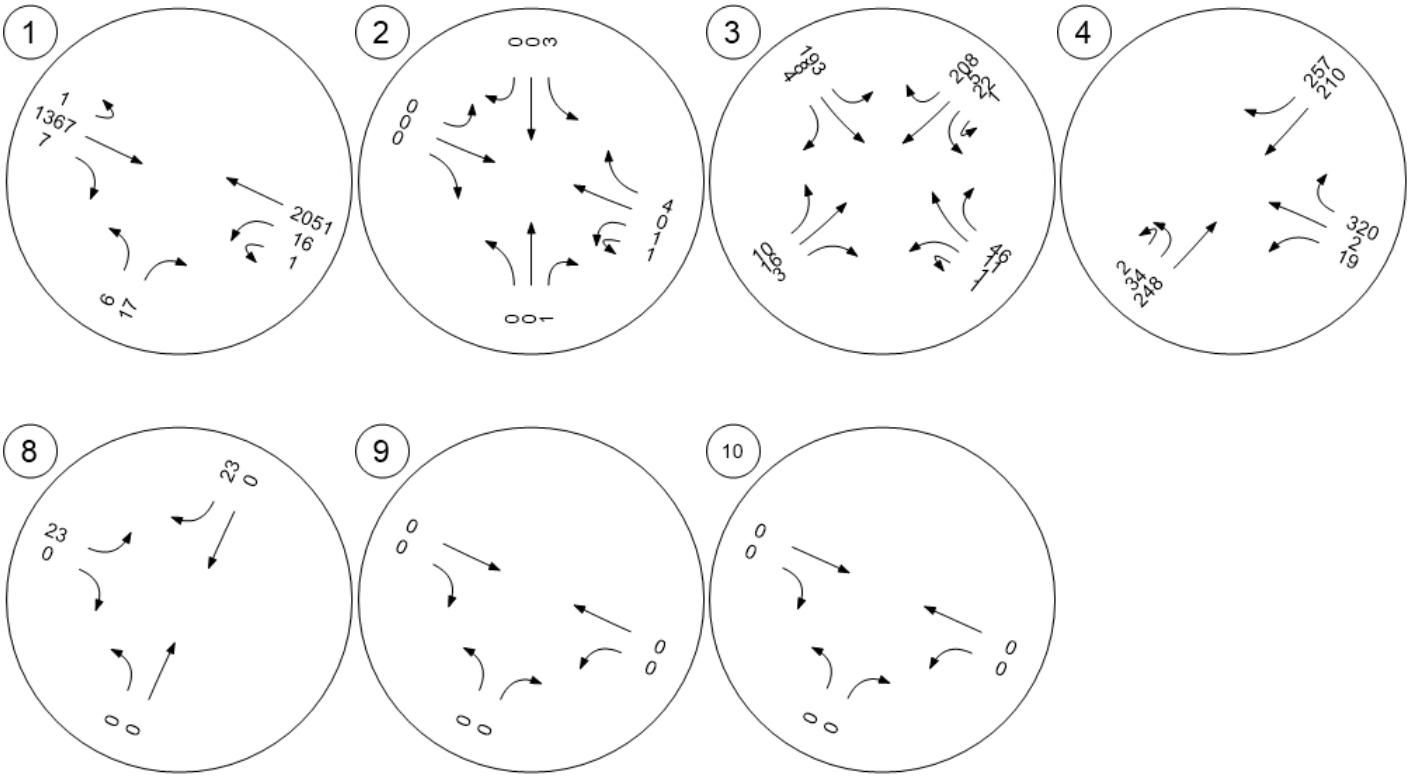
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.03	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.43	8.68	0.00	0.00	7.38	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	4.00	4.00	0.00	0.00	1.78	1.78
d_A, Approach Delay [s/veh]	9.01		0.00		5.31	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.53					
Intersection LOS	A					

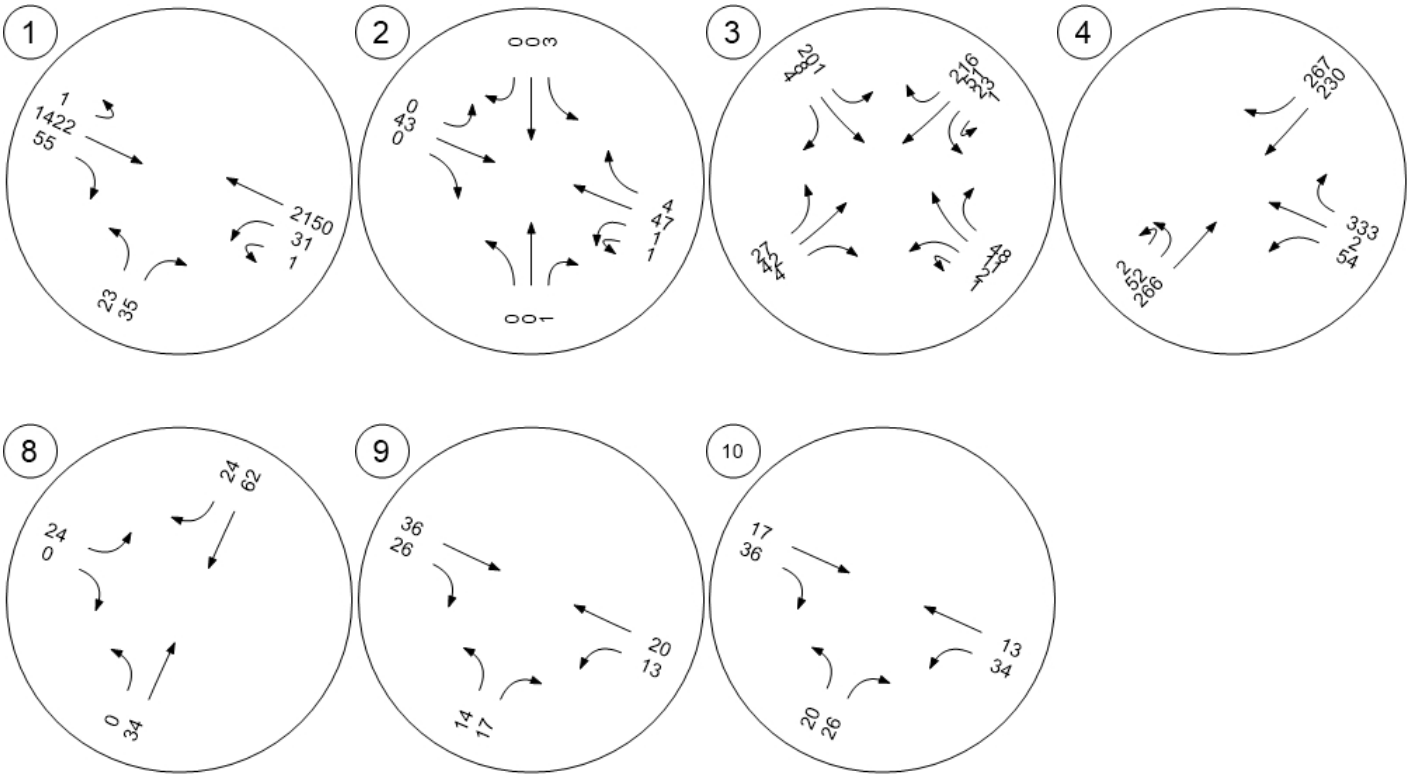
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2040 AM Build.pdf

Scenario 9 2040 AM Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	7.215	4,121.2	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	WB Left	0.006	7.4	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.014	13.8	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.232	11.9	B
8	Bower Dr and Riverdale Dr	Two-way stop	HCM 6th Edition	EB Left	0.036	9.0	A
9	Riverdale Drive and Western Site Access	Two-way stop	HCM 6th Edition	NB Left	0.020	9.0	A
10	Riverdale Drive and Eastern Site Access	Two-way stop	HCM 6th Edition	NB Left	0.031	9.1	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	4,121.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	7.215

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	5	16	1	1736	2	0	4	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	23	0	0	17	0	5	23
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	47	1	2587	20	0	11	1357
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	12	0	683	5	0	3	358
Total Analysis Volume [veh/h]	32	50	1	2732	21	0	12	1433
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	7.21	0.36	0.01	0.03	0.00	0.00	0.08	0.01
d_M, Delay for Movement [s/veh]	4121.16	3335.75	33.52	0.00	0.00	371.73	32.65	0.00
Movement LOS	F	F	D	A	A	F	D	A
95th-Percentile Queue Length [veh/ln]	11.56	11.56	0.02	0.00	0.00	0.27	0.27	0.00
95th-Percentile Queue Length [ft/ln]	288.95	288.95	0.59	0.00	0.00	6.80	6.80	0.00
d_A, Approach Delay [s/veh]	3642.25		0.01			0.27		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	69.86							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	57	0	0	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	57	0	9	16	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	16	0	3	4	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	63	0	10	18	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.11	9.59	8.59	9.11	9.59	8.39	7.25	0.00	0.00	7.35	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.49	0.49
d_A, Approach Delay [s/veh]	9.10			9.03			0.00			2.63		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.81											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name												
Approach	Southbound				Northeastbound				Southwestbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.4900	1.0000	1.4900	1.4900	1.4900	1.4900	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	23	0	34	1	0	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	24	0	37	2	27	35	0	362
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.9430	1.0000	0.9430	0.9430	0.9430	0.9430	1.0000	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	6	0	10	1	7	9	0	96
Total Analysis Volume [veh/h]	0	0	0	0	25	0	39	2	29	37	0	384
Pedestrian Volume [ped/h]	0				0				0			

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	8.23	0.00	0.00	0.00	7.34	0.00	0.00	0.00
Movement LOS					A		A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.68	0.00	0.00	0.00	1.41	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				3.12				0.47			
Approach LOS	A				A				A			
d_I, Intersection Delay [s/veh]	5.66											
Intersection LOS	B											

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Intersection Setup

Name								
Approach	Northwestbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name								
Base Volume Input [veh/h]	2	4	0	14	187	0	7	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.0000	1.4900	1.4900	1.0000	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	6	0	21	279	0	10	15
Peak Hour Factor	0.9430	0.9430	1.0000	0.9430	0.9430	1.0000	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	0	6	74	0	3	4
Total Analysis Volume [veh/h]	3	6	0	22	296	0	11	16
Pedestrian Volume [ped/h]	0				0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.02	0.41	0.00	0.02	0.02
d_M, Delay for Movement [s/veh]	11.74	13.80	0.00	8.56	13.35	0.00	10.38	8.53
Movement LOS	B	B		A	B		B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.04	0.00	0.07	2.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.42	1.10	0.00	1.63	49.92	0.00	1.23	1.18
d_A, Approach Delay [s/veh]	9.88				13.01			
Approach LOS	A				B			
d_I, Intersection Delay [s/veh]	5.66							
Intersection LOS	B							

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.232

Intersection Setup

Name													
Approach	Northbound			Southbound				Eastbound			Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.00	100.00	100.00	100.0	100.0	100.0	315.0	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00				30.00			30.00		
Grade [%]	0.00			0.00				0.00			0.00		
Curb Present	No			No							No		
Crosswalk	No			No				No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.0000	1.490	1.000	1.490	1.490	1.0000	1.0000	1.0000	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	11	0	0	0	4	0	0	0	0	12	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	339	0	1	0	359	143	0	0	0	42	3	200
Peak Hour Factor	0.9310	0.9310	1.0000	0.931	1.000	0.931	0.931	1.0000	1.0000	1.0000	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	91	0	0	0	96	38	0	0	0	11	1	54
Total Analysis Volume [veh/h]	41	364	0	1	0	386	154	0	0	0	45	3	215
Presence of On-Street Parking	No		No	No			No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0				0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0				0			0		
v_co, Outbound Pedestrian Volume crossing	0			0				0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0				0			0		
Bicycle Volume [bicycles/h]	0			0				0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	10	0	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	20	35	0	0	0	35	0	0	0	0	0	30	0
Amber [s]	3.0	5.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	2.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	4.5	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall	No	Yes				Yes						No	
Maximum Recall	No	No				No						No	
Pedestrian Recall	No	No				No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	R		C	R
C, Cycle Length [s]	42	42	42	42	42		42	42
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	3	19	11	11	11		10	10
g / C, Green / Cycle	0.07	0.46	0.26	0.26	0.26		0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.03	0.11	0.12	0.12	0.11		0.03	0.08
s, saturation flow rate [veh/h]	1603	3204	1645	1532	1431		1608	2532
c, Capacity [veh/h]	108	1467	503	396	370		372	585
d1, Uniform Delay [s]	18.65	6.93	13.03	13.07	12.86		12.73	13.49
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.20	0.09	0.51	0.87	0.75		0.16	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.25	0.40	0.47	0.42		0.13	0.37
d, Delay for Lane Group [s/veh]	20.85	7.02	13.54	13.93	13.61		12.88	13.88
Lane Group LOS	C	A	B	B	B		B	B
Critical Lane Group	Yes	No	No	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.39	0.67	1.31	1.25	1.02		0.31	0.74
50th-Percentile Queue Length [ft/ln]	9.73	16.69	32.81	31.33	25.44		7.83	18.41
95th-Percentile Queue Length [veh/ln]	0.70	1.20	2.36	2.26	1.83		0.56	1.33
95th-Percentile Queue Length [ft/ln]	17.51	30.04	59.05	56.39	45.78		14.09	33.15

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.85	7.02	0.00	13.54	0.00	13.73	13.61	0.00	0.00	0.00	12.88	12.88	13.88
Movement LOS	C	A		B		B	B				B	B	B
d_A, Approach Delay [s/veh]	8.42			13.69				0.00			13.70		
Approach LOS	A			B				A			B		
d_I, Intersection Delay [s/veh]	11.93												
Intersection LOS	B												
Intersection V/C	0.232												

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.025
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.894	2.006	4.132	1.994
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report
Intersection 8: Bower Dr and Riverdale Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	6	21	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	45	22	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	45	22	9	31	0
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	12	6	2	8	0
Total Analysis Volume [veh/h]	0	48	23	10	33	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	7.28	0.00	0.00	0.00	9.03	8.58
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.77	2.77
d_A, Approach Delay [s/veh]	0.00		0.00		9.03	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.61					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 9: Riverdale Drive and Western Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	23	13	9	4	27
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	23	13	9	4	27
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	6	3	2	1	7
Total Analysis Volume [veh/h]	19	24	14	10	4	29
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.95	8.56	0.00	0.00	7.27	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	3.34	3.34	0.00	0.00	0.19	0.19
d_A, Approach Delay [s/veh]	8.73		0.00		0.88	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.05					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 10: Riverdale Drive and Eastern Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	34	23	13	12	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	34	23	13	12	4
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	9	6	3	3	1
Total Analysis Volume [veh/h]	29	36	24	14	13	4
Pedestrian Volume [ped/h]	0		0		0	

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Version 2020 (SP 0-3)

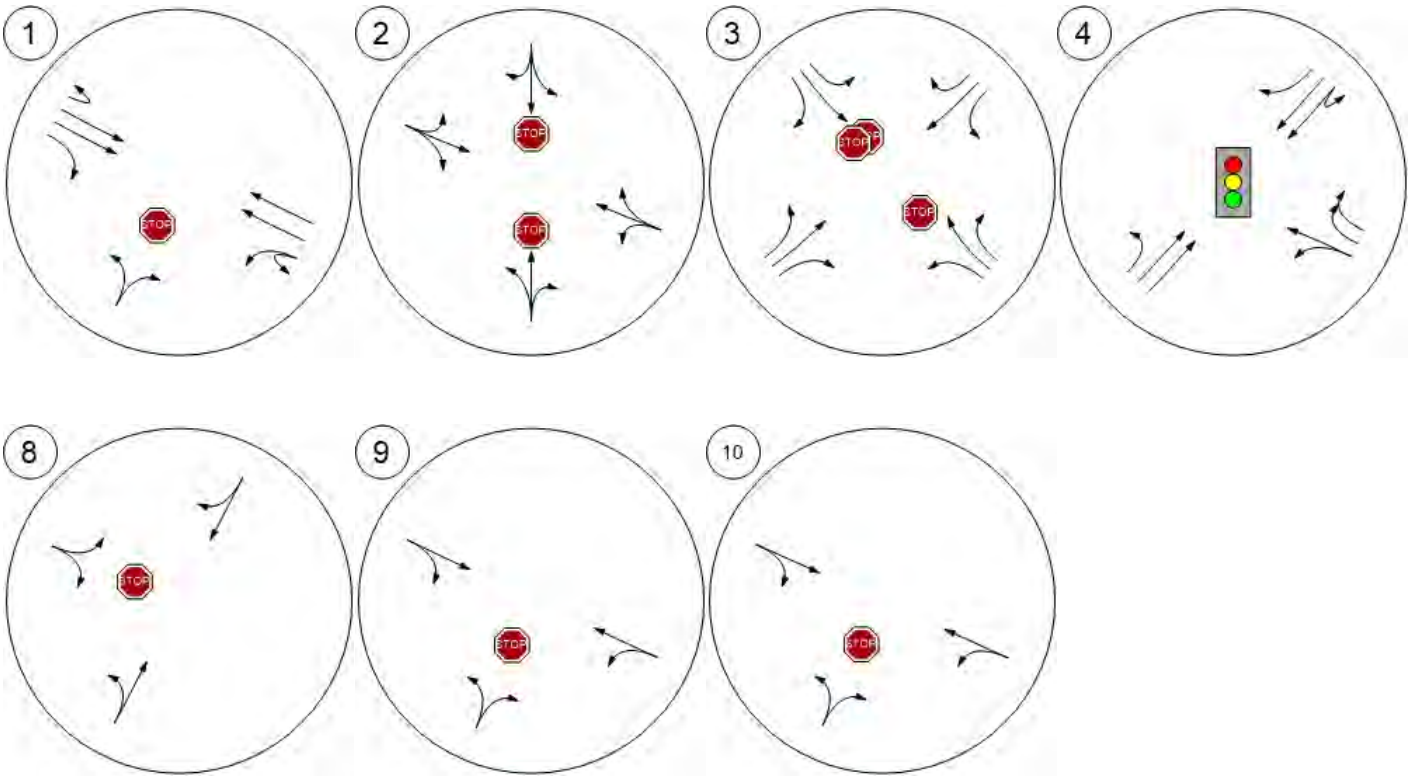
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

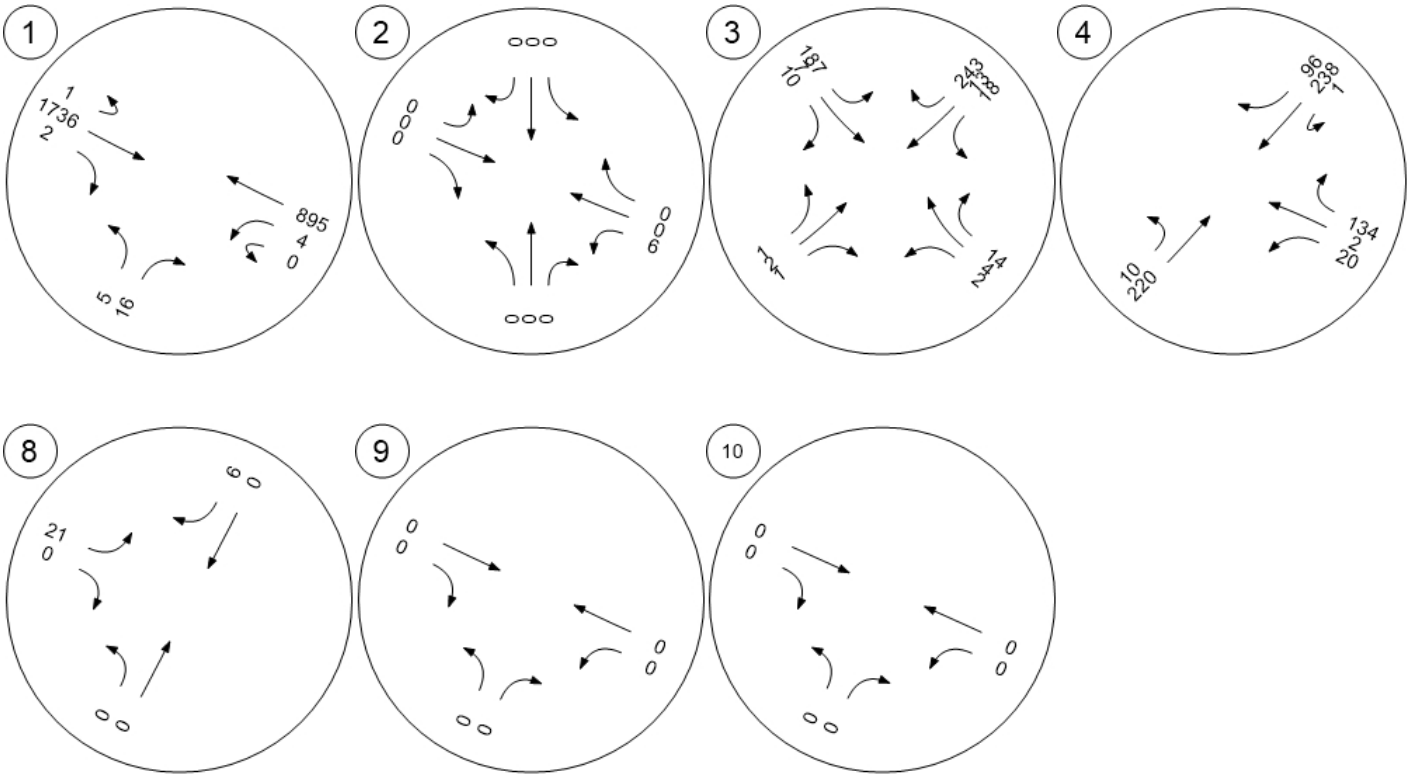
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.09	8.70	0.00	0.00	7.31	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.21	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	5.24	5.24	0.00	0.00	0.63	0.63
d_A, Approach Delay [s/veh]	8.88		0.00		5.59	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.60					
Intersection LOS	A					

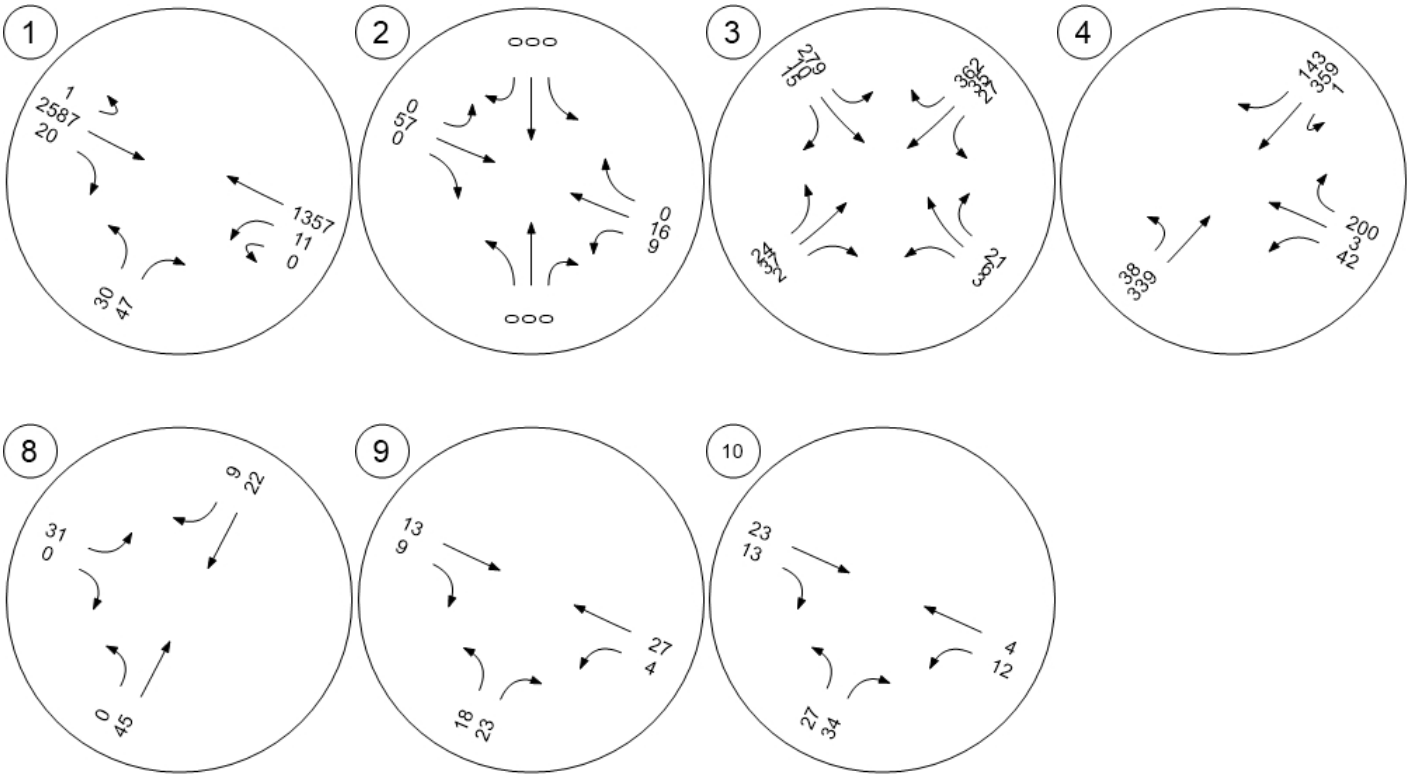
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\2040 PM Build.pdf

Scenario 10 2040 PM Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Left	14.494	8,908.8	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	SB Left	0.005	9.1	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	SEB Left	0.585	19.8	C
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.545	17.7	B
8	Bower Dr and Riverdale Dr	Two-way stop	HCM 6th Edition	EB Left	0.041	9.3	A
9	Riverdale Drive and Western Site Access	Two-way stop	HCM 6th Edition	NB Left	0.016	9.2	A
10	Riverdale Drive and Eastern Site Access	Two-way stop	HCM 6th Edition	NB Left	0.023	9.4	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	8,908.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	14.494

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	6	17	1	1367	7	1	16	2051
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	16	0	0	48	0	14	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	41	1	2037	58	1	38	3072
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	11	0	536	15	0	10	808
Total Analysis Volume [veh/h]	26	43	1	2144	61	1	40	3234
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	14.49	0.20	0.15	0.02	0.00	0.03	0.17	0.03
d_M, Delay for Movement [s/veh]	8908.80	6918.55	615.50	0.00	0.00	119.73	24.70	0.00
Movement LOS	F	F	F	A	A	F	C	A
95th-Percentile Queue Length [veh/ln]	10.50	10.50	0.35	0.00	0.00	0.73	0.73	0.00
95th-Percentile Queue Length [ft/ln]	262.55	262.55	8.77	0.00	0.00	18.20	18.20	0.00
d_A, Approach Delay [s/veh]	7668.50		0.28			0.34		
Approach LOS	F		A			A		
d_I, Intersection Delay [s/veh]	95.65							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name													
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Crosswalk	Yes			Yes			Yes			Yes			

Volumes

Name													
Base Volume Input [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.490	1.490	1.490	1.490
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	41	0	0	0	47	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	4	0	0	0	41	0	1	1	47	6
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	11	0	0	0	13	2
Total Analysis Volume [veh/h]	0	0	1	4	0	0	0	46	0	1	1	52	7
Pedestrian Volume [ped/h]	0			0			0			0			

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.11	9.62	8.52	9.14	9.61	8.58	7.33	0.00	0.00	8.35	7.31	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.34	0.34	0.34	0.00	0.00	0.00	0.12	0.12	0.12	0.12
d_A, Approach Delay [s/veh]	8.52			9.14			0.00			0.26			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	0.54												
Intersection LOS	A												

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.585

Intersection Setup

Name													
Approach	Southbound				Northeastbound				Southwestbound				
Lane Configuration													
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	U-turn	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00				
Grade [%]	0.00				0.00				0.00				
Crosswalk	Yes				Yes				Yes				

Volumes

Name													
Base Volume Input [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.4900	1.0000	1.4900	1.4900	1.490	1.490	1.490	1.000	1.490
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	16	0	24	1	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	31	0	48	5	1	33	53	0	310
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.8610	1.0000	0.8610	0.8610	0.861	0.861	0.861	1.000	0.861
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	9	0	14	1	0	10	15	0	90
Total Analysis Volume [veh/h]	0	0	0	0	36	0	56	6	1	38	62	0	360
Pedestrian Volume [ped/h]	0				0				0				

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	8.27	0.00	0.00	0.00	8.74	7.40	0.00	0.00	0.00
Movement LOS					A		A	A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.45	0.00	0.00	0.00	1.98	1.98	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				3.04				0.63				
Approach LOS	A				A				A				
d_I, Intersection Delay [s/veh]	8.32												
Intersection LOS	C												

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Intersection Setup

Name									
Approach	Northwestbound					Southeastbound			
Lane Configuration									
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00			
Grade [%]	0.00					0.00			
Crosswalk	Yes					Yes			

Volumes

Name									
Base Volume Input [veh/h]	1	1	11	0	46	193	0	8	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.0000	1.4900	1.4900	1.0000	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	16	0	69	288	0	12	6
Peak Hour Factor	0.8610	0.8610	0.8610	1.0000	0.8610	0.8610	1.0000	0.8610	0.8610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	5	0	20	84	0	3	2
Total Analysis Volume [veh/h]	1	2	19	0	80	334	0	14	7
Pedestrian Volume [ped/h]	0					0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.05	0.00	0.08	0.58	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	12.55	12.55	15.05	0.00	8.87	19.80	0.00	11.17	8.61
Movement LOS	B	B	C		A	C		B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.16	0.00	0.26	3.75	0.00	0.07	0.02
95th-Percentile Queue Length [ft/ln]	0.47	0.47	3.97	0.00	6.43	93.80	0.00	1.80	0.53
d_A, Approach Delay [s/veh]	10.13					19.24			
Approach LOS	B					C			
d_I, Intersection Delay [s/veh]	8.32								
Intersection LOS	C								

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	17.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.545

Intersection Setup

Name													
Approach	Northbound				Southbound			Eastbound			Westbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.0	100.0	100.0	100.0	100.00	100.00	315.00	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00			30.00			30.00		
Grade [%]	0.00				0.00			0.00			0.00		
Curb Present	No				No						No		
Crosswalk	No				No			No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.490	1.490	1.490	1.000	1.0000	1.4900	1.4900	1.0000	1.0000	1.0000	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	8	0	0	12	0	0	0	0	34	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	67	378	0	0	325	383	0	0	0	62	3	477
Peak Hour Factor	0.916	0.916	0.916	1.000	1.0000	0.9160	0.9160	1.0000	1.0000	1.0000	0.9160	0.9160	0.9160
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	18	103	0	0	89	105	0	0	0	17	1	130
Total Analysis Volume [veh/h]	3	73	413	0	0	355	418	0	0	0	68	3	521
Presence of On-Street Parking	No			No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0				0			0			0		
v_co, Outbound Pedestrian Volume crossing	0				0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0				0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

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Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	5	2	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	0	20	35	0	0	35	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	20	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall		No	Yes			Yes						No	
Maximum Recall		No	No			No						No	
Pedestrian Recall		No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	58	58	58	58		58	58
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	5	30	20	20		15	15
g / C, Green / Cycle	0.09	0.52	0.34	0.34		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.11	0.29		0.04	0.21
s, saturation flow rate [veh/h]	1603	3204	3204	1431		1606	2532
c, Capacity [veh/h]	137	1670	1093	488		411	648
d1, Uniform Delay [s]	25.58	7.67	14.23	17.87		16.88	20.31
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	3.47	0.08	0.17	4.45		0.20	2.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.25	0.32	0.86		0.17	0.80
d, Delay for Lane Group [s/veh]	29.05	7.75	14.40	22.33		17.08	22.71
Lane Group LOS	C	A	B	C		B	C
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	1.06	1.11	1.53	5.05		0.70	3.21
50th-Percentile Queue Length [ft/ln]	26.55	27.87	38.26	126.36		17.53	80.32
95th-Percentile Queue Length [veh/ln]	1.91	2.01	2.75	8.74		1.26	5.78
95th-Percentile Queue Length [ft/ln]	47.79	50.16	68.86	218.54		31.56	144.57

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.05	29.05	7.75	0.00	0.00	14.40	22.33	0.00	0.00	0.00	17.08	17.08	22.71
Movement LOS	C	C	A			B	C				B	B	C
d_A, Approach Delay [s/veh]	11.06				18.69			0.00			22.03		
Approach LOS	B				B			A			C		
d_I, Intersection Delay [s/veh]	17.74												
Intersection LOS	B												
Intersection V/C	0.545												

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.132
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.903	2.197	4.132	2.536
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report
Intersection 8: Bower Dr and Riverdale Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	23	23	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	32	62	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	32	62	34	34	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	16	9	9	0
Total Analysis Volume [veh/h]	0	34	65	36	36	0
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	0.00	9.27	8.86
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.13	0.13
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.20	3.20
d_A, Approach Delay [s/veh]	0.00		0.00		9.27	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.95					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 9: Riverdale Drive and Western Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	16	36	26	13	19
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	16	36	26	13	19
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	4	9	7	3	5
Total Analysis Volume [veh/h]	14	17	38	27	14	20
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.17	8.67	0.00	0.00	7.36	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	2.51	2.51	0.00	0.00	0.69	0.69
d_A, Approach Delay [s/veh]	8.89		0.00		3.03	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.91					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 10: Riverdale Drive and Eastern Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	24	16	36	34	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	19	24	16	36	34	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	6	4	9	9	3
Total Analysis Volume [veh/h]	20	25	17	38	36	14
Pedestrian Volume [ped/h]	0		0		0	

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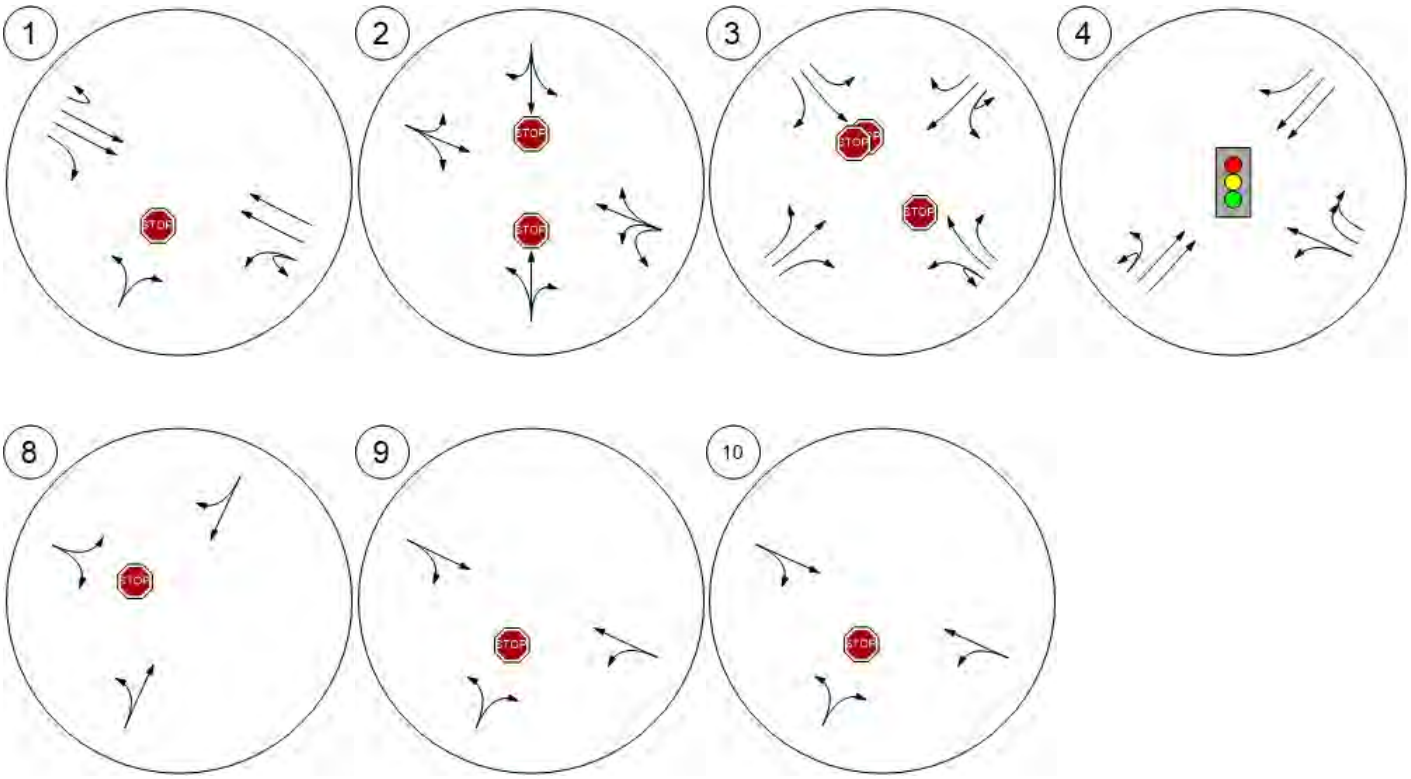
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

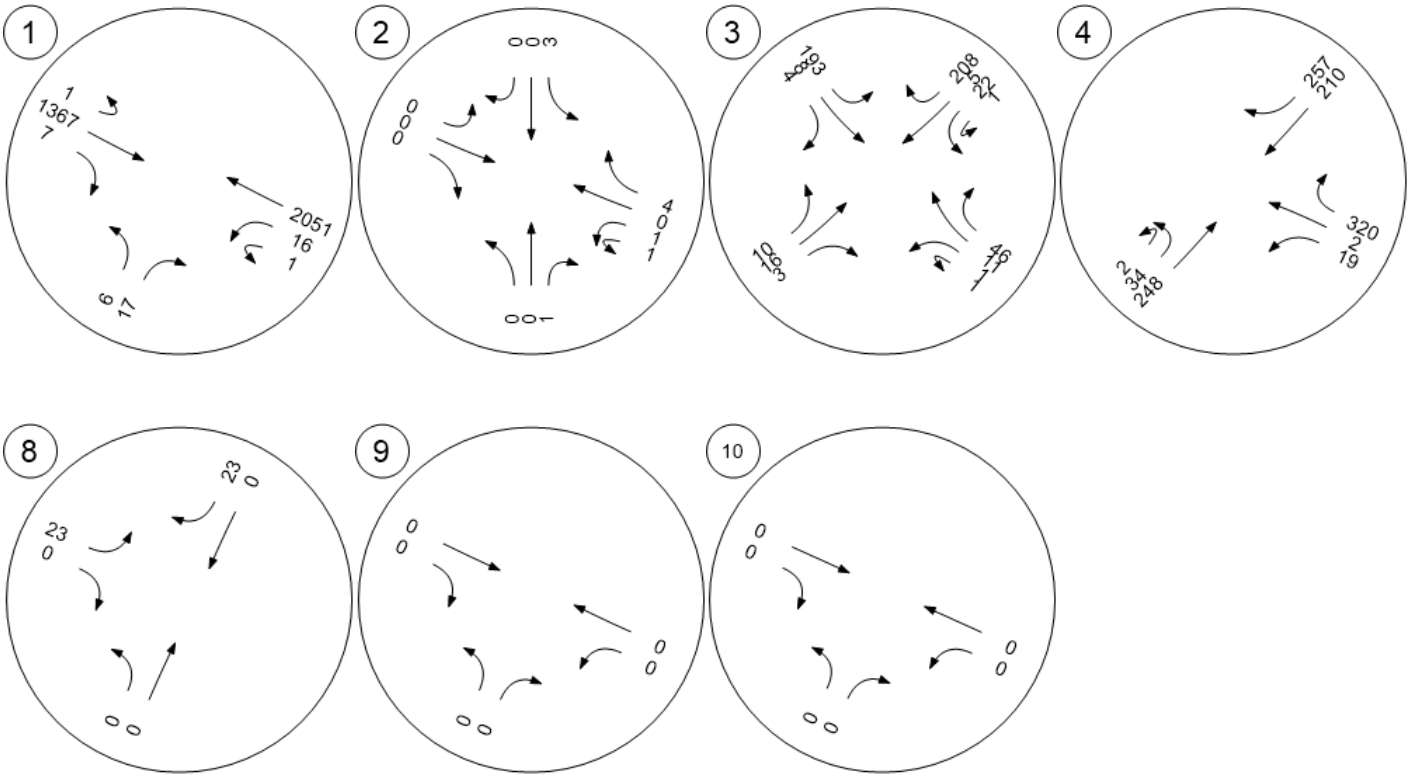
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.41	8.66	0.00	0.00	7.38	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	3.74	3.74	0.00	0.00	1.78	1.78
d_A, Approach Delay [s/veh]	9.00		0.00		5.31	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.47					
Intersection LOS	A					

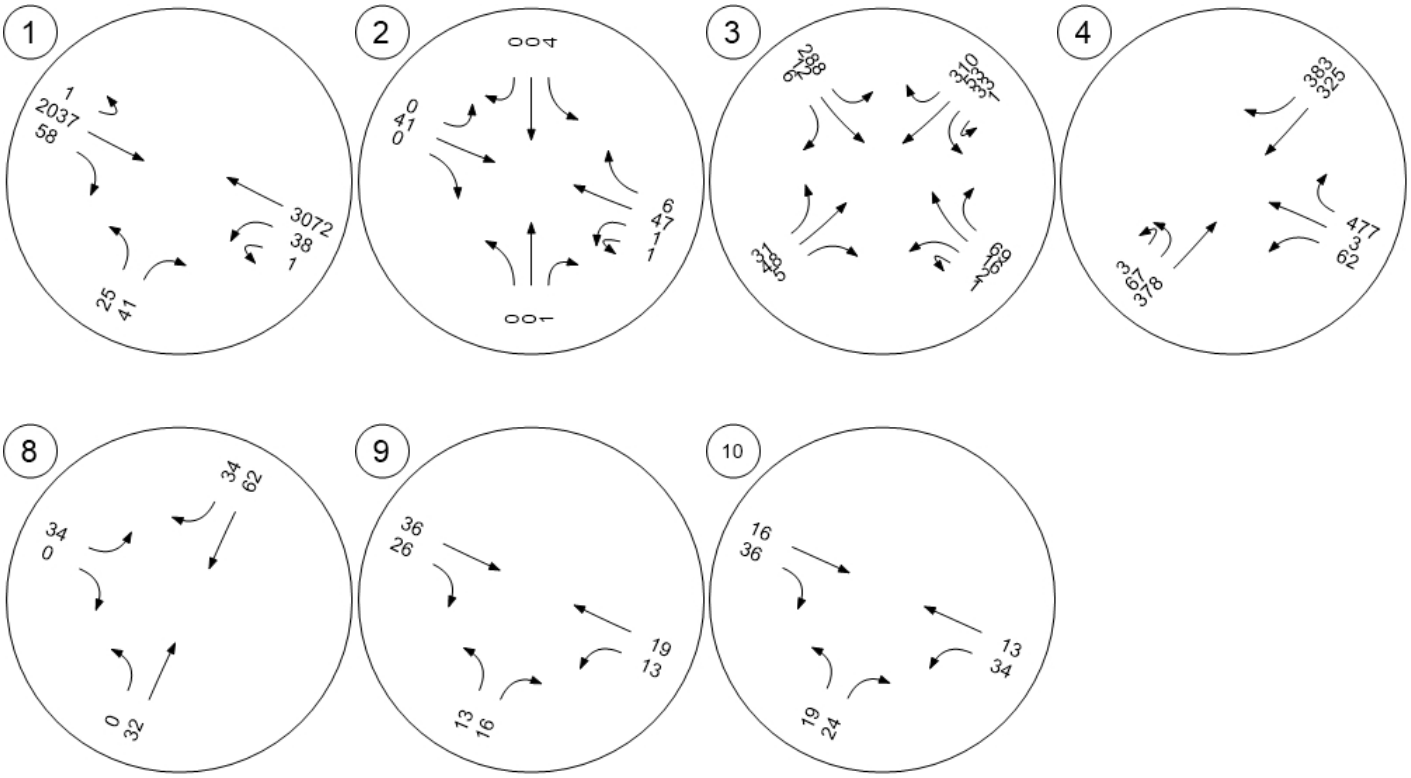
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\Mitigated 2040 AM Build.pdf

Scenario 11 Mitigated 2040 AM Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	NB Right	0.365	45.7	E
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	WB Left	0.007	7.4	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	NWB Thru	0.015	14.2	B
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.252	12.6	B
8	Bower Dr and Riverdale Dr	Two-way stop	HCM 6th Edition	NB Thru	0.028	9.3	A
9	Riverdale Drive and Western Site Access	Two-way stop	HCM 6th Edition	NB Left	0.010	8.9	A
10	Riverdale Drive and Eastern Site Access	Two-way stop	HCM 6th Edition	NB Left	0.016	9.2	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	45.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.365

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	5	16	1	1736	2	0	4	895
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	0	0	17	0	5	45
Diverted Trips [veh/h]	-7	0	0	0	0	0	0	7
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	47	1	2587	20	0	11	1386
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	12	0	683	5	0	3	366
Total Analysis Volume [veh/h]	0	50	1	2732	21	0	12	1464
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.36	0.01	0.03	0.00	0.00	0.08	0.01
d_M, Delay for Movement [s/veh]	852.38	45.66	34.97	0.00	0.00	371.73	32.65	0.00
Movement LOS	F	E	D	A	A	F	D	A
95th-Percentile Queue Length [veh/ln]	1.51	1.51	0.02	0.00	0.00	0.27	0.27	0.00
95th-Percentile Queue Length [ft/ln]	37.84	37.84	0.62	0.00	0.00	6.80	6.80	0.00
d_A, Approach Delay [s/veh]	45.66		0.01			0.27		
Approach LOS	E		A			A		
d_I, Intersection Delay [s/veh]	0.63							
Intersection LOS	E							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	6	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	16	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	7	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	87	0	9	16	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	24	0	3	4	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	97	0	10	18	0
Pedestrian Volume [ped/h]	0			0			0			0		

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Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.33	9.80	8.75	9.33	9.80	8.39	7.25	0.00	0.00	7.42	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50
d_A, Approach Delay [s/veh]	9.29			9.17			0.00			2.65		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.59											
Intersection LOS	A											

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name												
Approach	Southbound				Northeastbound				Southwestbound			
Lane Configuration												
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	Yes				Yes				Yes			

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	0	1	0	2	1	18	13	0	243
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.4900	1.0000	1.4900	1.4900	1.4900	1.4900	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	23	0	56	1	0	16	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	7	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	24	0	66	2	27	35	0	362
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.9430	1.0000	0.9430	0.9430	0.9430	0.9430	1.0000	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	6	0	17	1	7	9	0	96
Total Analysis Volume [veh/h]	0	0	0	0	25	0	70	2	29	37	0	384
Pedestrian Volume [ped/h]	0				0				0			

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	8.23	0.00	0.00	0.00	7.40	0.00	0.00	0.00
Movement LOS					A		A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.06	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	1.68	0.00	0.00	0.00	1.45	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				2.12				0.48			
Approach LOS	A				A				A			
d_I, Intersection Delay [s/veh]	5.72											
Intersection LOS	B											

Appendix F - Capacity Analysis Backup

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Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Setup

Name								
Approach	Northwestbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name								
Base Volume Input [veh/h]	2	4	0	14	187	0	7	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.0000	1.4900	1.4900	1.0000	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	6	0	21	279	0	10	15
Peak Hour Factor	0.9430	0.9430	1.0000	0.9430	0.9430	1.0000	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	0	6	74	0	3	4
Total Analysis Volume [veh/h]	3	6	0	22	296	0	11	16
Pedestrian Volume [ped/h]	0				0			

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Version 2020 (SP 0-3)

Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.02	0.43	0.00	0.02	0.02
d_M, Delay for Movement [s/veh]	12.08	14.17	0.00	8.71	14.07	0.00	10.60	8.53
Movement LOS	B	B		A	B		B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.05	0.00	0.07	2.16	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	0.44	1.15	0.00	1.70	53.91	0.00	1.28	1.18
d_A, Approach Delay [s/veh]	10.09				13.68			
Approach LOS	B				B			
d_I, Intersection Delay [s/veh]	5.72							
Intersection LOS	B							

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.252

Intersection Setup

Name													
Approach	Northbound			Southbound				Eastbound			Westbound		
Lane Configuration													
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.00	100.00	100.00	100.0	100.0	100.0	315.0	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00				30.00			30.00		
Grade [%]	0.00			0.00				0.00			0.00		
Curb Present	No			No							No		
Crosswalk	No			No				No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	10	220	0	1	0	238	96	0	0	0	20	2	134
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.0000	1.490	1.000	1.490	1.490	1.0000	1.0000	1.0000	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	11	0	0	0	4	0	0	0	0	12	0	0
Diverted Trips [veh/h]	7	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	339	0	1	0	359	143	0	0	0	42	3	200
Peak Hour Factor	0.9310	0.9310	1.0000	0.931	1.000	0.931	0.931	1.0000	1.0000	1.0000	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	91	0	0	0	96	38	0	0	0	11	1	54
Total Analysis Volume [veh/h]	72	364	0	1	0	386	154	0	0	0	45	3	215
Presence of On-Street Parking	No		No	No			No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0				0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0				0			0		
v_co, Outbound Pedestrian Volume crossing	0			0				0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0				0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0				0			0		
Bicycle Volume [bicycles/h]	0			0				0			0		

Appendix F - Capacity Analysis Backup

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Version 2020 (SP 0-3)

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Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permi	Permi	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	10	0	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	20	35	0	0	0	35	0	0	0	0	0	30	0
Amber [s]	3.0	5.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	2.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	20	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No				No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	4.5	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall	No	Yes				Yes						No	
Maximum Recall	No	No				No						No	
Pedestrian Recall	No	No				No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	R		C	R
C, Cycle Length [s]	43	43	43	43	43		43	43
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	4	20	11	11	11		10	10
g / C, Green / Cycle	0.10	0.47	0.25	0.25	0.25		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.11	0.12	0.12	0.11		0.03	0.08
s, saturation flow rate [veh/h]	1603	3204	1645	1532	1431		1608	2532
c, Capacity [veh/h]	156	1522	486	383	358		361	568
d1, Uniform Delay [s]	18.43	6.72	13.80	13.84	13.62		13.40	14.21
k, delay calibration	0.11	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	2.11	0.08	0.56	0.96	0.82		0.17	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.24	0.41	0.49	0.43		0.13	0.38
d, Delay for Lane Group [s/veh]	20.54	6.80	14.36	14.79	14.44		13.57	14.63
Lane Group LOS	C	A	B	B	B		B	B
Critical Lane Group	Yes	No	No	Yes	No		No	Yes
50th-Percentile Queue Length [veh/ln]	0.67	0.67	1.41	1.34	1.09		0.33	0.78
50th-Percentile Queue Length [ft/ln]	16.79	16.73	35.20	33.62	27.29		8.32	19.60
95th-Percentile Queue Length [veh/ln]	1.21	1.20	2.53	2.42	1.96		0.60	1.41
95th-Percentile Queue Length [ft/ln]	30.23	30.12	63.36	60.51	49.11		14.98	35.28

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.54	6.80	0.00	14.36	0.00	14.57	14.44	0.00	0.00	0.00	13.57	13.57	14.63
Movement LOS	C	A		B		B	B				B	B	B
d_A, Approach Delay [s/veh]	9.07			14.53				0.00			14.43		
Approach LOS	A			B				A			B		
d_I, Intersection Delay [s/veh]	12.59												
Intersection LOS	B												
Intersection V/C	0.252												

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.025
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.919	2.006	4.132	1.994
Bicycle LOS	A	B	D	A

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report
Intersection 8: Bower Dr and Riverdale Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	6	21	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	22	0	0	0
Diverted Trips [veh/h]	0	0	0	0	-5	5
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	23	22	9	26	5
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	6	6	2	7	1
Total Analysis Volume [veh/h]	0	24	23	10	27	5
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.94	9.29	7.31	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.06	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.14	2.14	1.60	1.60	0.00	0.00
d_A, Approach Delay [s/veh]	9.29		5.09		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.39					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 9: Riverdale Drive and Western Site Access

Control Type:	Two-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	32	13	9	4	14
Diverted Trips [veh/h]	0	0	7	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	32	20	9	4	14
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	8	5	2	1	4
Total Analysis Volume [veh/h]	10	34	21	10	4	15
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.03	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.92	8.59	0.00	0.00	7.28	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	3.35	3.35	0.00	0.00	0.19	0.19
d_A, Approach Delay [s/veh]	8.66		0.00		1.53	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.36					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 10: Riverdale Drive and Eastern Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	48	32	13	12	4
Diverted Trips [veh/h]	0	0	7	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	48	39	13	12	4
Peak Hour Factor	0.9470	0.9470	0.9470	0.9470	0.9470	0.9470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	13	10	3	3	1
Total Analysis Volume [veh/h]	15	51	41	14	13	4
Pedestrian Volume [ped/h]	0		0		0	

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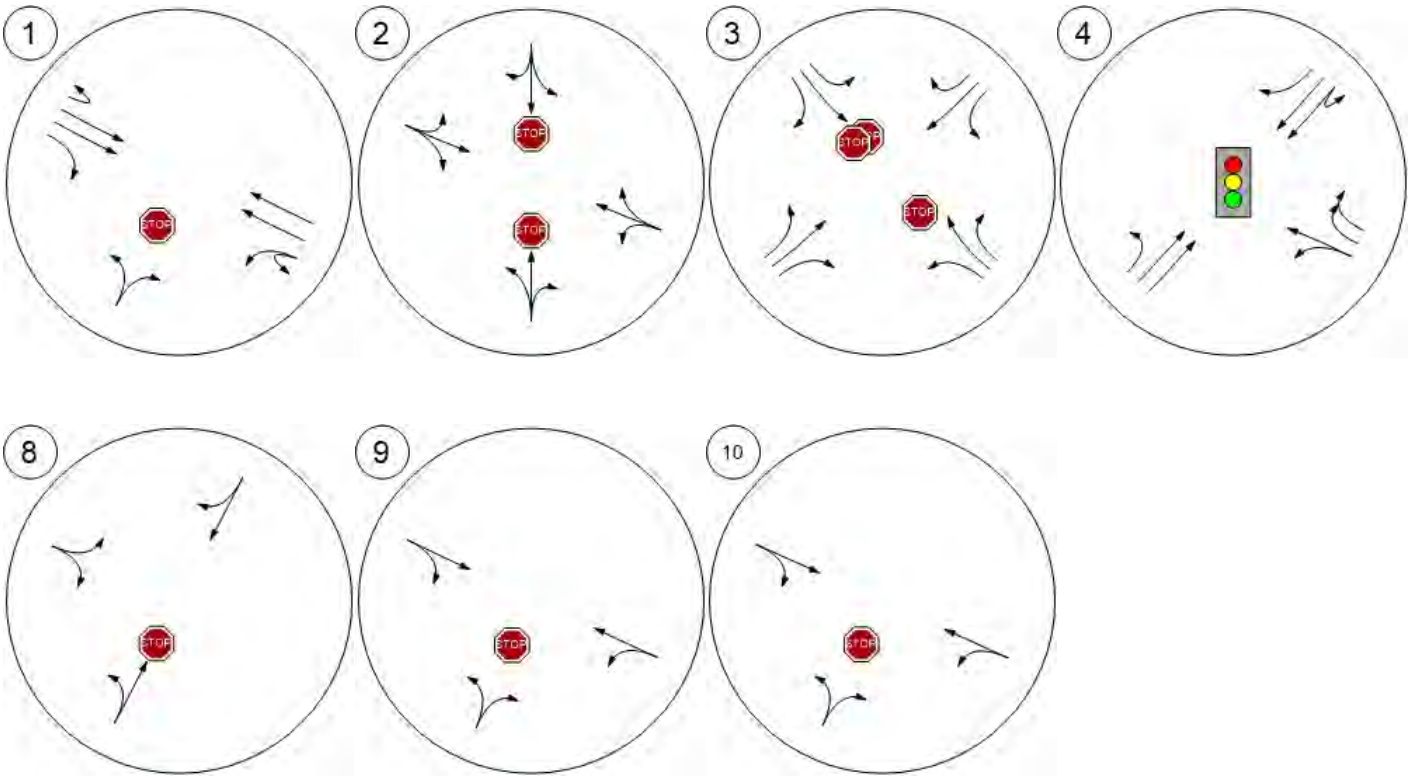
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

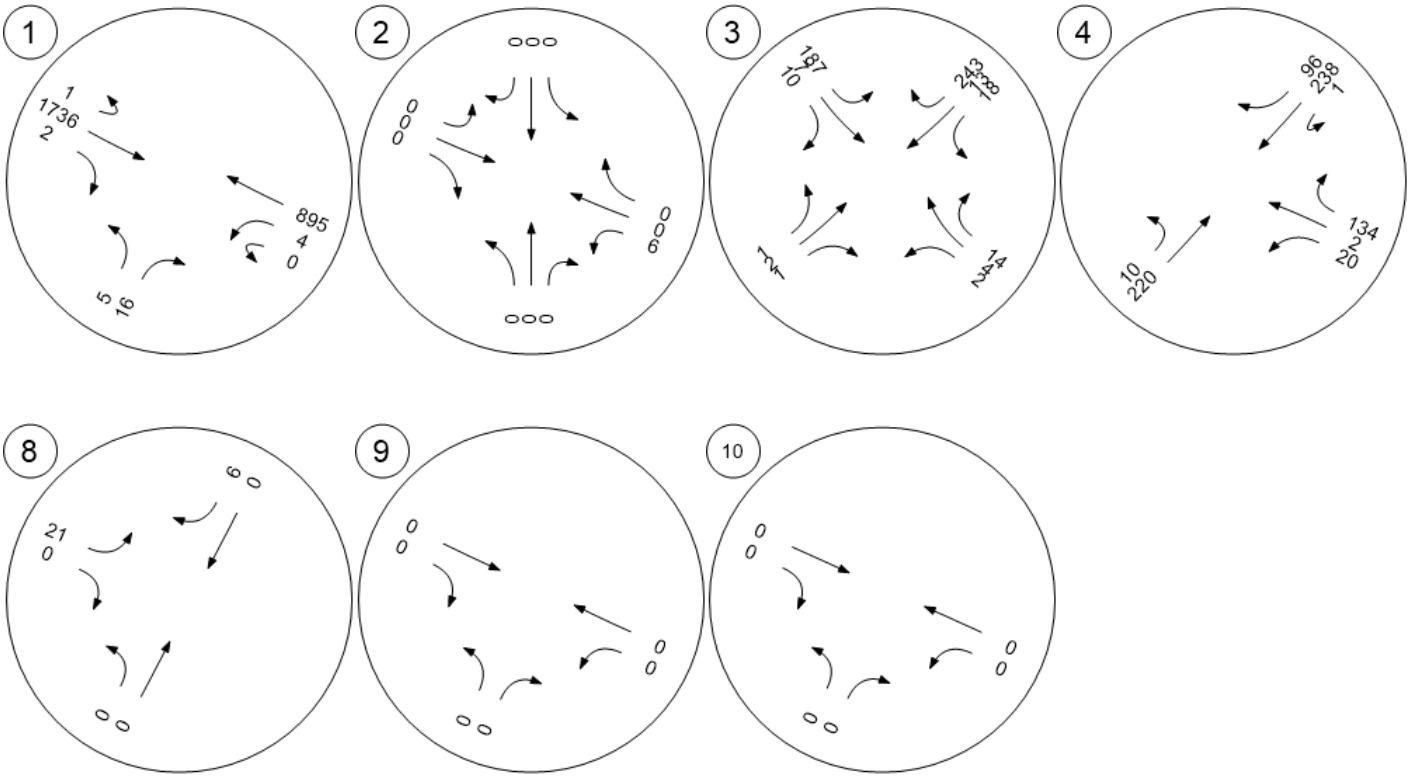
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.05	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.18	8.78	0.00	0.00	7.34	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.21	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	5.32	5.32	0.00	0.00	0.63	0.63
d_A, Approach Delay [s/veh]	8.87		0.00		5.61	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.94					
Intersection LOS	A					

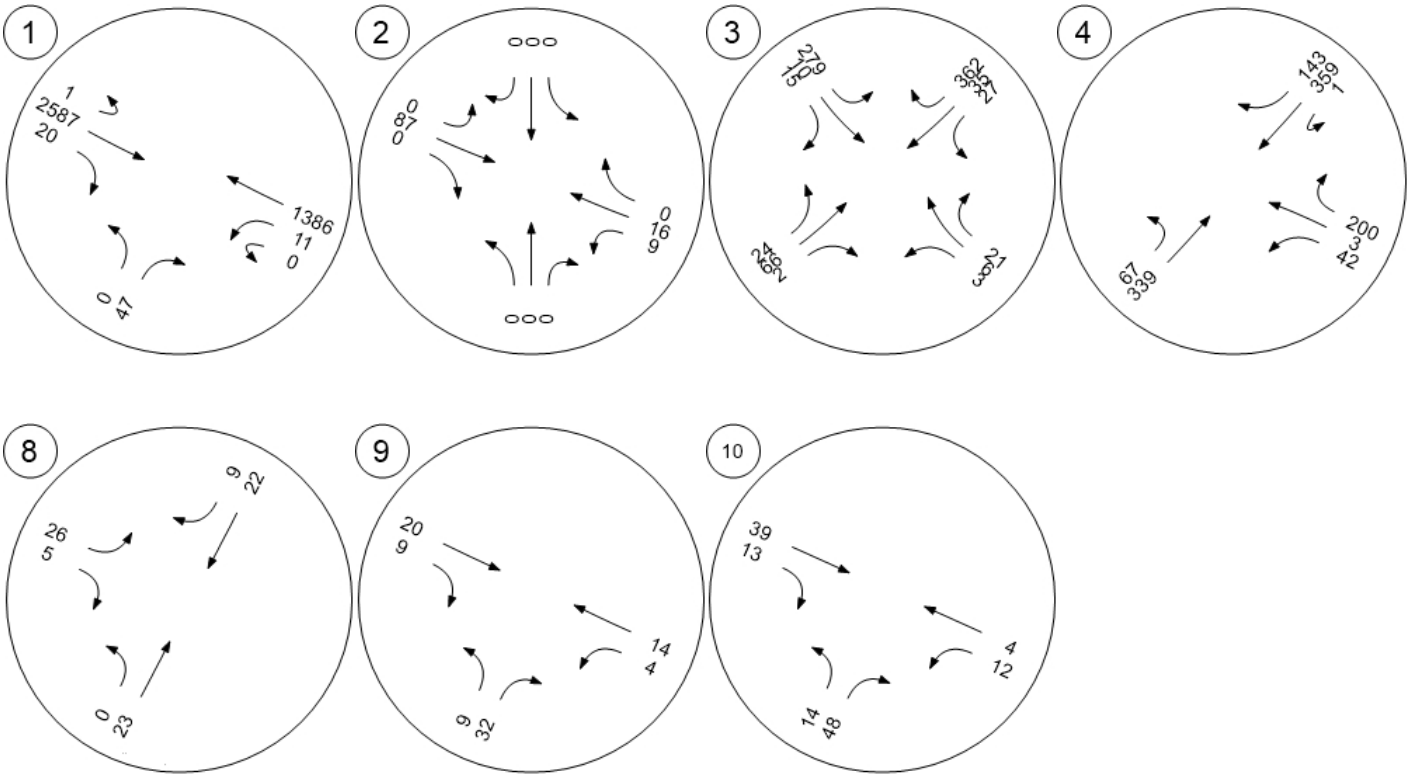
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Vistro File: C:\...\Ramsey Model.vistro
Report File: C:\...\Mitigated 2040 PM Build.pdf

Scenario 12 Mitigated 2040 PM Build
11/9/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	HWY 10 and Bowers Drive	Two-way stop	HCM 6th Edition	EB U-T	0.155	645.6	F
2	Riverdale Drive and Llama Street	Two-way stop	HCM 6th Edition	SB Left	0.005	9.3	A
3	Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp	Two-way stop	HCM 6th Edition	SEB Left	0.614	21.6	C
4	Armstrong Boulevard and WB Hwy 10 Ramp	Signalized	HCM 6th Edition	NB Left	0.562	18.4	B
8	Bower Dr and Riverdale Dr	Two-way stop	HCM 6th Edition	NB Thru	0.020	9.3	A
9	Riverdale Drive and Western Site Access	Two-way stop	HCM 6th Edition	NB Left	0.007	9.1	A
10	Riverdale Drive and Eastern Site Access	Two-way stop	HCM 6th Edition	NB Left	0.011	9.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

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Intersection Level Of Service Report
Intersection 1: HWY 10 and Bowers Drive

Control Type:	Two-way stop	Delay (sec / veh):	645.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.155

Intersection Setup

Name								
Approach	Northbound		Eastbound			Westbound		
Lane Configuration								
Turning Movement	Left	Right	U-turn	Thru	Right	U-turn	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	325.00	100.00	225.00	360.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		65.00			65.00		
Grade [%]	0.00		0.00			0.00		
Crosswalk	Yes		Yes			Yes		

Volumes

Name								
Base Volume Input [veh/h]	6	17	1	1367	7	1	16	2051
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	0	0	48	0	14	32
Diverted Trips [veh/h]	-9	0	0	0	0	0	0	9
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	41	1	2037	58	1	38	3097
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	11	0	536	15	0	10	815
Total Analysis Volume [veh/h]	0	43	1	2144	61	1	40	3260
Pedestrian Volume [ped/h]	0		0			0		

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.20	0.15	0.02	0.00	0.03	0.17	0.03
d_M, Delay for Movement [s/veh]	2079.43	25.74	645.64	0.00	0.00	119.73	24.70	0.00
Movement LOS	F	D	F	A	A	F	C	A
95th-Percentile Queue Length [veh/ln]	0.72	0.72	0.36	0.00	0.00	0.73	0.73	0.00
95th-Percentile Queue Length [ft/ln]	18.02	18.02	8.99	0.00	0.00	18.20	18.20	0.00
d_A, Approach Delay [s/veh]	25.74		0.29			0.34		
Approach LOS	D		A			A		
d_I, Intersection Delay [s/veh]	0.52							
Intersection LOS	F							

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Intersection Level Of Service Report
Intersection 2: Riverdale Drive and Llama Street

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name													
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Crosswalk	Yes			Yes			Yes			Yes			

Volumes

Name													
Base Volume Input [veh/h]	0	0	1	3	0	0	0	0	0	1	1	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900	1.490	1.490	1.490	1.490
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	57	0	0	0	47	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	9	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	4	0	0	0	66	0	1	1	47	6
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.900	0.900	0.900	0.900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	0	0	18	0	0	0	13	2
Total Analysis Volume [veh/h]	0	0	1	4	0	0	0	73	0	1	1	52	7
Pedestrian Volume [ped/h]	0			0			0			0			

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Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.28	9.78	8.64	9.31	9.78	8.58	7.33	0.00	0.00	8.48	7.36	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.08	0.36	0.36	0.36	0.00	0.00	0.00	0.12	0.12	0.12	0.12
d_A, Approach Delay [s/veh]	8.64			9.31			0.00			0.26			
Approach LOS	A			A			A			A			
d_I, Intersection Delay [s/veh]	0.44												
Intersection LOS	A												

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Intersection Level Of Service Report
Intersection 3: Riverdale Drive/Armostrong Boulevard and EB Hwy 10 Ramp

Control Type:	Two-way stop	Delay (sec / veh):	21.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name													
Approach	Southbound				Northeastbound				Southwestbound				
Lane Configuration													
Turning Movement	Left	Thru	Right	Right	Left	Left	Thru	Right	U-turn	Left	Thru	Right	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0	0	1	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	300.00	100.00	100.00	300.00	100.0	100.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00				35.00				35.00				
Grade [%]	0.00				0.00				0.00				
Crosswalk	Yes				Yes				Yes				

Volumes

Name													
Base Volume Input [veh/h]	0	0	0	0	10	0	16	3	1	22	5	0	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.4900	1.0000	1.4900	1.4900	1.490	1.490	1.490	1.000	1.490
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	16	0	40	1	0	0	46	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	9	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	31	0	73	5	1	33	53	0	310
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	0.8610	1.0000	0.8610	0.8610	0.861	0.861	0.861	1.000	0.861
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	0	0	0	0	9	0	21	1	0	10	15	0	90
Total Analysis Volume [veh/h]	0	0	0	0	36	0	85	6	1	38	62	0	360
Pedestrian Volume [ped/h]	0				0				0				

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	8.27	0.00	0.00	0.00	8.92	7.46	0.00	0.00	0.00
Movement LOS					A		A	A	A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	2.45	0.00	0.00	0.00	2.03	2.03	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00				2.34				0.63				
Approach LOS	A				A				A				
d_I, Intersection Delay [s/veh]	8.69												
Intersection LOS	C												

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Intersection Setup

Name									
Approach	Northwestbound					Southeastbound			
Lane Configuration									
Turning Movement	U-turn	Left	Thru	Thru	Right	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	1	1	0	0	1
Entry Pocket Length [ft]	225.00	100.00	100.00	100.00	290.00	280.00	100.00	100.00	280.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00					30.00			
Grade [%]	0.00					0.00			
Crosswalk	Yes					Yes			

Volumes

Name									
Base Volume Input [veh/h]	1	1	11	0	46	193	0	8	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.0000	1.4900	1.4900	1.0000	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	16	0	69	288	0	12	6
Peak Hour Factor	0.8610	0.8610	0.8610	1.0000	0.8610	0.8610	1.0000	0.8610	0.8610
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	5	0	20	84	0	3	2
Total Analysis Volume [veh/h]	1	2	19	0	80	334	0	14	7
Pedestrian Volume [ped/h]	0					0			

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Intersection Settings

Priority Scheme	Stop	Stop
Flared Lane		
Storage Area [veh]	0	0
Two-Stage Gap Acceptance	No	No
Number of Storage Spaces in Median	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.05	0.00	0.08	0.61	0.00	0.02	0.01
d_M, Delay for Movement [s/veh]	12.90	12.90	15.47	0.00	9.03	21.60	0.00	11.42	8.61
Movement LOS	B	B	C		A	C		B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.17	0.00	0.27	4.13	0.00	0.07	0.02
95th-Percentile Queue Length [ft/ln]	0.49	0.49	4.13	0.00	6.70	103.22	0.00	1.87	0.53
d_A, Approach Delay [s/veh]	10.34					20.94			
Approach LOS	B					C			
d_I, Intersection Delay [s/veh]	8.69								
Intersection LOS	C								

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Intersection Level Of Service Report
Intersection 4: Armstrong Boulevard and WB Hwy 10 Ramp

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.562

Intersection Setup

Name													
Approach	Northbound				Southbound			Eastbound			Westbound		
Lane Configuration													
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	1	0	0	0	1	0	1
Entry Pocket Length [ft]	395.0	100.0	100.0	100.0	100.00	100.00	315.00	100.00	100.00	100.00	685.00	100.00	685.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00				35.00			30.00			30.00		
Grade [%]	0.00				0.00			0.00			0.00		
Curb Present	No				No						No		
Crosswalk	No				No			No			Yes		

Volumes

Name													
Base Volume Input [veh/h]	2	34	248	0	0	210	257	0	0	0	19	2	320
Base Volume Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.490	1.490	1.490	1.000	1.0000	1.4900	1.4900	1.0000	1.0000	1.0000	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	32	8	0	0	12	0	0	0	0	34	0	0
Diverted Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	92	378	0	0	325	383	0	0	0	62	3	477
Peak Hour Factor	0.916	0.916	0.916	1.000	1.0000	0.9160	0.9160	1.0000	1.0000	1.0000	0.9160	0.9160	0.9160
Other Adjustment Factor	1.000	1.000	1.000	1.000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	25	103	0	0	89	105	0	0	0	17	1	130
Total Analysis Volume [veh/h]	3	100	413	0	0	355	418	0	0	0	68	3	521
Presence of On-Street Parking	No			No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0				0			0			0		
v_co, Outbound Pedestrian Volume crossing	0				0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0				0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0			0		
Bicycle Volume [bicycles/h]	0				0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permi	Prote	Permi	Permi	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	5	2	0	0	6	0	0	0	0	0	8	0
Auxiliary Signal Groups													
Lead / Lag	-	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	10	0	0	10	0	0	0	0	0	10	0
Maximum Green [s]	0	20	35	0	0	35	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	5.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	2.5	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.5	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	20	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.5	4.5	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0
Minimum Recall		No	Yes			Yes						No	
Maximum Recall		No	No			No						No	
Pedestrian Recall		No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	60	60	60	60		60	60
L, Total Lost Time per Cycle [s]	5.50	6.50	6.50	6.50		6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	3.50	4.50	4.50	4.50		4.50	4.50
g_i, Effective Green Time [s]	6	31	20	20		15	15
g / C, Green / Cycle	0.10	0.53	0.34	0.34		0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.13	0.11	0.29		0.04	0.21
s, saturation flow rate [veh/h]	1603	3204	3204	1431		1606	2532
c, Capacity [veh/h]	154	1692	1088	486		409	644
d1, Uniform Delay [s]	26.08	7.64	14.66	18.41		17.38	20.91
k, delay calibration	0.11	0.11	0.11	0.11		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	4.88	0.07	0.17	4.59		0.20	2.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.24	0.33	0.86		0.17	0.81
d, Delay for Lane Group [s/veh]	30.96	7.72	14.83	23.00		17.58	23.39
Lane Group LOS	C	A	B	C		B	C
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	1.51	1.13	1.59	5.25		0.73	3.33
50th-Percentile Queue Length [ft/ln]	37.87	28.35	39.75	131.18		18.16	83.21
95th-Percentile Queue Length [veh/ln]	2.73	2.04	2.86	9.00		1.31	5.99
95th-Percentile Queue Length [ft/ln]	68.17	51.04	71.56	225.09		32.68	149.77

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Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.96	30.96	7.72	0.00	0.00	14.83	23.00	0.00	0.00	0.00	17.58	17.58	23.39
Movement LOS	C	C	A			B	C				B	B	C
d_A, Approach Delay [s/veh]	12.36				19.25			0.00			22.69		
Approach LOS	B				B			A			C		
d_I, Intersection Delay [s/veh]	18.44												
Intersection LOS	B												
Intersection V/C	0.562												

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	0.000	2.132
Crosswalk LOS	F	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	778	778	0	667
d_b, Bicycle Delay [s]	16.81	16.81	45.00	20.00
l_b,int, Bicycle LOS Score for Intersection	1.903	2.197	4.132	2.536
Bicycle LOS	A	B	D	B

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Intersection Level Of Service Report
Intersection 8: Bower Dr and Riverdale Dr

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	23	23	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4900	1.4900	1.4900	1.4900	1.4900	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	62	0	0	0
Diverted Trips [veh/h]	0	0	0	0	-9	9
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	16	62	34	25	9
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	16	9	7	2
Total Analysis Volume [veh/h]	0	17	65	36	26	9
Pedestrian Volume [ped/h]	0		0		0	

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Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.26	9.26	7.37	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.20	0.20	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.51	1.51	5.11	5.11	0.00	0.00
d_A, Approach Delay [s/veh]	9.26		4.74		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.16					
Intersection LOS	A					

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Intersection Level Of Service Report
Intersection 9: Riverdale Drive and Western Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	23	36	26	13	9
Diverted Trips [veh/h]	0	0	9	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	23	45	26	13	9
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	6	12	7	3	2
Total Analysis Volume [veh/h]	6	24	47	27	14	9
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 2020 (SP 0-3)

Spack SOLUTIONS

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.15	8.70	0.00	0.00	7.38	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	2.37	2.37	0.00	0.00	0.69	0.69
d_A, Approach Delay [s/veh]	8.79		0.00		4.49	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.89					
Intersection LOS	A					

Generated with PTV VISTRO
Version 2020 (SP 0-3)

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Intersection Level Of Service Report
Intersection 10: Riverdale Drive and Eastern Site Access

Control Type:	Two-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.4900	1.0000	1.0000	1.4900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	34	23	36	34	13
Diverted Trips [veh/h]	0	0	9	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	34	32	36	34	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	9	8	9	9	3
Total Analysis Volume [veh/h]	9	36	34	38	36	14
Pedestrian Volume [ped/h]	0		0		0	

Generated with PTV VISTRO
Version 2020 (SP 0-3)

Spack SOLUTIONS

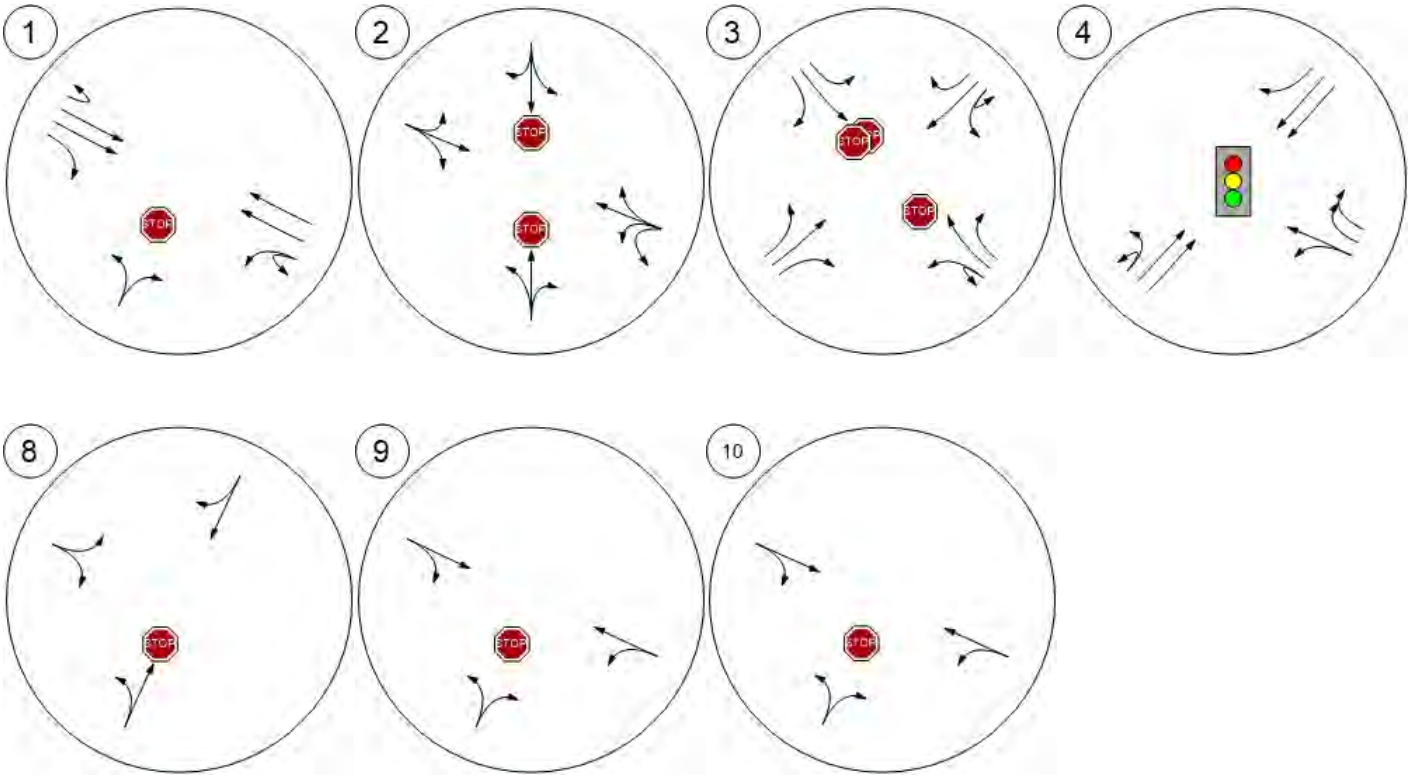
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

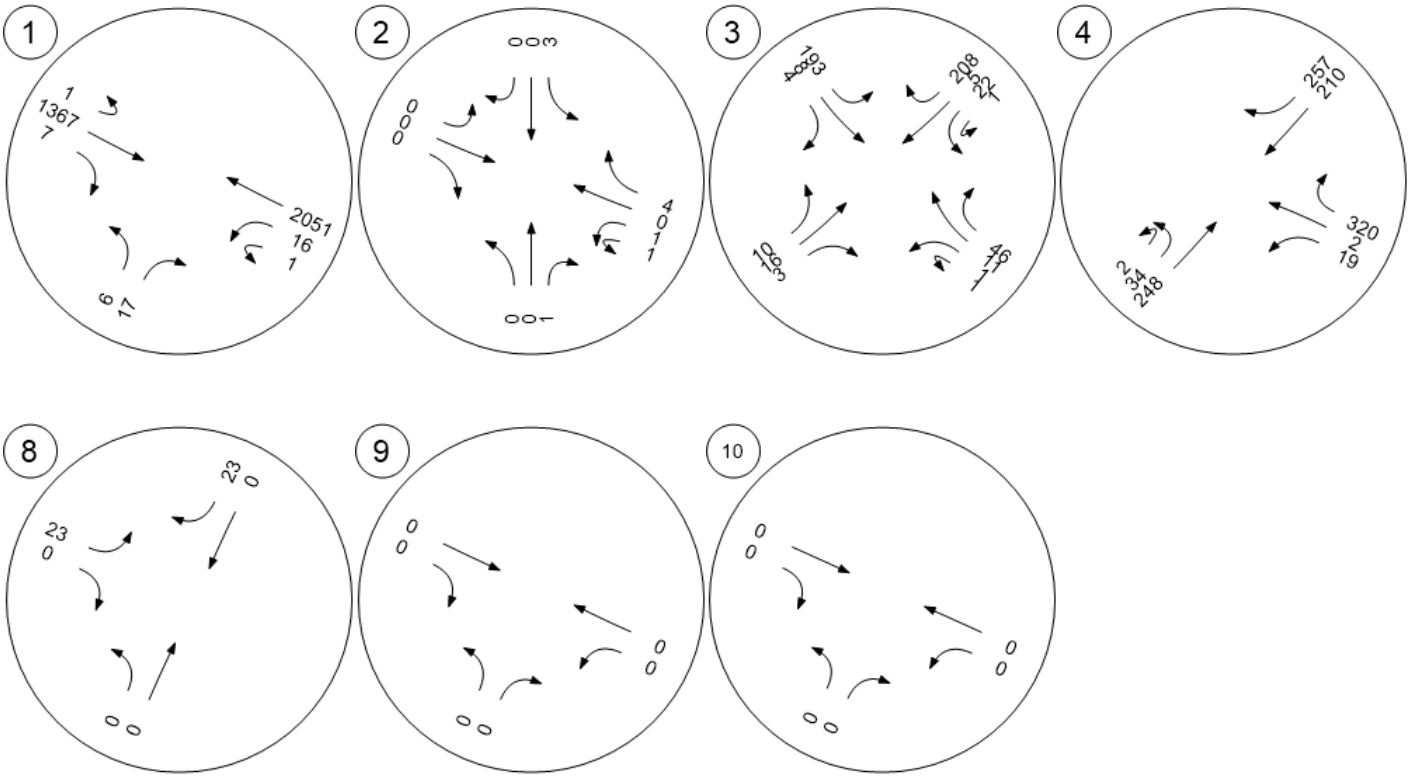
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	9.50	8.73	0.00	0.00	7.41	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	3.64	3.64	0.00	0.00	1.81	1.81
d_A, Approach Delay [s/veh]	8.88		0.00		5.34	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.99					
Intersection LOS	A					

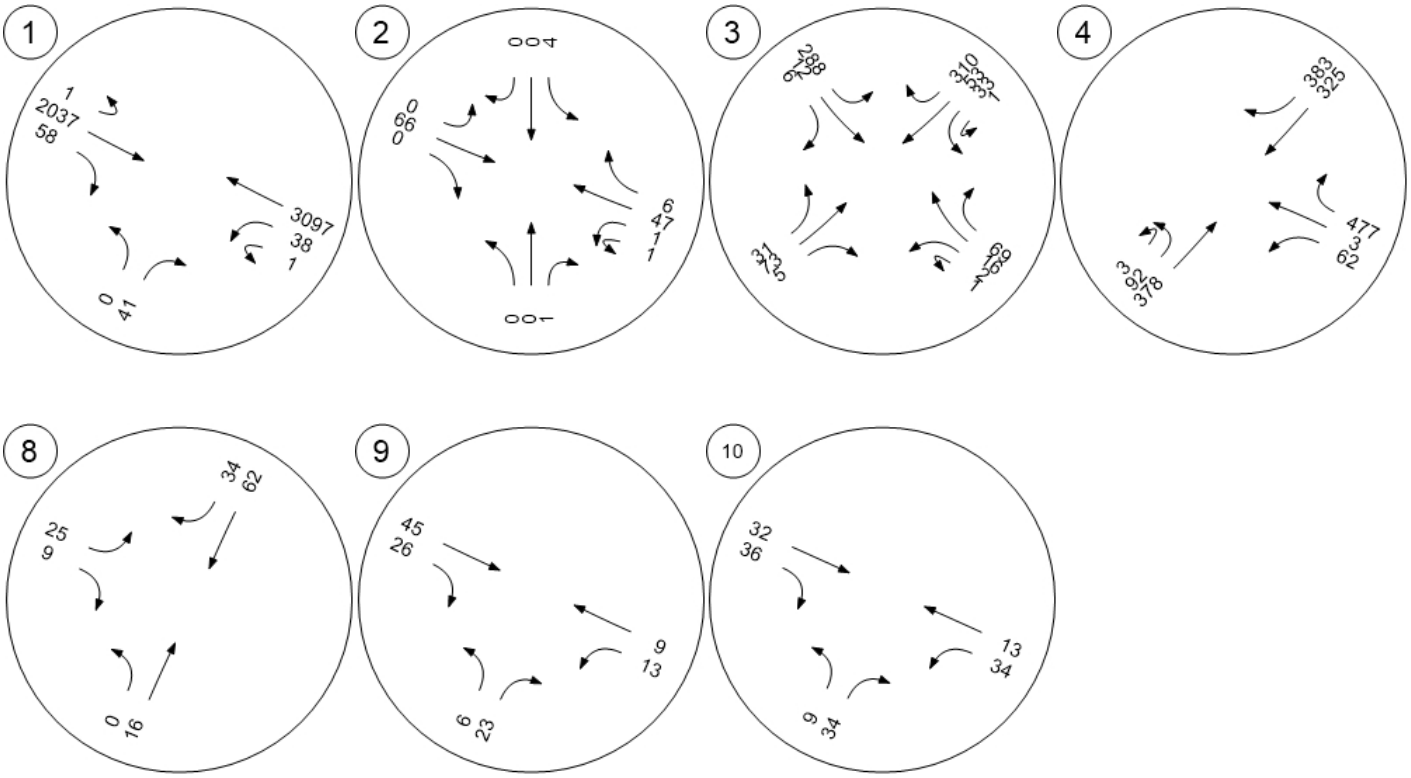
Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Traffic Volume - Future Total Volume



Phase I Archaeological Survey of Proposed Housing Development in Ramsey, Anoka County, Minnesota

Principal Investigator:
Jeremy L. Nienow, Ph.D.
Nienow Cultural Consultants LLC
Registered Professional Archaeologist #12071

Report Author:
Laura Koski, MSc
Zooarchaeo Consulting, LLC
Registered Professional Archaeologist #18060

Final Report
October 27, 2020

Phase I Archaeological Survey of Proposed Capstone Homes Housing Development in Ramsey, Anoka County, Minnesota

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Final Report
October 27, 2020

Management Summary

Capstone Homes is proposing to build a residential development in the City of Ramsey, Anoka County, Minnesota. The project area, approximately 78.63 acres in size, is located in the E ½ of Section 30 and W ¼ of Section 29 of Township 32N, Range 25W in Archaeological Region 4e: Central Lakes Deciduous East. Historically and recently the majority of the project area was cultivated with a long wooded patch along the southwestern edge. The project area is bordered by Highway 10 approximately 500 feet to the north, the Mississippi River approximately 600 to 700 feet to the south, Bowers Drive approximately 200 feet to the west, and a solar farm on the east. Planned development includes a tree preservation area within the existing stretch of woods, 243 detached residential units, residential streets, and single-acre public park at the center.

Nienow Cultural Consultants LLC (NCC) was contracted to complete a Phase I Archaeological Survey in October of 2020. NCC's Principal Investigators for this project were Jeremy Nienow, PhD., RPA, who is licensed for Phase I archaeological work in Minnesota (20-042, Appendix A), and Laura Koski, MSc, RPA. Work began with a literature review October 7 followed by fieldwork completed October 9, 14-15, 2020. Fieldwork consisted of surface survey of corn fields and a cabbage and pumpkin patch, and shovel testing of the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on a maximum of a five-meter interval. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test. No prehistoric cultural materials were encountered. Recent historic materials (i.e. shotgun shells, whiteware sherds) and modern debris (i.e. plastics, aluminum cans) were encountered, but not collected.

Shovel test profiles documented consistent ancient floodplain soils. No prehistoric cultural material or archaeological features were identified during the field survey. Based on these results, Nienow Cultural Consultants recommends no further archaeological work be completed, and the project continues as planned. With any project there is the chance of unanticipated discovery. Should archaeological materials surface during any future construction, it is advised a professional archaeologist be consulted. Minnesota Statute 307.08 protects unplatted cemeteries (including burial mounds) and issues guidelines for dealing with unexpected finds. Should human remains be encountered during earth moving activity, all work must stop and local law enforcement must be called.

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1.0 INTRODUCTION

Capstone Homes is proposing to build a residential development in the City of Ramsey, Anoka County, Minnesota. The project area, approximately 78.63 acres in size, is located in the E ½ of Section 30 and W ¼ of Section 29 of Township 32N, Range 25W in Archaeological Region 4e: Central Lakes Deciduous East (Figure 1). Historically and recently the majority of the project area was cultivated with a long wooded patch along the southwestern edge. The project area is bordered by Highway 10 approximately 500 feet to the north, the Mississippi River approximately 600 to 700 feet to the south, Bowers Drive approximately 200 feet to the west, and a solar farm on the east. Planned development includes a tree preservation area within the existing stretch of woods, 243 detached residential units, residential streets, and single-acre public park at the center (Figure 2).

Nienow Cultural Consultants LLC (NCC) was contracted to complete a Phase I Archaeological Survey in October of 2020. NCC's Principal Investigators for this project were Jeremy Nienow, PhD., RPA who is licensed for Phase I archaeological work in Minnesota (20-042, Appendix A), and Laura Koski, MSc, RPA. NCC subcontracted six individuals to assist in completing research, fieldwork, and lab processing for the project: Alexandra Hedquist (Hedquist Archaeological Consulting, LLC), Anastasia Walhovd (Makoons Consulting, LLC), Chris Rico (Rico Cultural Resource Management Services, LLC), Fred Sutherland (Sutherland Relics and Rust LLC), John Strot (John's Archaeological Consulting), and Laura Koski (Zooarchaeo Consulting). The investigation was guided by the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48FR44716), the State Historic Preservation Office's (SHPO) Manual for Archaeological Projects in Minnesota (Anfinson 2005), and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Minnesota Office of the State Archaeologist 2011). Research and report preparation were accomplished by professional archaeologists meeting the standards set forth in 35CFR61.

Work began with a literature review October 7 followed by fieldwork completed October 9, 14, and 15, 2020. Fieldwork consisted of surface surveying corn fields, a cabbage, and pumpkin patch, and shovel testing the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on four to five-meter intervals. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test. No prehistoric cultural materials were encountered. Recent historic materials (i.e. shotgun shells, whiteware sherds) and modern debris (i.e. plastics, aluminum cans) were encountered, but not collected.

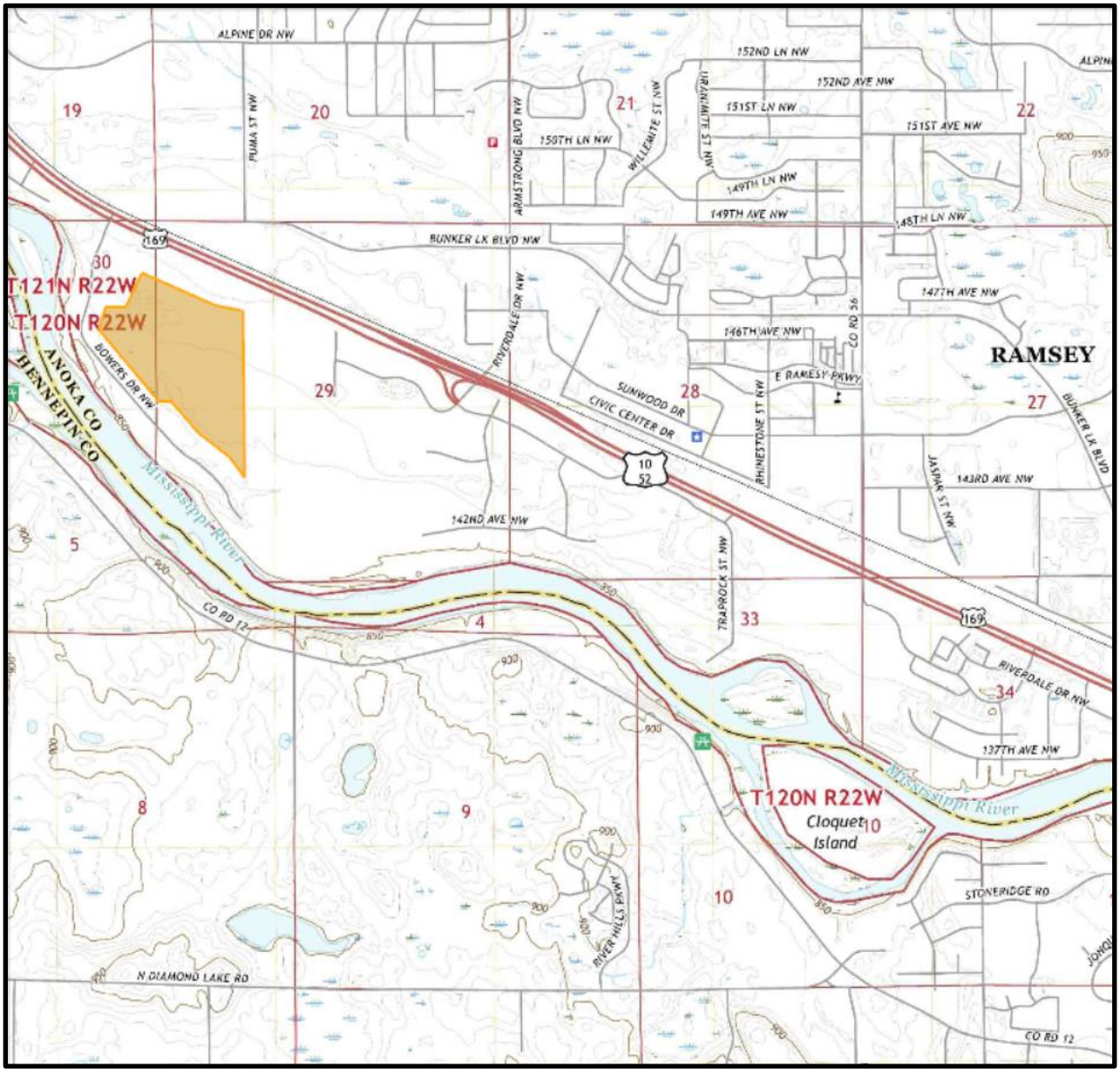

Figure 1: USGS Topographic Map Illustrating Project Area (orange polygon).
(USGS 7.5' Topographic Map, Anoka Quadrangle, 2019, 1:24,000)

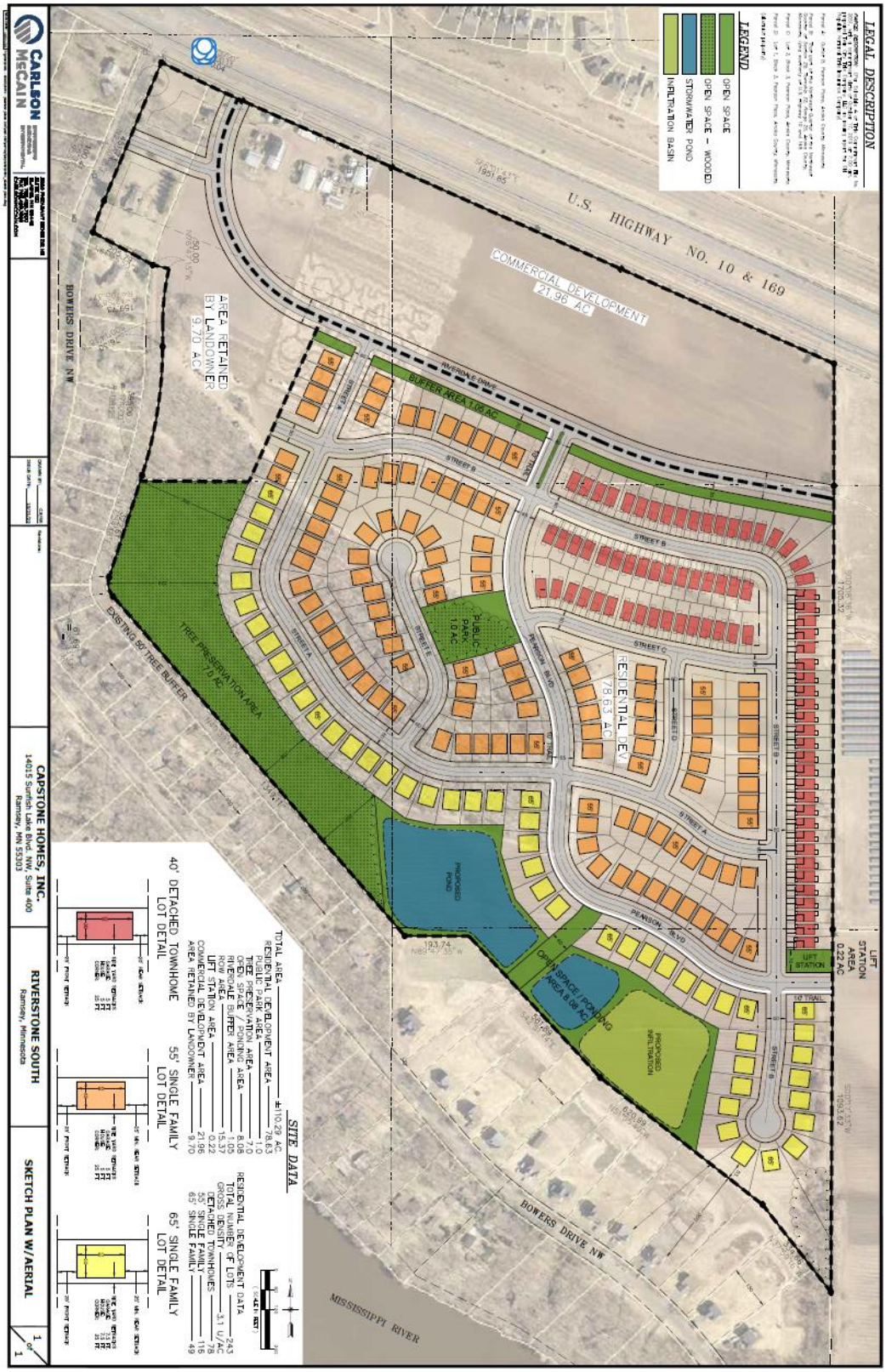

Figure 2: Engineering Sketch Plan of Project Area.
(Provided by Capstone Homes, Inc.)

2.0 RESEARCH DESIGN AND METHODOLOGY

2.1 Literature Review

A literature review was completed on October 7, 2020. Typically, the literature review would be completed by visiting the Office of the State Archaeologist and the State Historic Preservation Office. Unfortunately, both of these offices were closed due to safety precautions surrounding SARS-CoV-2 spread prevention. Instead, previously identified archaeological sites were noted for a two-mile radius surrounding the project area using the online Minnesota Office of the State Archaeologist archaeological sites portal (OSA Portal). In addition, the Township/Range/Sections within the two-mile radius were sent to the State Historic Preservation Office to generate an internal database search. The Township/Range/Section search did not yield any additional sites not included on the OSA Portal. Archaeological survey reports from nearby sites were also requested to determine whether survey had already been completed within the project area. All resulting previously identified sites and requested surveys were reviewed as a part of this project.

2.2 Fieldwork

Fieldwork was completed on October 9, 14, and 15, 2020. Fieldwork included surface survey and shovel testing within the project area (Figure 2). Surface surveyed areas consisted of cultivated corn fields, a cabbage patch, and a pumpkin patch. Ground visibility in all surface-surveyed areas ranged between 0 and 80% (see Appendix B for example surface visibility photographs). These areas were surface surveyed on a four to five-meter interval between cultivated rows. Considering the wooded area contained dense vegetation and fallen leaves preventing surface survey, along with the fact this area lies closest to the Mississippi and is therefore the most likely location within the project area to contain prehistoric cultural materials, the wooded area was tested in three shovel test transects. The first transect was laid in on a 15-meter interval, approximately 15-meters northeast and parallel to the southwestern project boundary. The second transect was laid in 30-meters northeast of and parallel to the first, but considering the negative tests in the first transect, and the clearly documented ancient floodplain soils, shovel tests in this transect were excavated on a 30-meter interval. A third transect was placed on a ridge along the northwestern edge of the wooded area with the intent of targeting what was in the past a high point along the historic Mississippi River's edge. Fifty-two shovel tests were excavated in total. Shovel tests were typically 35-40 centimeters (cm) wide and at least 100cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test.

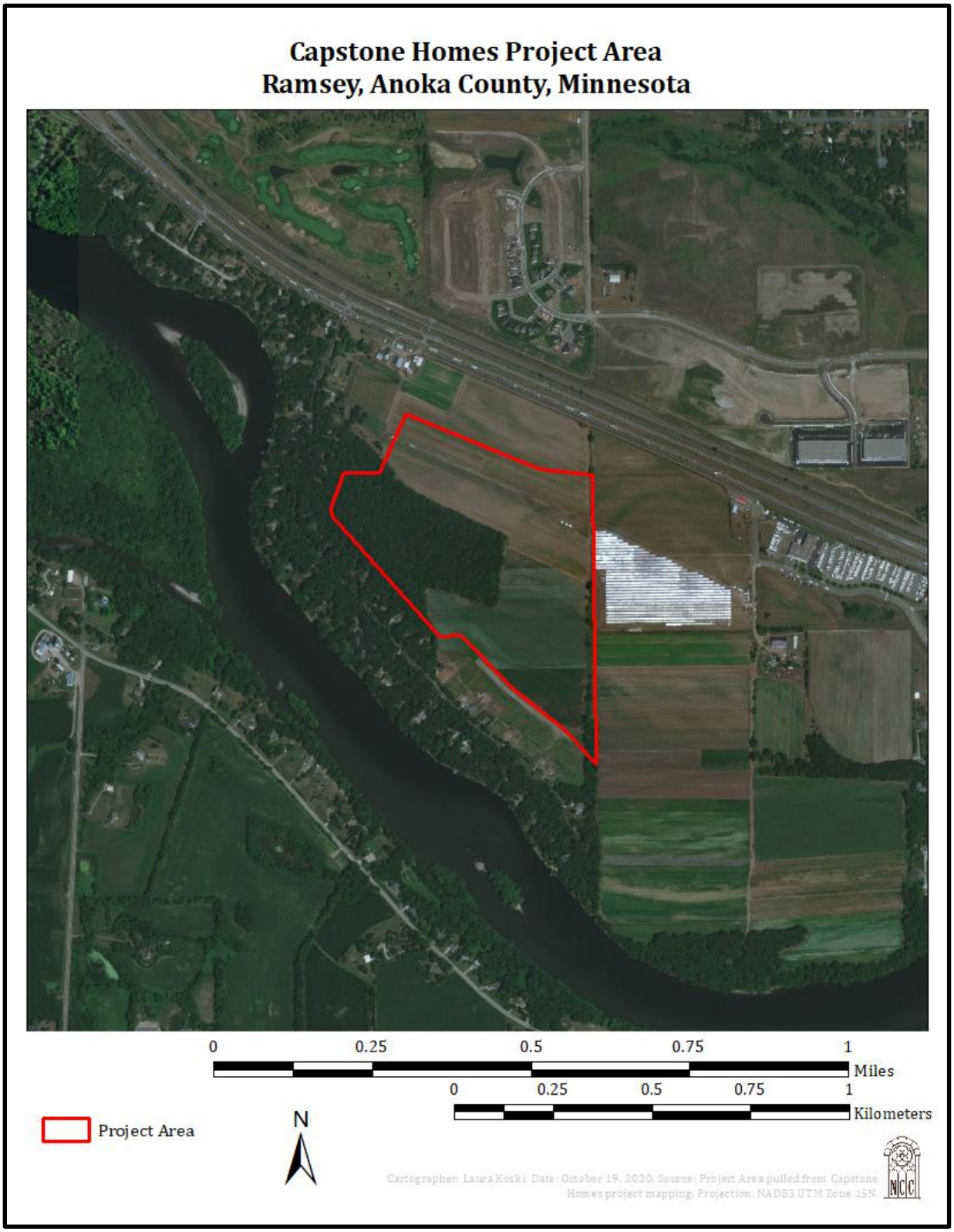

Figure 3: Illustration of Project Area Boundary (red border).
(Basemap provided by 2016 Google Satellite Imagery)

3.0 ENVIRONMENTAL SETTING

3.1 Geological Background and Soils

In his 1990 publication *Archaeological Regions in Minnesota and the Woodland Period,* former State Archaeologist Scott Anfinson divides the state of Minnesota into nine environmental-archaeological regions based on natural resources available within each region. This classification allows archaeologists to research and analyze prehistoric environments in the state, as well as predict where archaeological sites may be located.

The Capstone Homes Development project area falls within the southeastern portion of Anfinson's region 4e: Central Lakes Deciduous East Sub-Region. The region sits within east-central to central Minnesota, spanning Dakota to Becker Counties. Topographically, the region consists of a mixture of moraines, till plains, and outwash plains, and is heavily spotted with lakes, some over 30 meters (m) deep. Major rivers include the Mississippi and Minnesota Rivers flowing along the western boundary of the region, and the St. Croix River along the region's eastern boundary. Streams draining the western part of the region flow in a western direction to the Red River (Anfinson 1990). River formation was the result of a complex glacial history including several episodes of advancing and retreating glacial lobes.

The Central Lakes Deciduous East Sub-Region is located directly west of the Mississippi River, but could arguably incorporate portions of western Wisconsin. The regional topography consists of moraines, glacial till, and outwash plains, as well as a large variety of lakes, streams, and wetlands (Gibbon et al. 2002). Average precipitation ranges from 21 to 32 inches (Grimes 1968). Average high winter temperatures range from 12 to 24 degrees Fahrenheit (F) while average high summer temperatures range from 78 to 82 degrees F. The frost-free season ranges from 140 to 160 days (Gibbon et al. 2002).

Soils in the region reflect a diverse history of glacial and vegetation activity. Soil texture ranges from medium to course, with prairie soils more commonly found in the southern and western portions of the region and forest soils found mostly in the north and east portions (Anfinson 1990). Bedrock outcrops are mainly located along the region's central and eastern edge, and are comprised of mainly granite outcroppings along river banks (Gibbon et al. 2002).

All soil source material was deposited during the Wisconsin stage of the Pleistocene epoch. Two main types of glacial drift were deposited over the county when the Superior Lobe retreated from the area around 13,500 years ago. The Superior Lobe, which flowed into the area from the north, deposited coarse textured material, reddish brown in color, with pebbles of basalt, gabbro, and red sandstone. At a later date, the Grantsburg Sub-lobe, an extension of the Des Moines Lobe, advanced into Sherburne County. This lobe brought in what is commonly called "gray till" or "buff till." During the retreat of the Grantsburg Lobe around 12,500 years ago, the ice stagnated in the northern and eastern parts of the county and melt water left intermixed outwash gravel and sand from both of the previous lobes. Additionally, when the Grantsburg Lobe retreated westward, it uncovered the Mississippi Valley, and melt water from the wasting Des Moines Lobe filled the

valley throughout the county with coarse alluvium, which underlies two broad terraces parallel to the Mississippi River, an example of which is notable in the Capstone Homes project area. The sand in these areas are course in texture near the river and become increasingly finer in texture the further the distance from the river. In various places, it is underlain by strata of calcareous gravel, which was representative of what was found during the current archaeological survey (Grimes 1968).

The project area is comprised of Hubbard loamy sand ranging between 0 to 2 percent and 2 to 12 percent slopes, Dickman sandy loam ranging between 0 to 2 percent and 2 to 6 percent slopes, and Nymore loamy coarse sand on 12 to 25 percent slopes. The Hubbard loamy sand series consists of excessively drained sandy floodplain outwash found on stream terraces and hillslopes. The typical soil profile for the series consists of loamy sand from 0 to 20 centimeters, loamy sand from 20 to 50 centimeters, loamy sand from 50 to 82 centimeters, and sand from 82 to 200 centimeters. The Dickman sandy loam series consists of somewhat excessively drained floodplain outwash found on stream terraces. The typical soil profile for the series consists of sandy loam from 0 to 30 centimeters, sandy loam from 30 to 45 centimeters, and sand from 45 to 152 centimeters. The Nymore loamy coarse sand series consists of excessively drained floodplain outwash found on stream terraces. The typical soil profile for the series consists of loamy coarse sand from 0 to 18 centimeters, loamy sand from 18 to 66 centimeters, and sand from 66 to 152 centimeters (NRCS 2020).

3.2 Regional Flora and Fauna

Vegetation in the area at the time of Euro-American settlement consisted of Big Wood species in both the south and west portions of the region. Most specifically, the trees were deciduous hardwood species, primarily oak, mixed with deciduous-coniferous forest in the northern part of the region (Anfinson 1990) which also contained maple, basswood, and hickory. As Euro-American settlers moved through the area and cleared portions of forest, prairie land became more abundant. White-tailed deer, bison, elk, beaver, bear, prairie chickens, and a variety of fish and waterfowl would have been commonly available resources (Anfinson 1990). Specific to the site area, the majority of the trees on the sand plain consisted of bur oak and northern pin oak, as well as mixed hardwoods which grow in areas of glacial till, specifically in the areas where the Hayden soil series is prominent (Grimes 1968). Large areas of hardwoods invaded areas of native grasses in the outwash plains along the Mississippi River. The Hubbard series discussed above developed in these areas.

4.0 CULTURAL HISTORY

The Minnesota State Historic Preservation Office (SHPO) has developed statewide contexts examining Minnesota's Prehistoric through recent past. These contexts are laid out on the Minnesota Archaeological Site Form (Minnesota Office of the State Archaeologist 2016). Generally, they describe the history of the state and assist in predicting where specific types of sites may occur.

Native American contexts are commonly divided into three major traditions: Paleoindian, Archaic, and Woodland. Late Woodland is further subdivided into Plains Village, Mississippian, and Oneota Traditions. These divisions are based on significant changes in how these communities lived, with a special focus on subsistence strategies. Historic contexts are generally divided into Contact and Post-Contact periods. The Contact period begins with early European exploration and continues through the Post-Contact period including Euro-American settlement and Minnesota statehood. The following is a general summary of these traditions using the Author's general knowledge and various disseminated sources for information including the OSA's website, Elden Johnson's 1988 *The Prehistoric Peoples of Minnesota*, Gibbon and Anfinson's 2008 *Minnesota Archaeology: The First 13,000 Years*, and Gibbon's 2012 *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region*.

4.1 Pre-Contact Period

4.1.1 Paleoindian Tradition (11,500 to 7,500 B.C.)

The Paleoindian Tradition in Minnesota is divided into two periods: Early Paleoindian and Late Paleoindian/Early Archaic (Gibbon and Anfinson 2008). Throughout the Paleoindian, Native American communities were small, mobile, and focused on hunting. However, between the early and late periods, the environment and available food resources changed dramatically. The beginning of the Early Paleoindian Tradition is characterized by retreat of glacial ice and the growth of spruce forests. During this time, now extinct megafauna like mastodon, mammoth, and large bison were available for hunting. The Early Paleoindian period is poorly understood in Minnesota because most evidence for Paleoindian lifeways comes from isolated finds of large fluted projectile points (Gibbon and Anfinson 2008). Based on more plentiful sites in the southeastern and southwestern portions of the United States, it is generally assumed Native American populations were small, consisting of highly-mobile hunters and foragers who followed large game throughout the landscape (Gibbon and Anfinson 2008).

By the Late Paleoindian period, modern vegetation zones had established themselves in Minnesota. Modern animal species like white tail deer, grouse, and fish were available for Native American communities to hunt and fish. Lithic tool evidence from Late Paleoindian sites in Minnesota take the form of stemmed rather than fluted points and a wider range of tool types including groundstone tools (Gibbon and Anfinson 2008). Again, lifeways during this time are poorly understood, but based on three well-documented sites found in Minnesota (Cedar Creek-21AK58, Bradbury Brook-21ML42, and Browns Valley-21TR5), communities are still small, highly-mobile and focused on hunting larger animals and foraging for wild plants. However, stone toolkits did diversify and communities began exploiting smaller territories. It is also likely populations started to increase (Gibbon and Anfinson 2008).

4.1.2 Archaic Tradition (7,500 to 800 B.C.)

The Archaic Tradition continues the trend of resource diversification started in the Late Paleoindian period. Native American communities developed broader toolkits, used a wider array of foods, and became less mobile over the course of the Archaic. Additionally, by the end of the Archaic, communities were using communal burial sites. Stemmed and notched points, groundstone tools, particularly those for woodworking, and cold-hammered copper tools are hallmarks of the Archaic Tradition in the archaeological record (Anfinson 1997; Gibbon and Anfinson 2008). By the end of this period the climate shifted to a cooler, wetter pattern up until the strong, human-driven, warmer climates of the modern era. Resource gathering technologies during the Archaic included the aforementioned hunting, as well as trapping, fishing, foraging, woodworking and plant processing. Many of the larger, documented sites in the central portion of the state likely began during the end of this period.

4.1.3 Woodland Tradition (800 B.C. to European Contact)

In the Midwest region, archaeologists tend to divide the Woodland Tradition into three periods: Early, Middle, and Late. However, Anfinson (1987) and Gibbon (2012) suggest in Minnesota it is more appropriate to divide the era into Initial and Terminal Woodland periods. This view is not as widespread as research would at first suggest, with work including Arzigian's *Statewide Multiple Property Documentation Form for the Woodland Tradition* (2008), and Buhta et. al. *On the Periphery?: Archaeological Investigations of the Woodland Tradition in West- Central Minnesota* (2014), retaining the more traditional use of Early, Middle, and Late designations. Beginning approximately 2,800 years ago, peoples in the region experienced increases in population with the advent of first horticultural and then agricultural subsistence strategies to augment already extant systems of hunting, gathering, etc. As populations increased, settlements near favorable transportation and resource corridors shifted from seasonal to year-round occupations as they made forays to collect necessary resources (Johnson 1988; Anfinson 1987:222).

The period also witnessed the technical transition from spear/atlatl to bow and arrow weaponry useful for both hunting and warfare. This change in technology lead to the use of smaller projectile points or arrow heads. Similarly, the period also saw the invention of ceramic vessels and it is these vessels and their change over time, from thick walled, grit tempered, conoidal vessels, to thinner walled, shell tempered, globular vessels, which has greatly assisted the archaeological community in further refining their understanding of group identity, cohesion, and integration throughout the region. Indeed, there are more than ten major recognized ceramic complexes for the state with many temporal overlaps, often based more on location than visual representation. A final example representing not only identity and permanence on the landscape, but also religious practices, was the use of earthen burial mounds. Although community size was likely similar between the Early Woodland and Late Archaic periods, by the Late Woodland period, populations were certainly on the rise.

4.2 Contact/Post-Contact Period (1630 A.D. to Present)

This period generally refers to the span of time extending from the first European explorations until intensive Euro-American settlement of the region. Minnesota's historic period began in 1673 when French explorers Marquette and Joliet discovered the upper portion of the Mississippi River. Ten years later, Catholic Missionary Father Louis Hennepin told his story of exploring Minnesota and being held captive by Dakota Indians in the first book written about Minnesota, *Description de la Louisiane* (Hennepin 1683).

The territory containing modern-day Minnesota was claimed at various periods of time by Spain, France, Great Britain, and the United States. Lieutenant Zebulon Montgomery Pike led the first United States expedition through the area in 1805, which would ultimately become Minnesota in 1858. Fort St. Anthony (later Ft. Snelling) was completed between 1819 and 1824, and in 1836 the Wisconsin Territory, including a portion of Minnesota, was formed. Just one year later, on September 29th, 1837, during treaty negotiations in Washington, D.C., Dakota leaders ceded their lands between the Mississippi and St. Croix Rivers.

The fur trade drove much of European exploration and settlement into Minnesota prior to territorial frontier settlement in the mid-1800s. While the fur trade impacted Native American communities throughout all of Minnesota, the heaviest impacts came with later Euro-American settlement. Intensive settlement and agriculture dramatically transformed the landscape, displacing large numbers of Native Americans and their communities. In 1862 tensions between white settlers and Native Americans resulted in the Dakota War. Ultimately, this war left 462 whites and "an unknown but substantial number" of Native Americans dead (Anderson and Woolworth 1988). The conflict concluded with the largest mass execution in United States history with the hanging of 38 Dakota on December 26, 1862 at Mankato and the deportation of remaining tribal members to Santee, Nebraska.

Native American archaeological site types associated with this period are generally consistent with those of earlier periods, but European and Euro-American traders, missionaries, settlers, and industries affected the locations of these sites. This period also includes Euro-American immigrant settlement patterns, subsistence activities, and economic strategies. Sites associated with Euro-American immigrants appear in the mid-nineteenth century. Associated archaeological and historic site types categorized in the Contact/Post-Contact period include standing structures as well as archaeological sites.

5.0 LITERATURE REVIEW

Fourteen previously identified archaeological sites and four alpha sites are located within two miles of the project area (Table 1). Alpha sites are versions of archaeological sites which have been reported as *potential* sites based on mentions in literature, historic mapping (i.e. the 1874 Andreas Atlas), or by individuals reporting casually finding cultural materials; these sites have yet to be field verified through systematic archaeological research and survey.

Table 1. Previously Identified Archaeological Sites Within Two Miles

Site Number	Site Name	Site Description	Cultural Affiliation	Miles from Project Area	TRS
21AN0044	Winnebago Enclosure	Enclosure and Earthworks	Historic: Native American	0.1 Miles	T32N, R25W, S30 NW ¼, NE ¼, NE ¼
21HE0090	Dayton Mounds	Six Burial Mounds	Pre-Contact: Woodland	0.73 Miles	T121N, R22W, S31 SE ¼, S ½ And SW ¼, S ½
21HE0326	Dayton A	Habitation, Lithic Workshop	Pre-Contact	1 Mile	T120N, R22W, S9 NE ¼, NW ¼, NE ¼
21AN0136	No Name	Lithic Scatter	Pre-Contact	1 Mile	T32N, R25W, S19 SW ¼, NW ¼, NE ¼
21AN0135	No Name	Lithic Scatter	Pre-Contact	1.23 Miles	T32N, R25W, S18 SW ¼, SW ¼, SE ¼
21HE0327	Dayton B	Single Artifact	Pre-Contact	1.24 Miles	T120N, R22W, S29 SE ¼, NE ¼, SW ¼
21HE0189	Cloquet Island Scenic Overlook	Artifact Scatter	Pre-Contact, Contact, Post-Contact	1.33 Miles	T120N, R22W, S10 NW ¼, W ½
21WR0043	Crow River Scenic Overlook	Habitation	Pre-Contact	1.47 Miles	T121N, R23W, S36 SW ¼, SE ¼, NE ¼
21HE0335	No Name	Habitation	Pre-Contact: Woodland	1.54 Miles	T120N, R22W, S10 NW ¼, SW ¼, NW ¼
21HE0328	Dayton D	Habitation	Lithic Workshop	1.6 Miles	T120N, R22W, S9 NE ¼, SE ¼, SE ¼
21AN0184	No Name	Habitation	Pre-Contact: Habitation	1.7 Miles	T32N, R25W, S33 NW ¼, SE ¼, NE ¼
21WR0027	No Name	Single Burial Mound	Pre-Contact: Woodland	1.98 Miles	T120N, R23W, S1 SE ¼, SE ¼, NW ¼
21WR0125	No Name	Artifact Scatter	Pre-Contact and Post-Contact: Euro-American	1.99 Miles	T120N, R23W, S1 NW ¼, SE ¼, NW ¼
21WR0130	Dayton Quarry Burial	Human Remains	Presumably Pre-Contact	1.99 Miles	T120N, R23W, S1 NE ¼, NW ¼, SE ¼
21ANu	Itasca Village	Ghost Town	Historic: Euro-American	0.63 Miles	T32N, R25W, S19 SE ¼, NE ¼, SW ¼
21WRbp	Dayton city	Historic Documentation	Historic: Euro-American	1.19 Miles	T121N, R23W, S36
21WRbo	Waterville	Ghost Town	Historic: Euro-American	1.19 Miles	T121N, R23W, S36
21WRo	Lahn	Artifact Scatter	Pre-Contact	1.2 Miles	T120N, R23W, S12

No previously identified archaeological sites are located within the project area. Sites located within two miles comprise a mixture of pre-contact and historic activities including pre-contact lithic and artifact scatters, habitations, and burial mounds; as well as historic ghost towns and an earthwork enclosure. Of the pre-contact sites, only a few could be attributed to a cultural tradition,

all of them being of the Woodland Tradition, due to either diagnostic artifacts or archaeological features (i.e. burial mounds).

The relatively high volume of pre-contact sites within two miles of the project area, as well as the project's proximity to the Mississippi River, indicate the project area exhibits reasonable potential to contain pre-contact cultural material. LiDAR data (provided by MNDNR) was examined in an attempt to identify any visible above-ground features with a potentially archaeological origin. These features were not identified, but viewing the LiDAR hillshade revealed the project area had been submerged in the Mississippi River floodplain in the past. The old river cut is distinct to the point at least two major previous river edges can be identified in the project area hillshade imagery, accompanied by clear sandbar deposits between the current river path and the previous flooded edge (Figure 3).

6.0 RESULTS

Fieldwork was completed on October 9, 14, and 15, 2020. This began with surface survey of the cornfields, cabbage patch, and pumpkin patch on a four to five-meter interval. Surface visibility within all surface-surveyed areas varied between 0 and 80% (see Appendix B for example surface visibility photographs). No cultural materials or archaeological features were identified during the surface survey.

Shovel testing was completed along three separate transects within the wooded portion of the project area. The first transect was located 15-meters northeast and parallel to the southwestern edge of the project area (the closest edge to the Mississippi River), and consisted of 25 shovel tests excavated at 15-meter intervals. All shovel tests were negative for cultural materials. Due to the non-cultural nature of the first transect, the second transect, placed 30-meters northeast and parallel to the first, contained 11 shovel tests excavated on a 30-meter interval. This transect was also negative for cultural material. Acknowledging this tested portion of the wooded area landed at times in the past floodplain, a third transect was placed on the highest ridge at the northeastern edge of the wooded area in an attempt to capture where the cultural activity may have been focused while this area was previously flooded (see the middle flooded river edge noted in the LiDAR Hillshade imagery in Figure 3). This transect consisted of sixteen shovel tests excavated on a 15-meter interval and was also negative for cultural material. See Figure 4 for an illustration of shovel tested and surface surveyed locations.

All shovel tests were excavated to at least 80 centimeters below surface (cmbs), well into subsoils. Soil profiles were notably consistent across the shovel tested areas with the average profile containing 10YR 3/2 silty sandy loam 0 to approximately 20-30cmbs, followed by 10YR 3/3 to 10YR 3/6 sand from 20-30cmbs through shovel test termination at 80cmbs. Soils typically became more compact beginning around 50cmbs continuing through 80cmbs. Recorded soils exhibited no signs of human-related disturbance, and reflect the sandy soils deposition expected of the ancient floodplain terrace on which this portion of the project area is located. Considering the depth

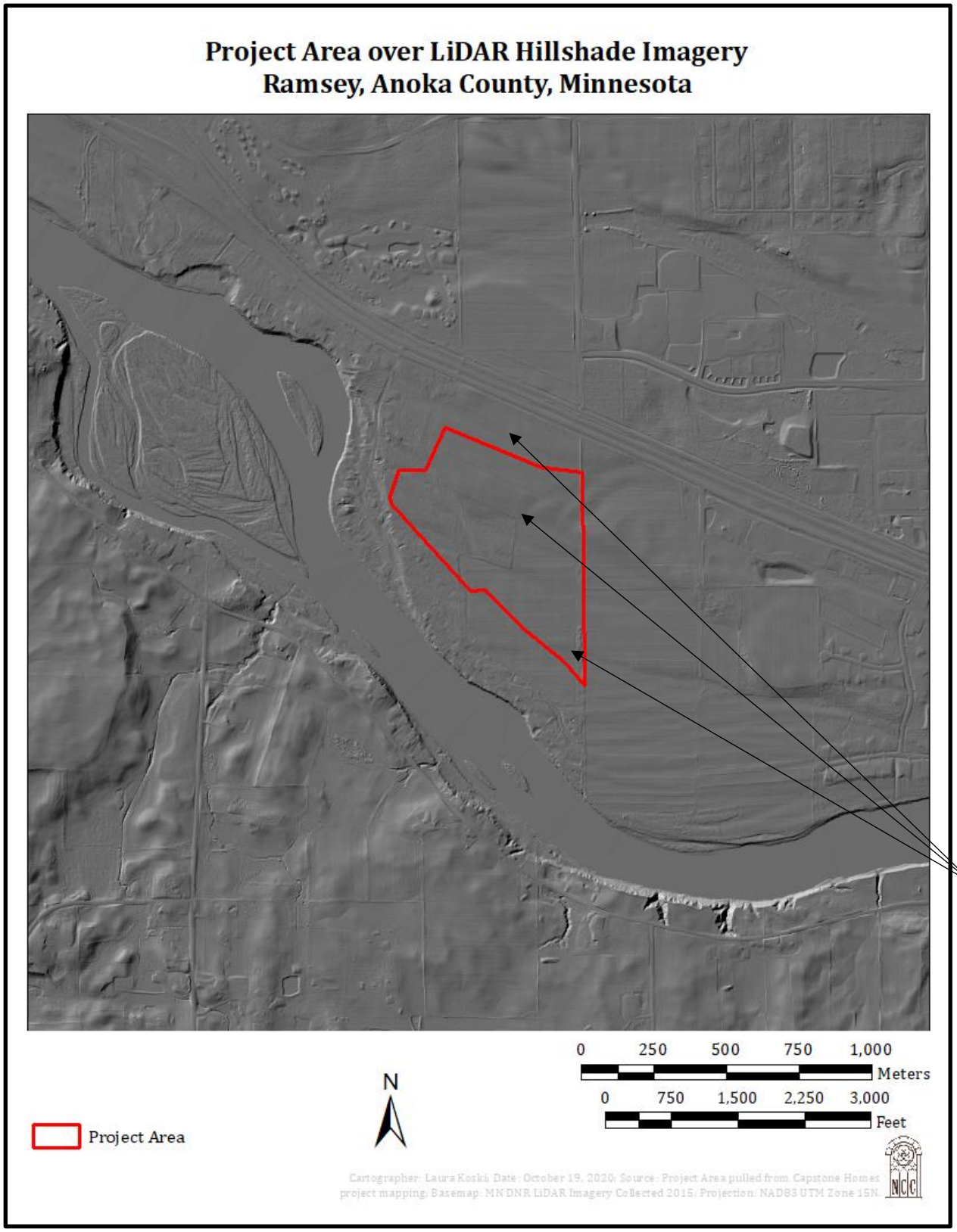

Figure 4: Map of Project Area over LiDAR Hillshade Imagery.

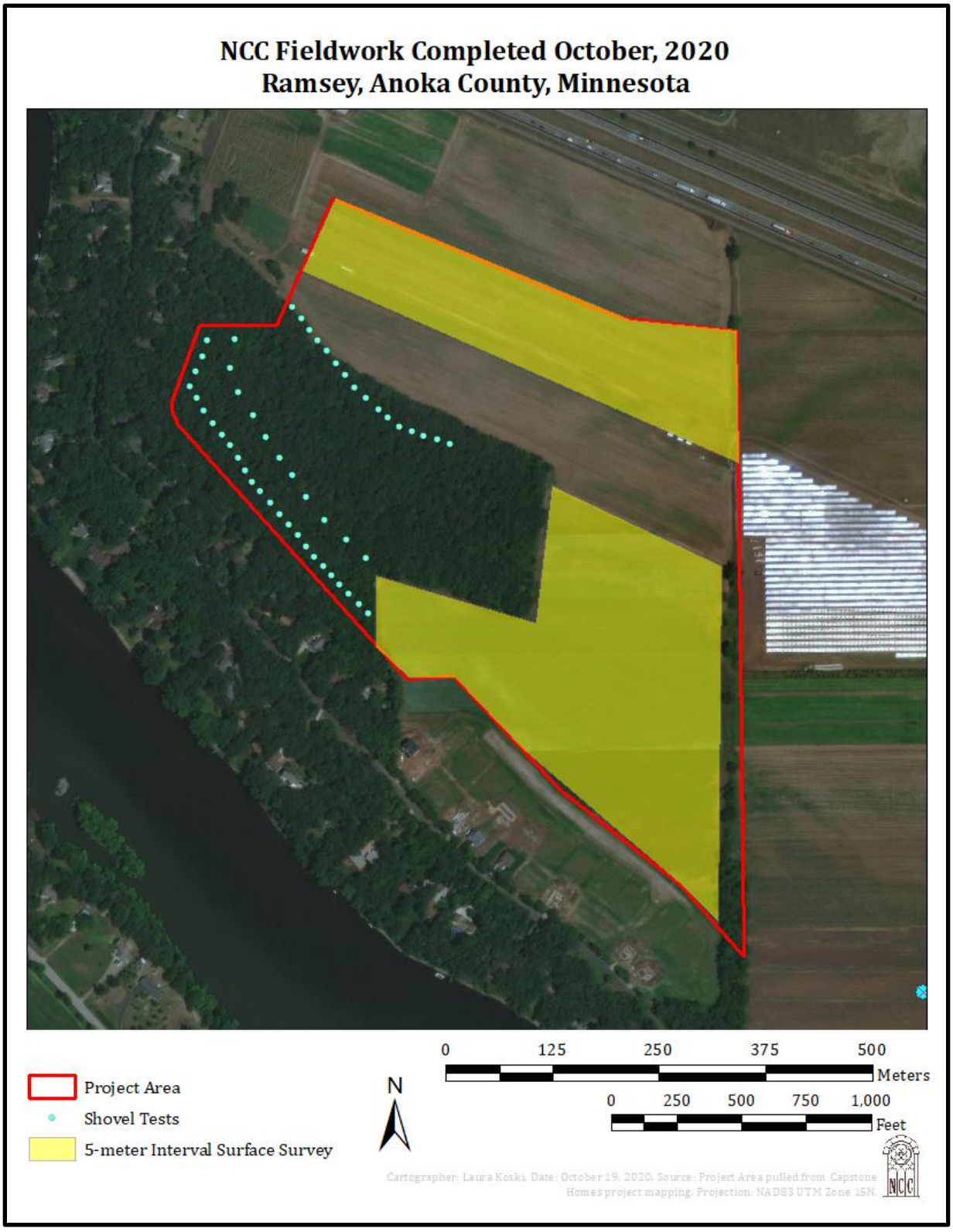

Figure 5: Map of surface surveyed areas and shovel test locations within greater project area. (Basemap provided by 2016 Google Satellite Imagery)

and compaction of these floodplain soils, it is likely this area was flooded consistently enough in the past it was not an attractive location for settlements or camps.

7.0 CONCLUSION AND RECOMMENDATIONS

Capstone Homes is proposing to build a residential development in the City of Ramsey, Anoka County, Minnesota. The project area, approximately 78.63 acres in size, is located in the E ½ of Section 30 and W ¼ of Section 29 of Township 32N, Range 25W in Archaeological Region 4e: Central Lakes Deciduous East. Historically and recently the majority of the project area was cultivated with a long wooded patch along the southwestern edge. The project area is bordered by Highway 10 approximately 500 feet to the north, the Mississippi River approximately 600 to 700 feet to the south, Bowers Drive approximately 200 feet to the west, and a solar farm on the east. Planned development includes a tree preservation area within the existing stretch of woods, 243 detached residential units, residential streets, and single-acre public park at the center.

Work began with a literature review October 7 followed by fieldwork completed October 9, 14, and 15, 2020. Fieldwork consisted of surface surveying corn fields, a cabbage, and pumpkin patch, and shovel testing the wooded area. Surface visibility in the agricultural fields ranged between 0 and 80%. Surface survey transects were spaced on a four to five-meter interval. Fifty-two shovel tests were excavated. Shovel tests were typically 35-40 centimeters (cm) wide and at least 80cm deep. All soils were screened through ¼" mesh screen, detailed profile notes completed, photographs taken, and GPS points collected for each shovel test. No prehistoric cultural materials were encountered. Recent historic materials (i.e. shotgun shells, whiteware sherds) and modern debris (i.e. plastics, aluminum cans) were encountered, but not collected.

Shovel test profiles documented consistent ancient floodplain soils. No prehistoric cultural material or archaeological features were identified during the field survey. Based on these results, Nienow Cultural Consultants recommends no further archaeological work be completed, and the project continues as planned. With any project there is the chance of unanticipated discovery. Should archaeological materials surface during any future construction, it is advised a professional archaeologist be consulted. Minnesota Statute 307.08 protects unplatted cemeteries (including burial mounds) and issues guidelines for dealing with unexpected finds. Should human remains be encountered during earth moving activity, all work must stop and local law enforcement must be called.

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APPENDIX A:

ARCHAEOLOGICAL LICENSE

APPLICATION FOR MINNESOTA ANNUAL ARCHAEOLOGICAL SURVEY LICENSE

This license only applies to reconnaissance (Phase I) surveys conducted under Minnesota Statutes 138.31-.42 during calendar year 2020. Separate licenses must be obtained for monitoring, evaluations/ Phase II and major investigation/Phase III work, and burial site work under Minnesota Statute. This license must be renewed annually. Only the individual indicated below is licensed as principal investigator. The licensed individual is required to comply with all the conditions attached to this license.

Name: Jeremy Loren Nienow

Institution/Agency/Company Affiliation: Nienow Cultural Consultants LLC

Title/Position: Owner / Principal

Address: 200 E. Plato Blvd. St. Paul, MN 55107

Work Phone: 651-295-3744 E-Mail: Jeremy.Nienow@gmail.com

Name of Advanced Degree Institution: U of Minnesota Year: 1997

Department Name: Anthropology Degree: ☐ MA/MS ☑ PhD

Type of Land: (check all that may apply)

☑ State Owned ☑ County Owned ☑ Township/City Owned

☑ Other non-federal public List:

Purpose: (check all that may apply)

☑ CRM ☑ Academic Research ☐ Institutional Field School

Required Documentation:

☑ 1) Curriculum Vita

☑ 2) Documentation of Appropriate Experience

Most Recent License Year 2019 Type I and II *(e.g. Annual, evaluation, mitigation)*

MHS Curation #: 896 Other Approved Facility: RCHS

Signed (applicant): Date: 3/4/20

Submit one copy of this form and attachments to:
Office of the State Archaeologist, 328 West Kellogg Blvd, St. Paul, MN 55102
651-201-2263 651.201.2264 email: mn.osa@state.mn.us

Minnesota Historical Society Approval: Date: 3-9-20

State Archaeologist Approval: Date: 3/5/20

License Number: 20-042

02/28/2019

APPENDIX B:

FIELDWORK PHOTOGRAPHS

Image 1: Of Typical Surface Visibility within Cabbage Patch.

Image 2: Of Field Crew Surveying Cabbage Patch (facing NE).

Image 3: Of Typical Surface Visibility within Corn Fields.

Image 4: Of Field Crew Surveying Pumpkin Patch (Facing SW).
Note Surface Visibility.

Councilmember introduced the following resolution and moved for its adoption:

RESOLUTION #21-015

RESOLUTION GRANTING COMPREHENSIVE PLAN AMENDMENT APPROVAL, PRELIMINARY PLAT APPROVAL, AND DETERMINING THAT AN ENVIRONMENTAL IMPACT STATEMENT (EIS) IS NOT NECESSARY FOR RIVERSTONE ADDITION

WHEREAS, Riverstone Development LLC, hereafter referred to as "Developer", properly applied for Preliminary Plat approval of the following described property located in the City of Ramsey:

That part of Northwest Quarter of Northwest Quarter, Section 29, Township 32, Range 25 lying northeaster of northeasterly right of way line of Burlington Northern Rail Road and lying westerly and southerly of the north 60 feet of east 40 feet of said Quarter Quarter, except road subject to easement of record, Anoka County, Minnesota

-and-

The Northwest Quarter of Southwest Quarter of Section 20, township 32, Range 25 except east 40 feet of said Quarter Quarter lying southerly of southerly right of way line of Alpine Drive NW and except north 40 feet of south 100 feet of west 40 feet of east 80 feet of said Quarter Quarter, except road subject to easement of record, Anoka County, Minnesota

-and-

The Southwest Quarter of Southwest Quarter of Section 20, Township 32, Range 25 lying west of east 40 feet thereof, except road subject to easement of record, Anoka County, Minnesota

(the 'Subject Property');

WHEREAS, the City and Developer have been working on a long-range land use plan for the Subject Property since the end of 2019; and

WHEREAS, the City approved a cost share framework in concept for the extension of Riverdale Drive on March 24, 2020; and

WHEREAS, the City approved a planning framework for the Subject Property on June 23, 2020; and

WHEREAS, the City reviewed the Sketch Plan for the project on August 6, 2020; and

WHEREAS, the City received an Application for Preliminary Plat Approval for Riverstone South Addition on December 3, 2020, which includes 242 detached single-family homes; and

WHEREAS, Minnesota Rules 4410.4300, Subp. 19.C, requires that an EAW be prepared for this project as the project requires a Comprehensive Plan Amendment; and

WHEREAS, the Planning Commission held a Public Hearing and reviewed the Preliminary Plat on January 7, 2021.

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 grants a Comprehensive Plan Amendment from Low Density Residential to Medium Density Residential for the detached townhome (40 foot wide lots) section.
2. That the Ramsey City Council hereby grants preliminary plat contingent approval of Riverstone South Addition in accordance with relevant City Codes, contingent upon the following conditions:
    a. Address any comments contained within the Official EAW Review Record when available
    b. Plans subject to current Staff Review Comments and final approval by City Engineer
    c. Approval of a contract for the Riverdale Drive Extension along with Cost Share Agreement consistent with previous City Council Direction
        i. Must also include an Assessment/Petition and Waiver Agreement to assess the Property Owner and Developer shares back to benefiting properties
    d. Securing $350,000 for the acquisition of the Tree Preservation Area
    e. Architectural Approval for Detached Townhomes - ~~No more than 50% of the Detached Townhomes may be split entry, split level or modified basement (at least 50% full one level of full two story)~~ Shall include all of the following minimum requirements:
        i. Garage may not extend closer to the front property line than the covered front porch/stoop – garage must be even with or behind
        ii. Garage must be tucked under second level – second level should extend over the entire garage
        iii. Front façade must have at least 3 materials (exception 'farm house' design) – should not be dominated by horizontal siding
        iv. Stoop/front porch must be covered
        v. Plans must include the minimum number of windows shown on the approved master plans
    f. Architectural approval is limited to those models included in the review record. Any significant changes from these models shall require City Council approval.
    g. Completion of a Noise Study if confirmed to be required by MnDOT
    h. Post-Preliminary Plat Approvals Required
        i. Comprehensive Plan Amendment Approval by Metropolitan Council
        ii. Critical Area Overlay District Amendment by Minnesota DNR
        iii. City Approval of Zoning Amendment
        iv. Approval of the Environmental Assessment Worksheet (EAW)
3. That the Ramsey City Council accepts the EAW and determines that an Environmental Impact Statement (EIS) is not needed.

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 26th day of January, 2021.

_____
Mayor

ATTEST:

_____
City Clerk

ORDINANCE #21-03

CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

AN AMENDMENT TO CHAPTER 117 WHICH IS KNOWN AS THE ZONING AND SUBDIVISIONS CHAPTER OF THE CITY CODE OF RAMSEY, MINNESOTA.

AN ORDINANCE AMENDING SECTION 117-90 "MAP" OF CHAPTER 117 OF THE CITY CODE OF RAMSEY, MINNESOTA.

SECTION 1. AMENDMENT

The following legally described properties, or portions thereof, generally known as Anoka County PID 20-32-25-31-0002 are hereby rezoned from R-1 Residential (MUSA - 80) District to a mix of R-1 Residential (MUSA - 65) District, R-2 Residential (MUSA – 50) District and R-2 Residential (Detached Townhome) District.

That part of Northwest Quarter of Northwest Quarter, Section 29, Township 32, Range 25 lying northeaster of northeasterly right of way line of Burlington Northern Rail Road and lying westerly and southerly of the north 60 feet of east 40 feet of said Quarter Quarter, except road subject to easement of record, Anoka County, Minnesota

-and-

The Northwest Quarter of Southwest Quarter of Section 20, township 32, Range 25 except east 40 feet of said Quarter Quarter lying southerly of southerly right of way line of Alpine Drive NW and except north 40 feet of south 100 feet of west 40 feet of east 80 feet of said Quarter Quarter, except road subject to easement of record, Anoka County, Minnesota

-and-

The Southwest Quarter of Southwest Quarter of Section 20, Township 32, Range 25 lying west of east 40 feet thereof, except road subject to easement of record, Anoka County, Minnesota

(The "Subject Property")

SECTION 2. MAP

The City is hereby instructed to cause this amendment to be shown on the "City of Ramsey Zoning Map", which map was adopted pursuant to Section 117-90 of the Ramsey City Code.

SECTION 3. EFFECTIVE DATE

This ordinance becomes effective 30 days after its passage and publication, subject to City Charter Section 5.04.

PASSED by the City Council of the City of Ramsey, Minnesota the _____ day of _____, 2021.

Mayor

ATTEST:

City Clerk

Introduction date:
Posting dates:
Adoption date:
Publication date:
Effective date:

Regular Planning Commission **7. 1.**

Meeting Date: 01/07/2021

By: Mark Riverblood, Engineering/Public Works

Information

Title:

Center Street Area Framework and Policy Plan

Purpose/Background:

The primary purpose of this case is to acknowledge and provide comment on this planning document, which will be an update to The COR Design Guidelines and Framework (only for the Downtown District), which is the second attachment. The first attachment, the Draft Center Street Area Framework and Policy Plan details streetscapes, future stormwater elements (water reuse), sidewalks, aspects of Municipal Plaza, the Regional Trail and other pedestrian elements/walkability. The plan also include facade improvements to Pumphouse #3. The Park & Recreation Commission acknowledged this plan at their November regular meeting. It is anticipated the planning document will go to each of the boards and commissions for comment, and then to City Council, thereafter for Adoption.

As indicated, the purpose of this case is to obtain feedback on Center Street Area Framework and Policy Plan, but also to advance the planning activity for several interrelated projects around Center Street—some of which having timelines that require the work to commence soon.

A summary of these projects (and a brief description of the interrelatedness) is as follows:

Center Street sidewalk(s) in front of the Sapphire Apartments

The City has the obligation to construct the Center Street public sidewalk/streetscape improvements for a city-lead construction project. The developer has the Sapphire apartment building substantially complete and ready for these improvements. The specific design work for matching the public realm (sidewalk and streetscape) to the adjoining and parallel private sidewalk and building is underway, and should be constructed in the Spring of 2021.

Center Street Streetscape/Trail (west side) near the interface of the Affinity at Ramsey Senior Apartments and Municipal Plaza:

East of the Affinity building is a narrow area of park, south of a new segment of Ramsey Parkway. This is also the Central Anoka County Regional Trail which consists of a temporary section of bituminous, with the plan to convert it to concrete, (like the the finished 10' foot concrete trail to the south, parallel to Center Street). The 2021 Parks Capital Improvement Plan (CIP) includes a proposed project page for this, with some of the preliminary conceptual work done.

Municipal Plaza at the interface with Affinity at Ramsey Senior Apartments:

This area is to grade, with turf established in the Fall of 2020, but with no irrigation or other improvements. The preliminary concept plans for the park, show a plaza-like extension of the streetscape/trail blending into the park for a usable, programmable space. The final design (to include public furniture, hearth, landscape, for the narrow north portion of the park) should be considered for completion in 2021 to match the Affinity project's edge. This project would allow for the irrigation system to be designed for larger area of this park area as well. Additionally, the city has the obligation to 'take over' the irrigation for the median swale within the Ramsey Parkway, (this city property is presently being served by the Affinity building at their expense). Completing this specific park area would be of

benefit to the future residents who will reside on either side of this space as well as other park patrons, including for Happy Days' programming—and improve the marketability of the city-owned vacant lot West of Municipal Plaza.

Municipal Plaza, south of the above (the larger, Happy Days site):

The fill from the 2019 COR Infiltration Basin was placed in the park as noted above. The city may also consider an underground irrigation for the park as the first phase of development, as large scale park improvements may be a few or more years out. This flat, turfed area would function as a lush park space until the final improvements to the park are funded and complete.

Pump House Plaza:

The area immediately surrounding the small Pump House No. #3 is unimproved and consists of sand-burs and weedy grasses. As part of the 2019 Metropolitan Council Local Community Development grant exploration, the Pump House site was evaluated and found that its grounds can bring significant value to Ramsey's downtown by functioning as a plaza and practical extension of the sidewalk and connected park (especially when Center Street may be closed for public events). The cost and design of adding a public restroom to this site to serve the the area parks and trails will be evaluated as this planning document and process moves forward.

Pump House Exterior completion:

The facade treatment was withheld from the Pump House when it was constructed over a decade and a half ago. This was deliberate, so as to match the building with the municipal architecture at such time as this was known. It is believed that this project is timely, in that the city has made the investments in civic place and architecture, and the other related improvements (Municipal Plaza and the future Waterfront) can be considered along with this endeavor—each informing the other, thus setting forth the civic architecture for establishing the sense of place, in the very center of Ramsey's walkable downtown. Additionally, the Pump House is stark in appearance (without the architectural cladding), and finishing the building will meet with the same standards as other private projects are held to in The COR, raising property values, and at the same time the site's utility (discussed above). The city's Capital Improvement Plan (CIP) shows this project occurring in 2020-21, (with that worksheet as the third attachment).

145th Avenue sidewalk:

As of the Fall of 2020, the Sapphire project site is substantially complete, including a widened sidewalk from Sapphire Street, westerly along 145th Avenue to the Pump House site. The city is required to complete approximately 100' feet of sidewalk on the south side of the Pump House to make the connection to Center Street. The planning for this sidewalk will occur alongside the above Pump House Plaza planning activity.

Notification:

Observations/Alternatives:

Additional detail will be presented at the meeting.

Funding Source:

Funding for the various capital improvements (to be approved outside the scope of this case) are identified within the respective portions of the CIP or other separate Council authorization.

Recommendation:

Staff will highlight the ***Center Street Area Framework and Policy Plan*** for the meeting, and welcomes any comments or feedback the Commission may have on draft plan or its elements.

Action:

Provide comment and feedback on the Draft ***Center Street Area Framework and Policy Plan.***

Attachments

Center Street Area Framework and Policy Plan
The COR Design Framework
CIP page on pumphouse
Pump House existing conditions
Pages from COR plan
The COR Interim Plan
Site Context

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/30/2020 04:14 PM
Form Started By: Mark Riverblood		Started On: 12/29/2020 02:38 PM
Final Approval Date: 12/30/2020		

CENTER STREET AREA FRAMEWORK + POLICY PLAN

Pump House Plaza + Pump House Building + Municipal Plaza + Center Street

City of Ramsey, Minnesota
November, 2020

ACKNOWLEDGMENTS

This Framework and Policy Plan focuses on the very center of The Center of Ramsey's 320 acre downtown referred to as The COR. The fact that the community is succeeding in the primary vision of having its own downtown and identity cannot be understated. The COR is over half built-out according to plan, with favorable progress continuing even within and through the Great Recession. This is attributable to Ramsey residents, and leadership, holding to the original vision for a pedestrian oriented, successful, vibrant downtown–this Center Street Area Framework and Policy Plan is an implementation strategy that supports the vison and objectives of The COR Design Framework which cites an 'implied responsibility' to carry forth the goals in site planning and design:

"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." The Center Street Area Framework and Policy Plan does just this, by integrating and interrelating the above tenets.

The COR Design Framework goes on to list the three 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 [and within] 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.*

* The above is also mirrored in The Circle of Ramsey Greenway, of which The COR, is an integral part and a destination within.

The COR was an organic, citizen led movement in delivering an urban downtown with its amenities for the whole community, while also 'taking some of the development pressure off' the more rural areas of the city. The success in finding that balance has been due to thoughtful, reasoned residents–unified in mission and vision. Future Ramsey residents can thank today's residents and Planning Commission, Economic Development Authority, the Park and Recreation Commission, and City Council for coming together in their collective service to the community.

Parks & Assist. Public Works Superintendent,
Mark Riverblood

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Background + Purpose

Overview

The purpose of the Center Street Area Framework + Policy Plan is to advance the planning activity for several interrelated projects within this district. Several of these project have timelines that require the work to commence as soon as possible. A summary list of current and potential future projects includes:

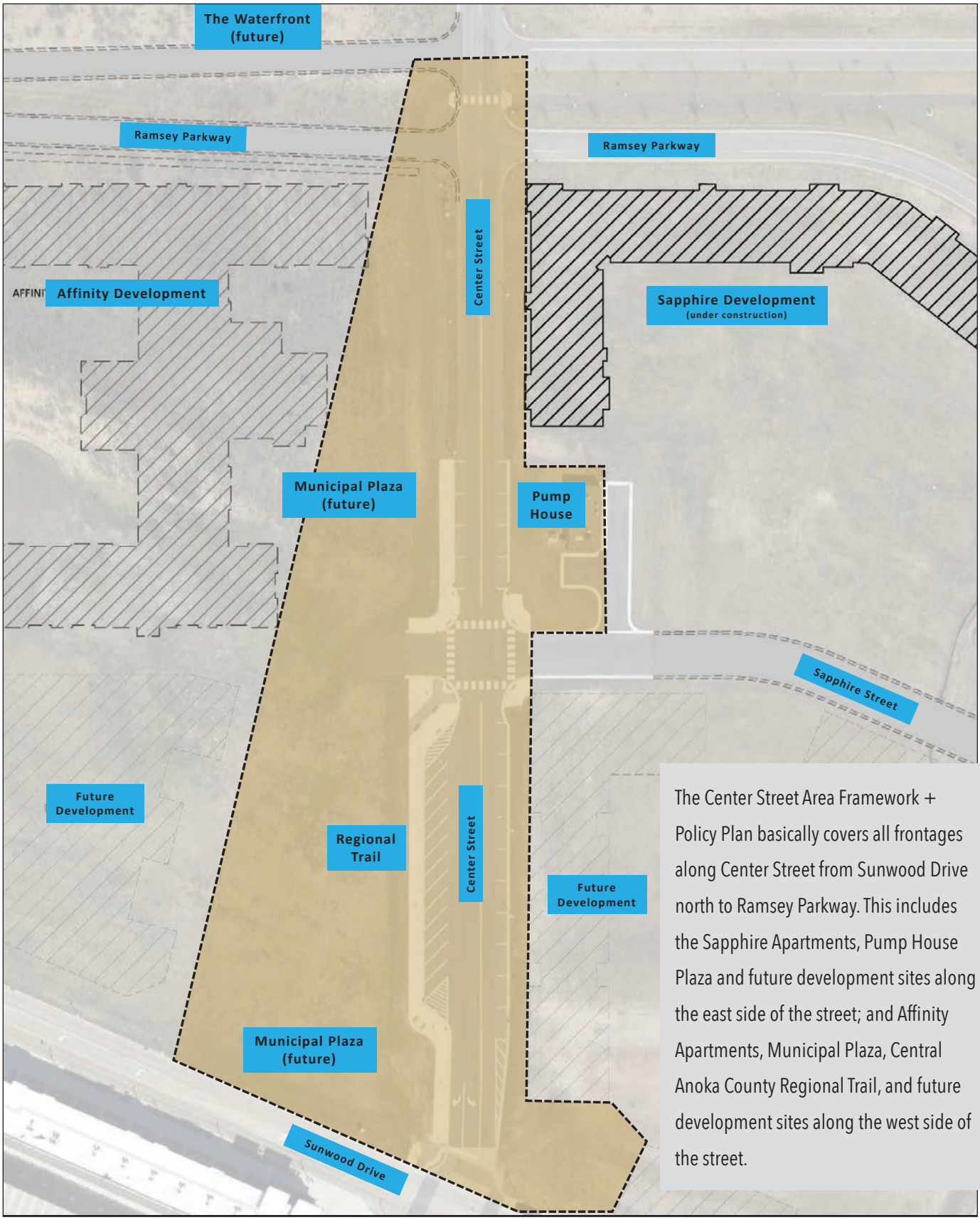
- Center Street sidewalk(s) in front of the Sapphire building;
- Center Street streetscape/trail (west side) near the interface of the Affinity and Municipal Plaza;
- Municipal Plaza (north) at the interface with Affinity;
- Municipal Plaza (south) the larger Happy Days site;
- Pump House Plaza the area immediately surrounding the small Pump House No. #3;
- Pump House Exterior potential facade improvements;
- 145th Avenue sidewalk connecting to Center Street.

Outcomes + Deliverables

As indicated, the above project listing is merely a summary outline of the work to be performed; the detailed Scope of Services (provided by the Consultant Team), will result in design guidelines to allow the city to develop specifications (cross-sections with details) such that quotations may be sought for work that must be completed like the sidewalk/streetscape adjoining the Sapphire building. Additionally, the scope and cost of other features may be better understood, and accordingly, will result in the ability to proceed with improvements to Municipal Plaza, and the Pump House site (plaza, concrete, landscaping and conceivably an attached public restroom), at such time it is authorized by City Council, (in 2021 or thereafter).

Further, the above referenced Scope of Services will develop the design for the Pump House facade and related architectural treatments, and result in a Design-build RFP that will provide City Council with the cost and contractor (upon approval) that can complete the 2020 Capital Improvement Project for Municipal Pump House #3.

Coverage Diagram

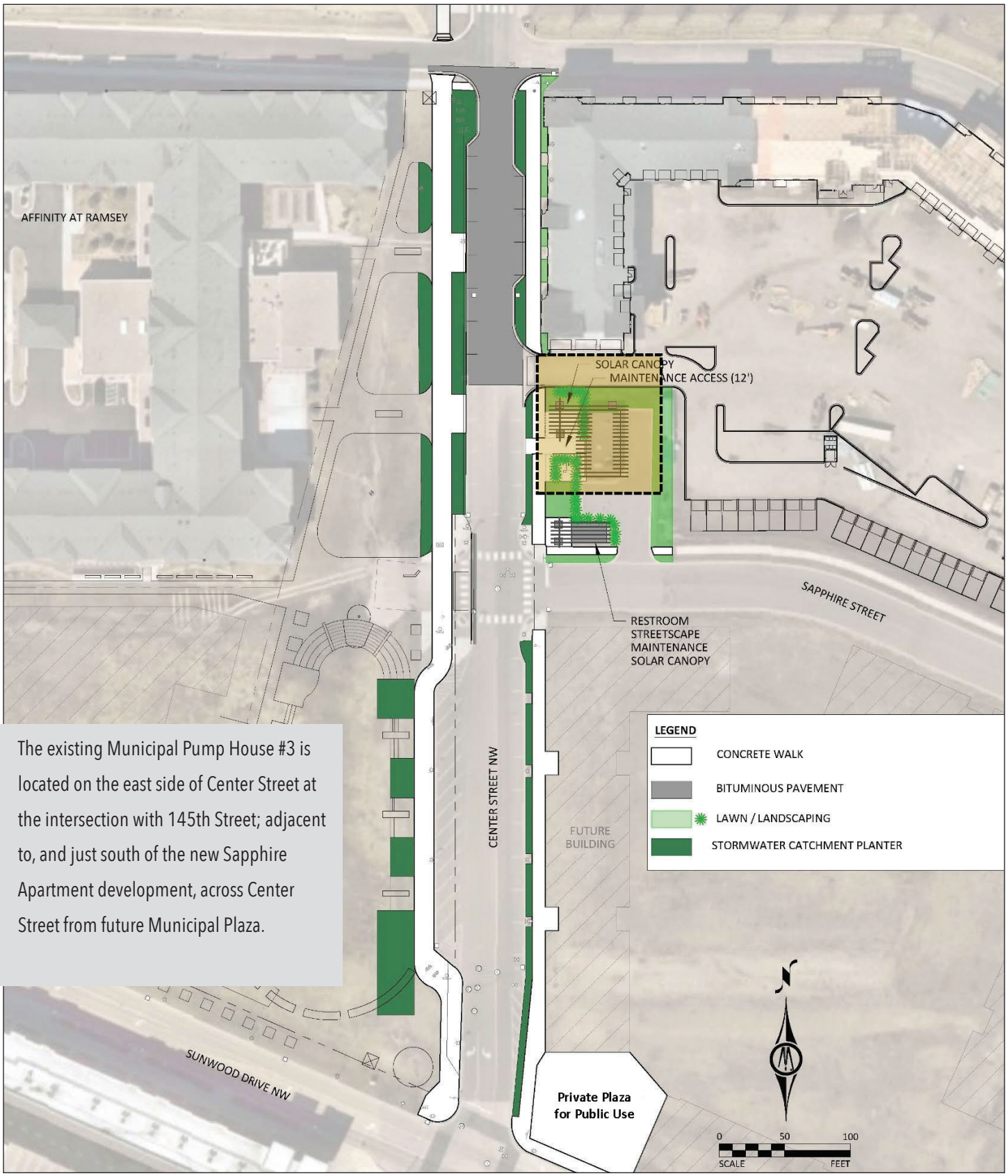


The Center Street Area Framework + Policy Plan basically covers all frontages along Center Street from Sunwood Drive north to Ramsey Parkway. This includes the Sapphire Apartments, Pump House Plaza and future development sites along the east side of the street; and Affinity Apartments, Municipal Plaza, Central Anoka County Regional Trail, and future development sites along the west side of the street.

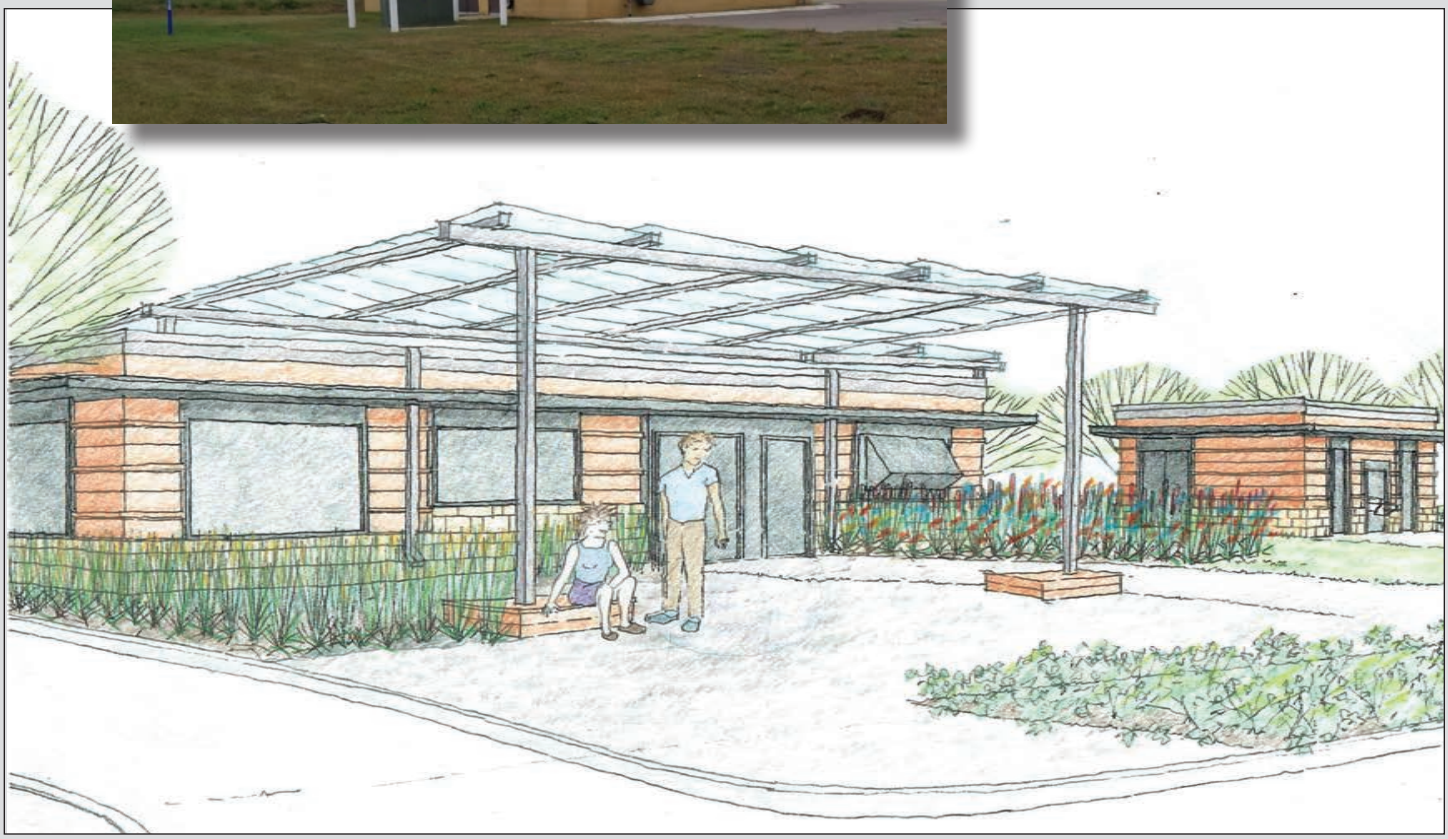
Components Diagram

As introduced earlier, the Center Street Area promotes the idea that a variety of individual projects, when designed and built as part of an integrated whole, will create the desired character and connections that make Center Street a crucial crossroads and activity center for the Center of Ramsey. The projects listed on the Components Diagram provide the outline/organization for the rest of this Framework + Policy Plan. Each of the following sections will include project location, site plan, site details, preliminary cost evaluation, and other graphic/narrative description as needed to clarify design intent.

Pump House Building Location Map



The existing Municipal Pump House #3 is located on the east side of Center Street at the intersection with 145th Street; adjacent to, and just south of the new Sapphire Apartment development, across Center Street from future Municipal Plaza.



Pump House Building

PROJECT DESCRIPTION

Since the time of its construction, Municipal Pump House #3 has been a simple concrete masonry building. As new development occurs around it, Pump House #3's appearance can contribute to the character of surrounding buildings and the proposed plaza by applying new exterior finishes to the existing building. Stone, wood, and metal finishes and colors compliment other civic buildings in Ramsey Downtown District.

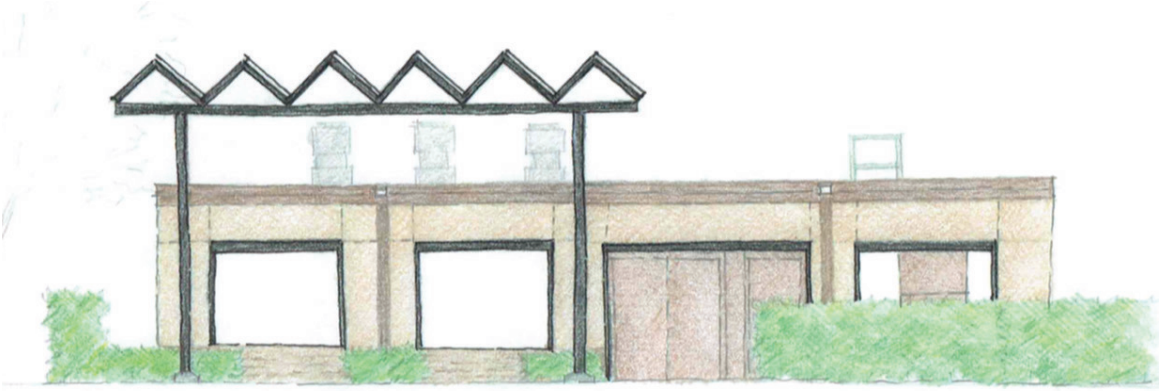
Note: the sequence of project design and construction will begin with Pump House Building facade improvements, followed by Pump House Plaza site and landscape improvements, and then additional project feasibility evaluation and detailed design related to the Rest Room + Maintenance Building.

Preliminary estimate of potential construction cost: $175,000 - 190,000

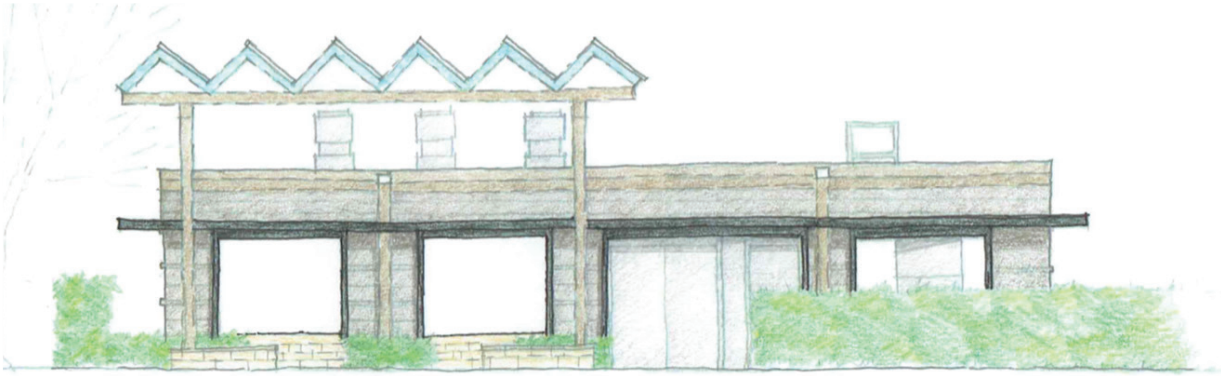
The feasibility of adding photo-voltaic array over Pump House #3 and the adjacent plaza, shall be evaluated based upon additional cost estimates and pay-back timeline.

Pump House Building Project Elements

Three alternative exterior façade treatments have been considered:



- Concept A: Split-faced concrete masonry & cement board siding



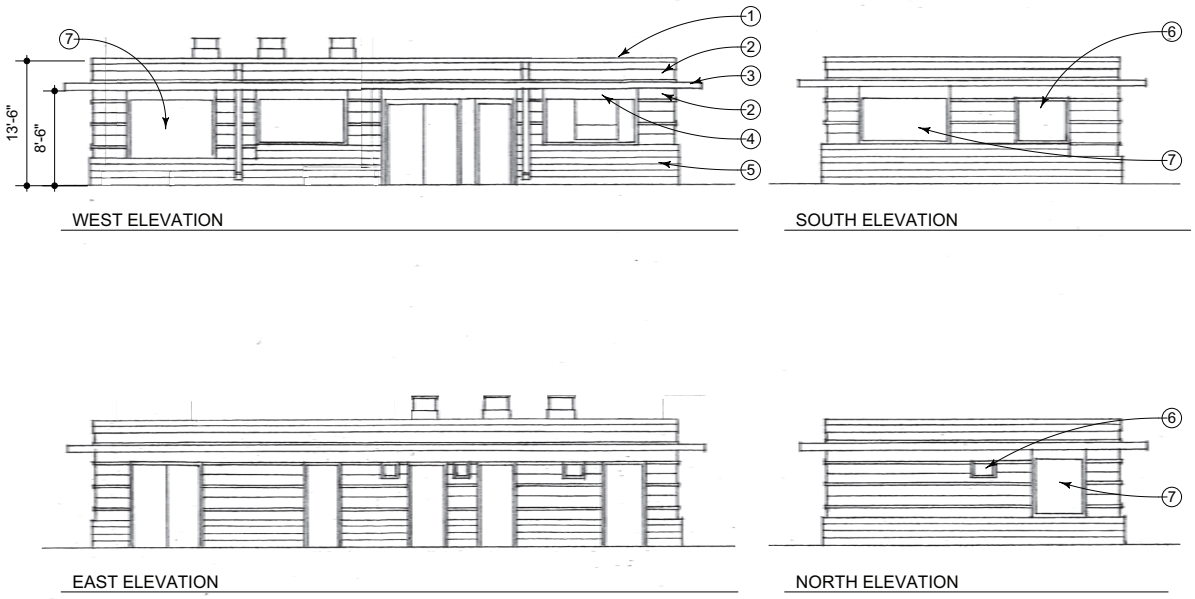
- Concept B: Limestone & wood siding

- Concept C: Limestone & brick

Based on design refinements, cost considerations, the limestone and wood siding alternative has been selected for design development.

Pump House Building Project Elements

Concept B Developed Design.

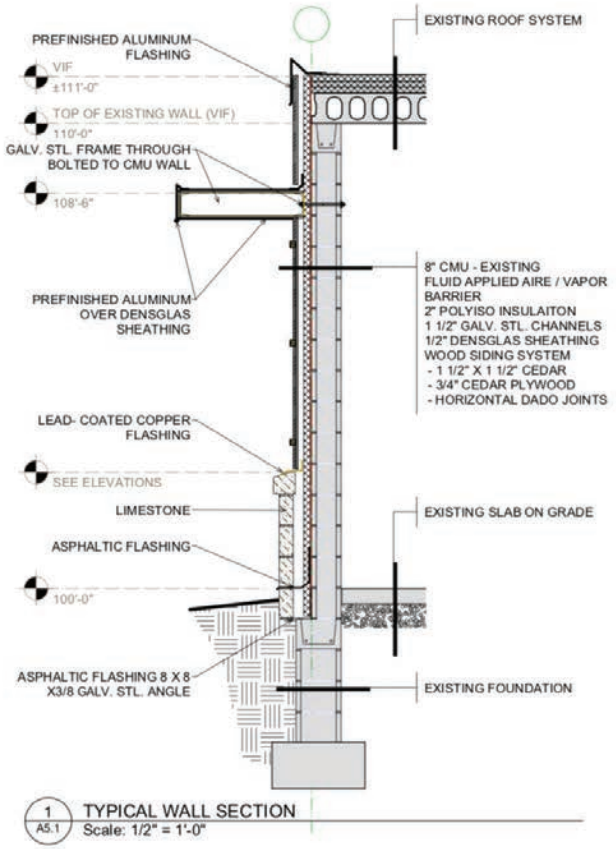


BUILDING ELEVATIONS AT PUMP HOUSE- CONCEPT B.1

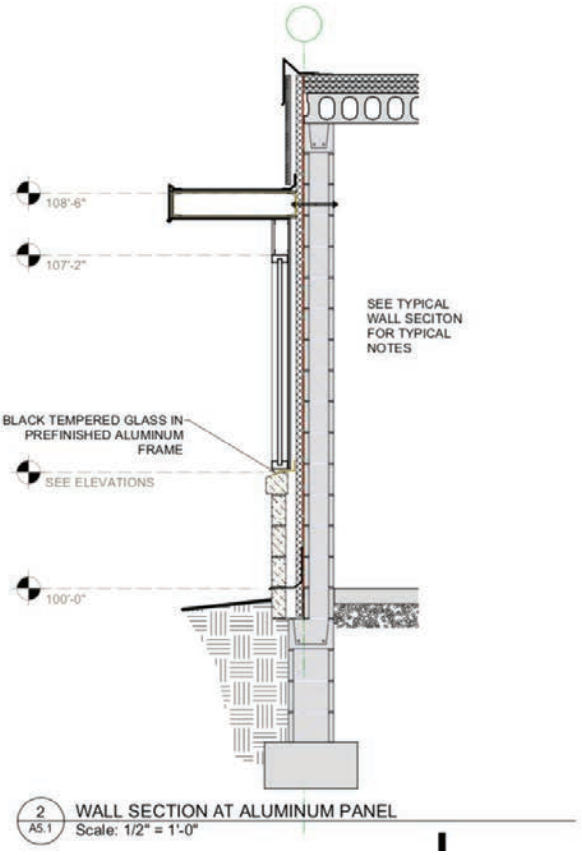
SCALE: 1/8" = 1'-0"

NOTES

1 ALUMNINUM CAP FLASHING
2 WOOD SIDING
3 ALUMINUM EYEBROW
4 ALUMINUM FRAME
5 LIMESTONE BASE
6 EXISTING VENT
7 SMOKED GLASS WITH ALUMINUM FRAME

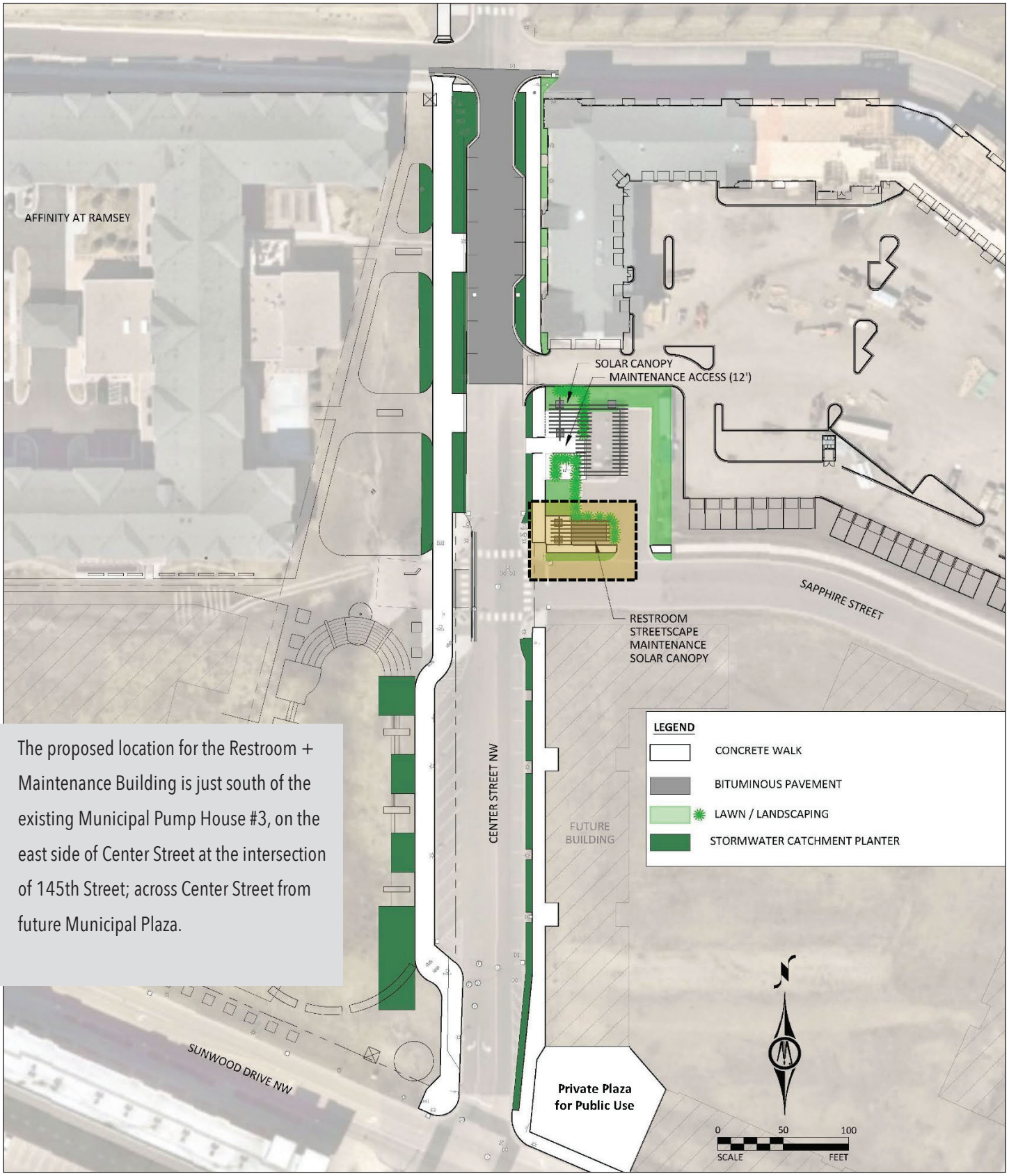


1 A5.1 TYPICAL WALL SECTION
Scale: 1/2" = 1'-0"



2 A5.1 WALL SECTION AT ALUMINUM PANEL
Scale: 1/2" = 1'-0"

Restroom + Maintenance Building Location Map



The proposed location for the Restroom + Maintenance Building is just south of the existing Municipal Pump House #3, on the east side of Center Street at the intersection of 145th Street; across Center Street from future Municipal Plaza.

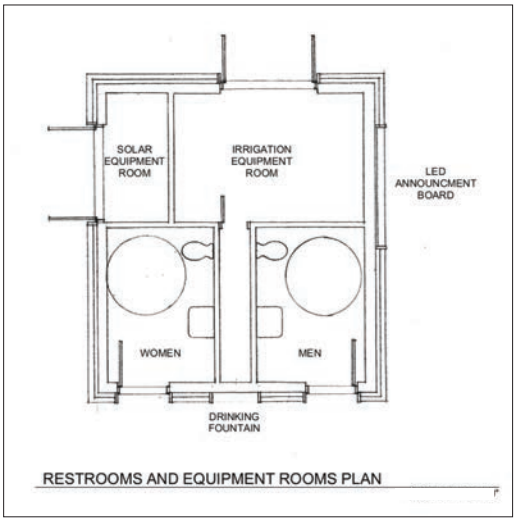
Restroom + Maintenance Bldg

PROJECT DESCRIPTION

A proposed Restroom + Maintenance Building will be sided with the same materials as the adjacent Pump House #3. This building will support community activities at Center Street's Municipal Plaza. It will also house equipment for the plaza's irrigation system and for the solar array at the Pump House building.

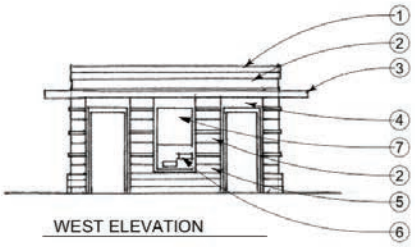
Note: the sequence of project design and construction will begin with Pump House Building facade improvements, followed by Pump House Plaza site and landscape improvements, and then additional project feasibility evaluation and detailed design related to the Rest Room + Maintenance Building.

Potential construction cost included in preliminary estimate for the Stormwater Management System described on page 27.

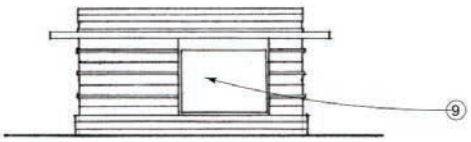


RESTROOMS AND EQUIPMENT ROOMS PLAN

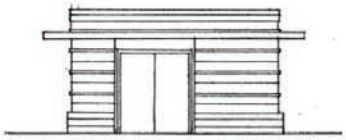
Restroom + Maintenance Bldg Project Elements



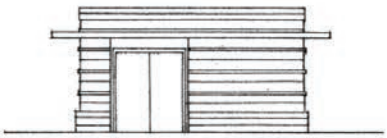
WEST ELEVATION



SOUTH ELEVATION



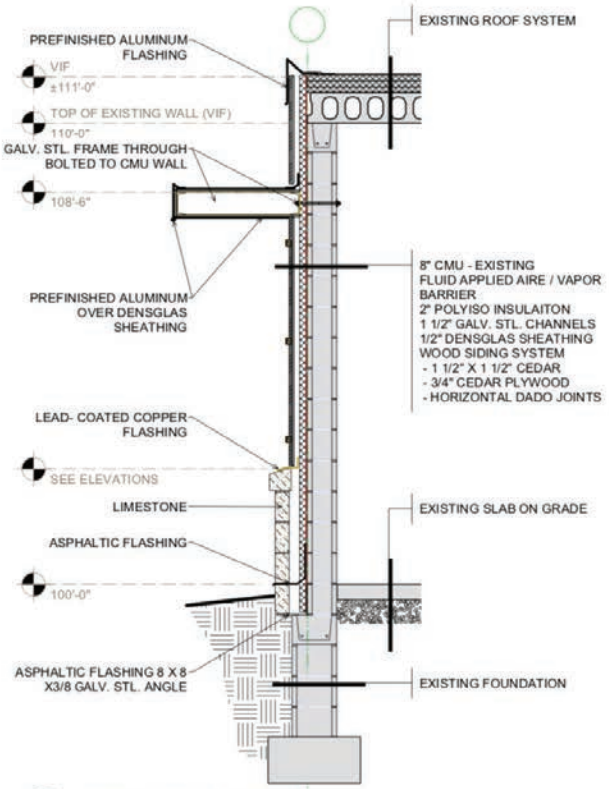
EAST ELEVATION



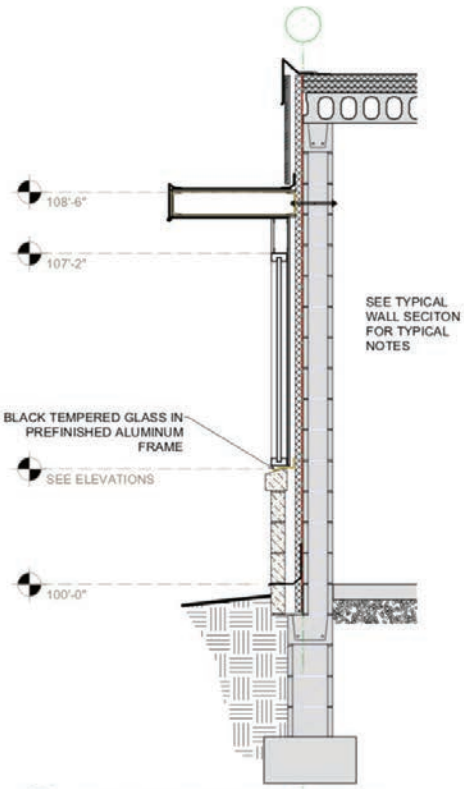
NORTH ELEVATION

NOTES

1 ALUMNINUM CAP FLASHING
2 WOOD SIDING
3 ALUMINUM EYEBROW
4 ALUMINUM FRAME
5 LIMESTONE BASE
6 DRINKING FOUNTAIN
7 LED DISPLAY
8 EXISTING VENT
9 SMOKED GLASS WITH ALUMINUM FRAME



1 A5.1 TYPICAL WALL SECTION
Scale: 1/2" = 1'-0"

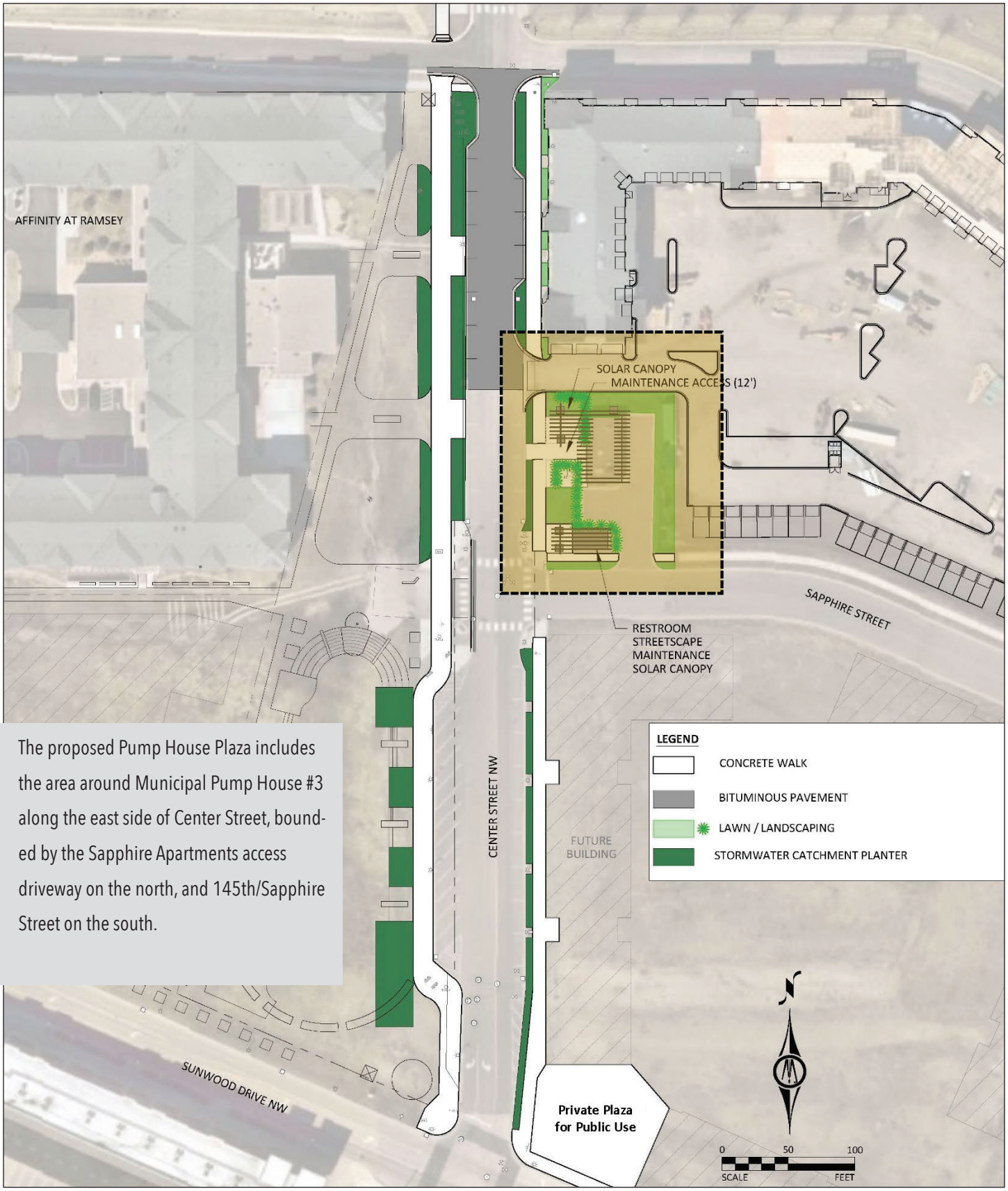


2 A5.1 WALL SECTION AT ALUMINUM PANEL
Scale: 1/2" = 1'-0"

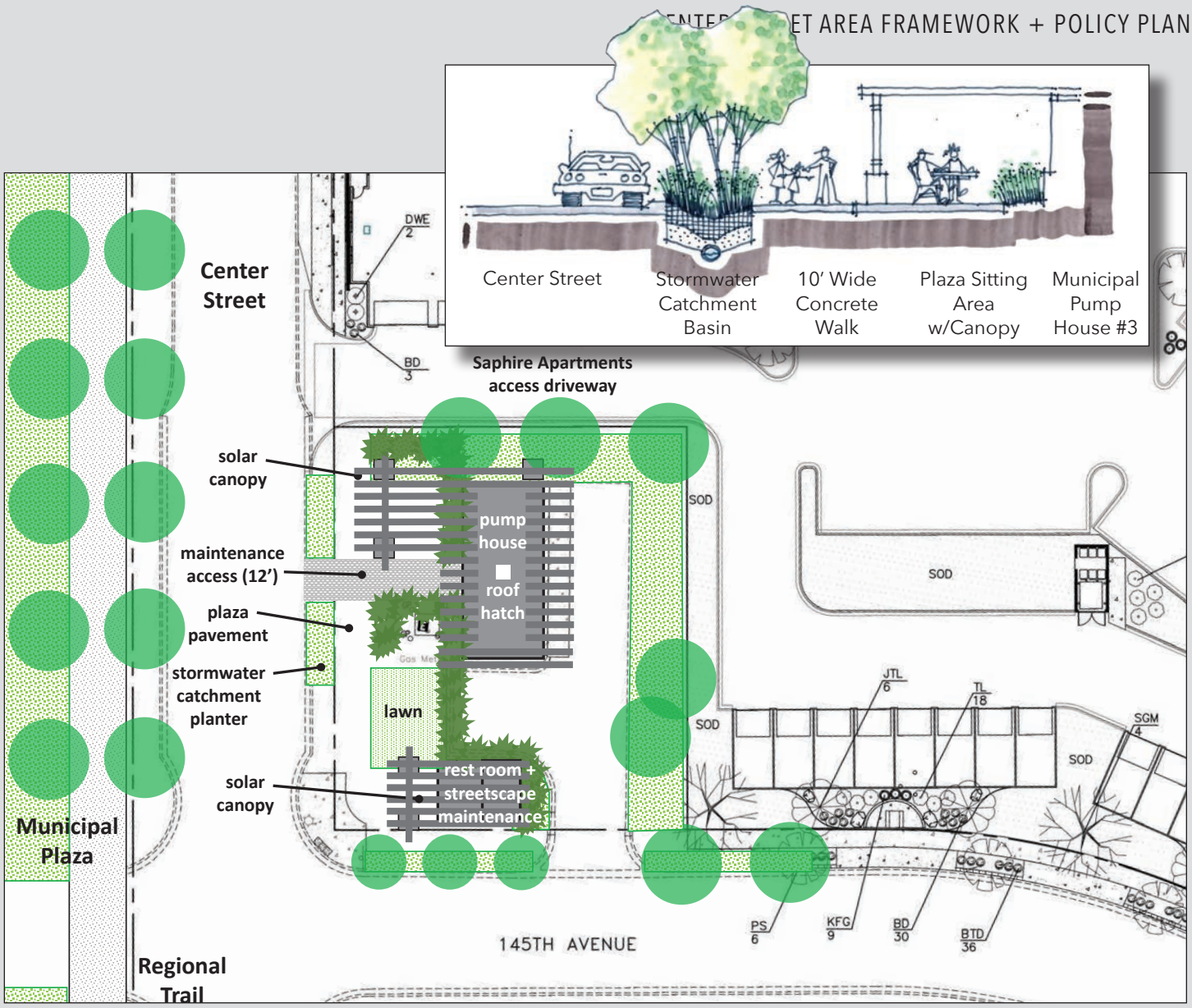
Restroom + Maintenance Bldg Project Elements

A LED Community Information Board is proposed for the Sapphire Street façade of the Restroom + Maintenance Building. This LED display panel can be used to announce events of community interest, to present the schedule for Municipal Plaza activities, display digital art, etc.(These images shows the capabilities of LED panels.)

Pump House Plaza Location Map



The proposed Pump House Plaza includes the area around Municipal Pump House #3 along the east side of Center Street, bounded by the Sapphire Apartments access driveway on the north, and 145th/Sapphire Street on the south.



Pump House Plaza

PROJECT DESCRIPTION

The Conceptual Site Plan for Pump House Plaza includes the following elements:

- Paved plaza/sitting area along east façade of the Pump House Building;
- Solar canopy/shade structure over the plaza/sitting area;
- Paved (10' minimum width) north/south pedestrian walkway;
- Stormwater catchment basin/planters between pedestrian walk and Center Street;
- Small open lawn/flex space for information/crafts/food tent and other uses;
- Variety of landscape plantings to provide shade, color, screening.

Note: the sequence of project design and construction will begin with Pump House Building facade improvements, followed by Pump House Plaza site and landscape improvements, and then additional project feasibility evaluation and detailed design related to the Rest Room + Maintenance Building.

Preliminary estimate of potential construction cost: $70,000 - 90,000

The primary objective is to create a series of smaller, pedestrian-scaled public spaces along the east side of Center Street to complement and enhance Municipal Plaza, especially for various events that include the temporary closure of the street.

All three of these major elements (Municipal Plaza, Center Street, east frontage public spaces) will seamlessly fit together, including consistent materials, finishes and furnishings to create a unique identity and inviting destination crossroads in the heart of the COR District.

Pump House Plaza Project Elements

Pavement

Concrete plaza with broom finish and tooled joints to create interesting pattern is preferred; color additives, acid tints or etching, and exposed aggregate are other acceptable options.

Furniture

Light weight (moveable) and stackable furniture in a variety of colors is preferred; many choices available, but should consider consistent or complimentary 'family' of furniture for all COR public places.

Stormwater Basins

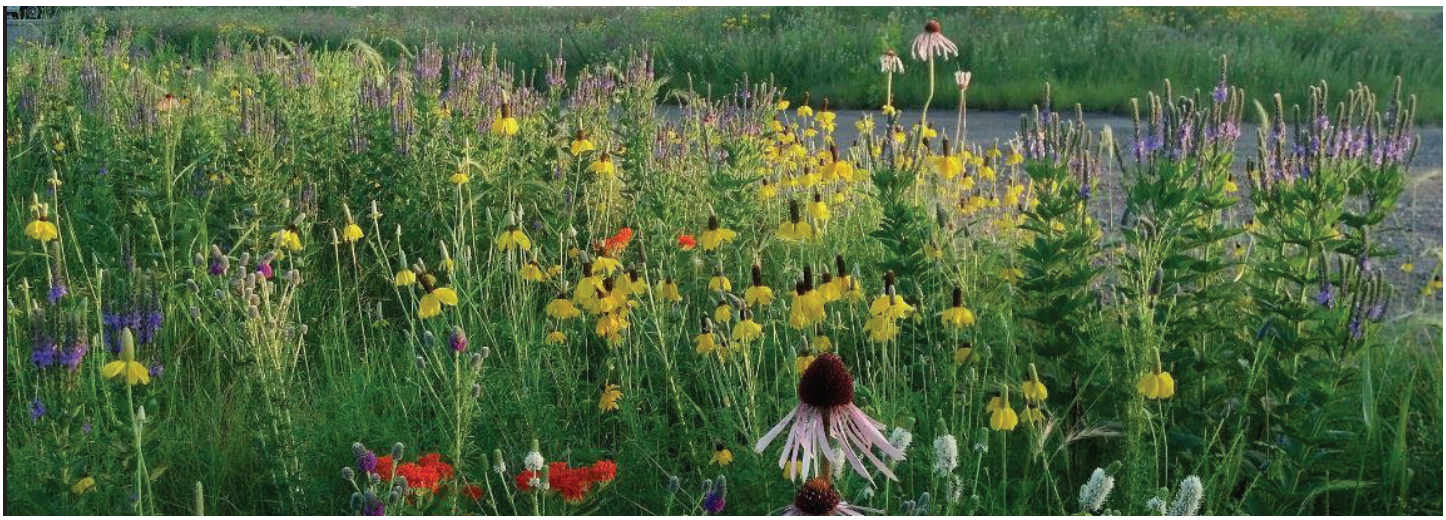
Curb-cuts on both street side and plaza side of each basin direct surface water flow, but still create a physical/visual separation for pedestrian circulation, snowplowing and other maintenance operations.

Pump House Plaza Project Elements

Water Feature

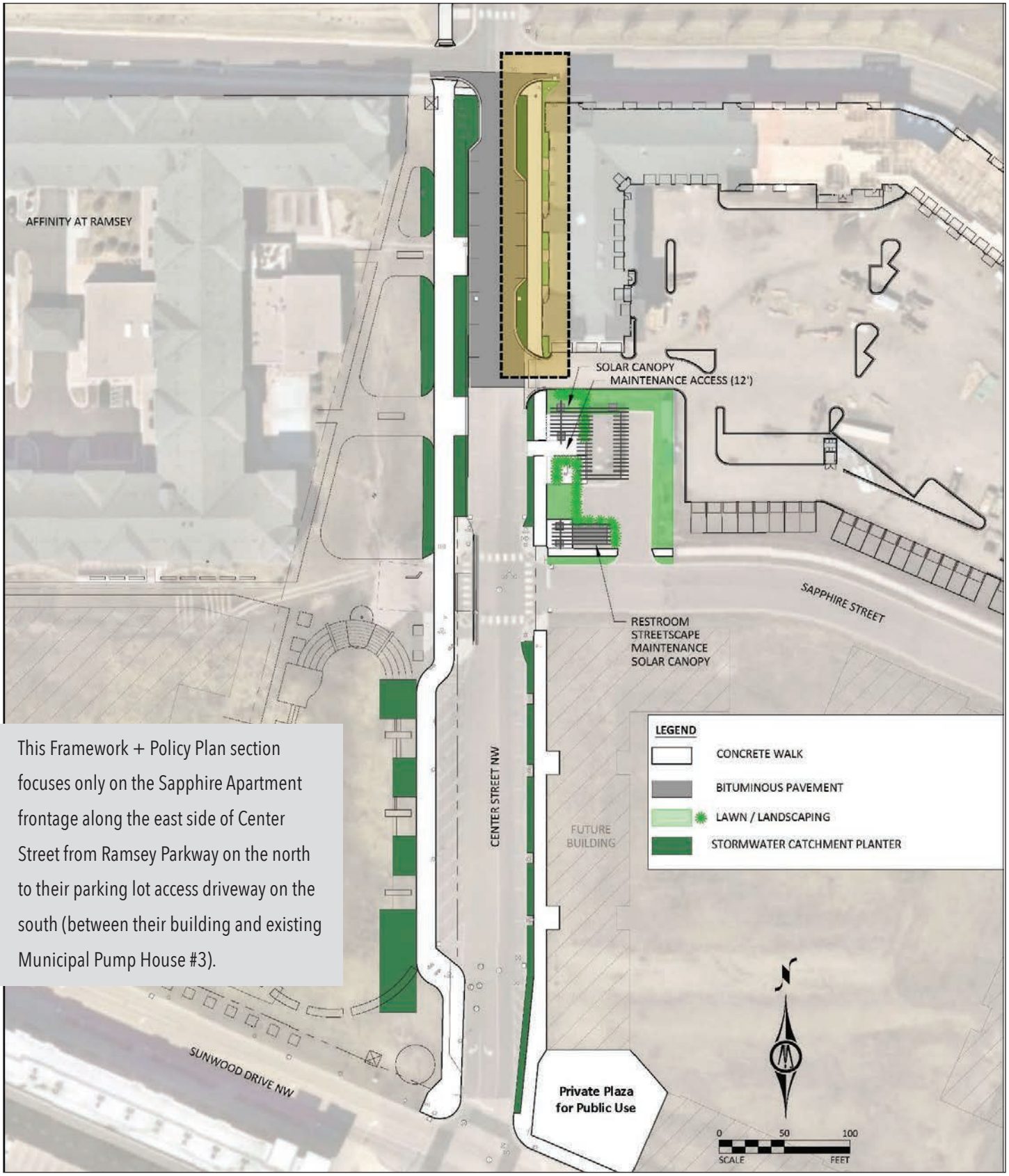
The soothing sound of water can be an important element in the design of public places; small, self-contained water features are preferred, for ease of maintenance, winter shut-down and other considerations.

Landscape

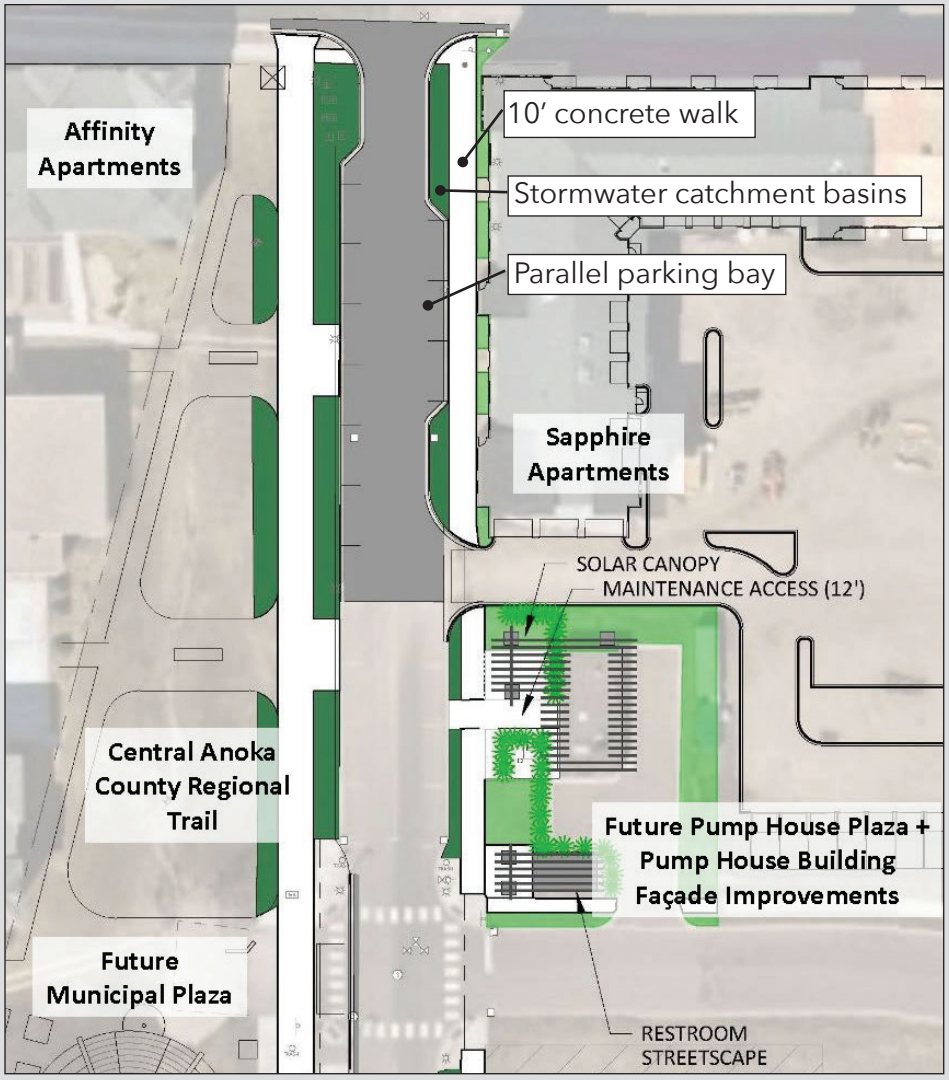


Landscape elements should reflect, or compliment, existing streetscape plantings, and further promote a consistent COR District identity and character; a simple landscape palette provides shade, seasonal color, screening (parking areas/utility boxes), and softens building elevations.

Sapphire Apartment Frontage Location Map



This Framework + Policy Plan section focuses only on the Sapphire Apartment frontage along the east side of Center Street from Ramsey Parkway on the north to their parking lot access driveway on the south (between their building and existing Municipal Pump House #3).



Sappphire Apartment Frontage

PROJECT DESCRIPTION

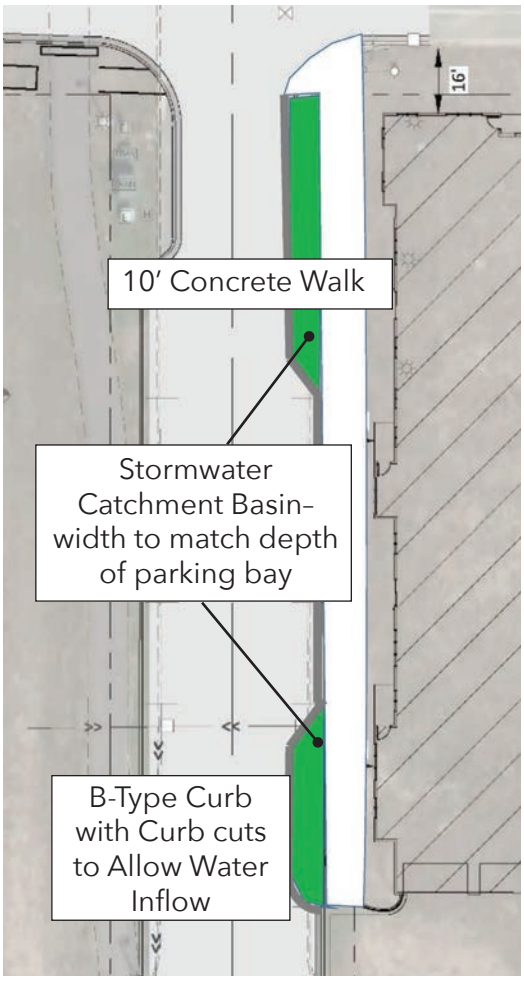
The Concept Site Plan for the Sapphire Apartment Frontage along the east side of Center Street includes three primary elements:

- A 10' wide concrete walk;
- Stormwater catchment basins;
- Parallel parking bay.

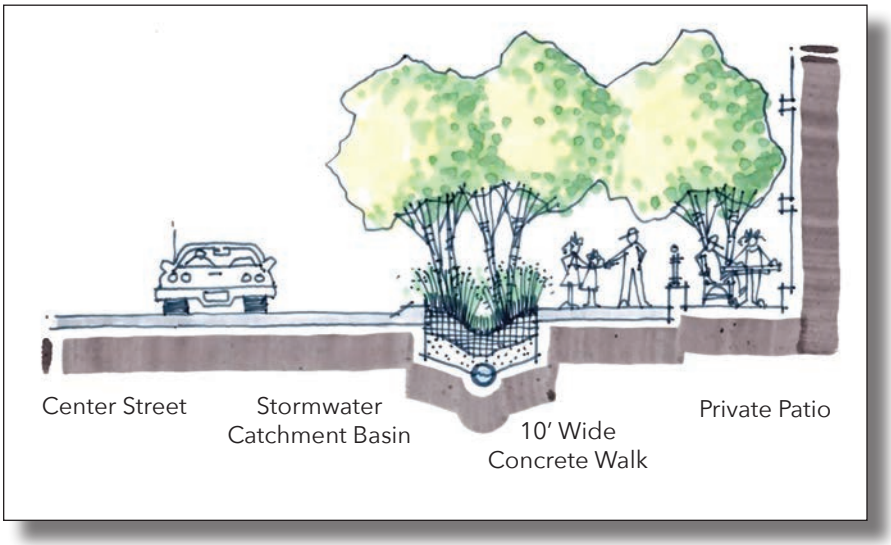
Preliminary estimate of potential construction cost: $65,000 - 80,000

The Sapphire Apartment Frontage will be the first segment of public (pedestrian) realm to be completed, and as such plays an important role in establishing these elements as the benchmark for future projects along the east side of Center Street. A gracious walkway width (10'), connected stormwater basins, and landscape plantings that complement existing streetscape, will not only further enhance the desired Downtown District street character, but also set design expectations for Pump House Plaza and the now-vacant development site at Sunwood Drive.

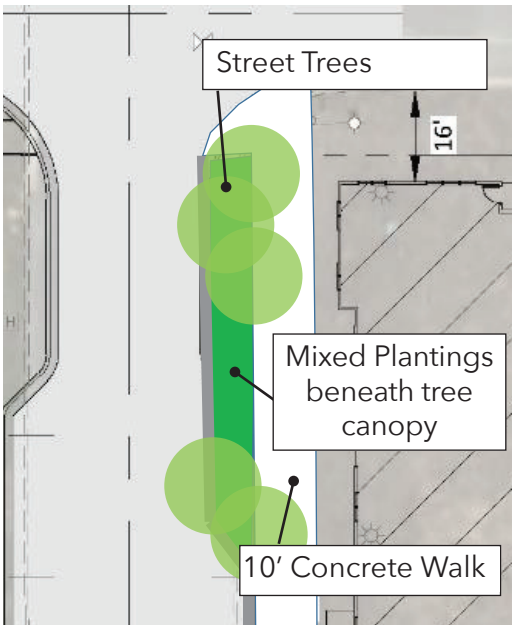
Sapphire Apartment Frontage Project Elements

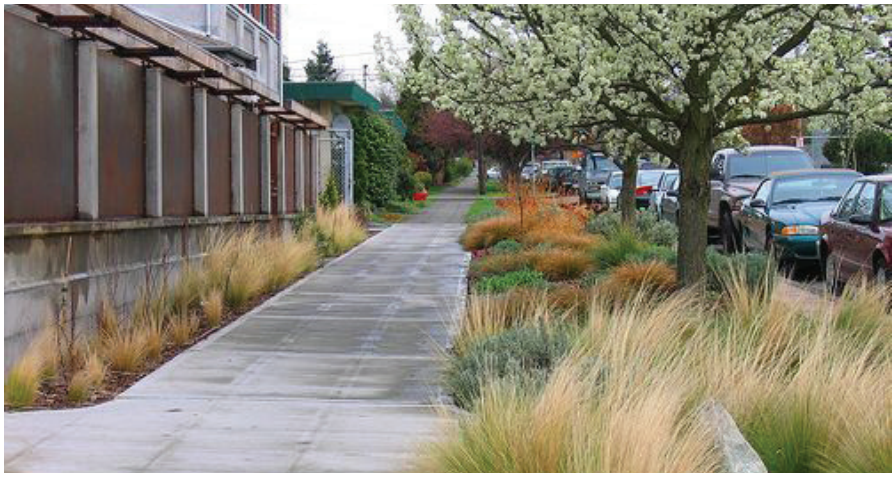


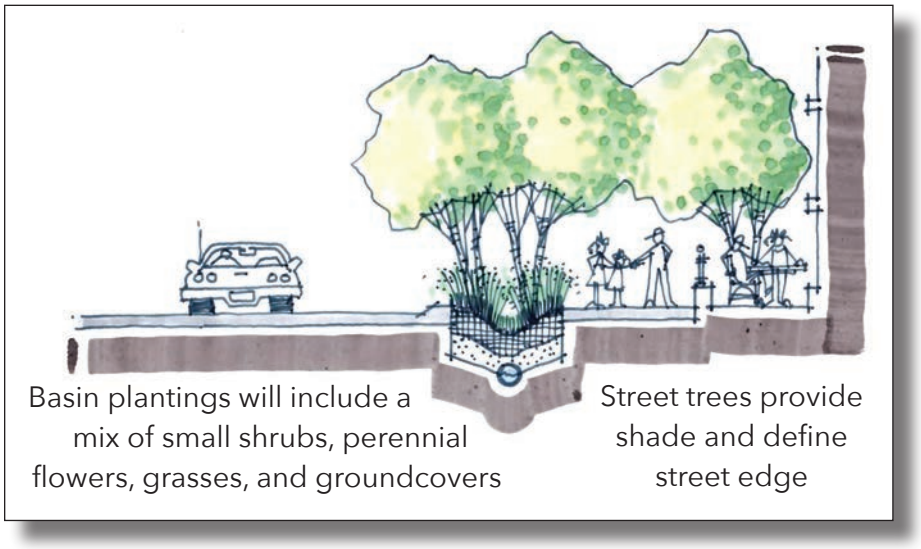
Stormwater catchment basins will be connected to existing storm sewer located in Center Street – future phases will route this water to underground cisterns in Municipal Plaza for irrigation and other re-use purposes.



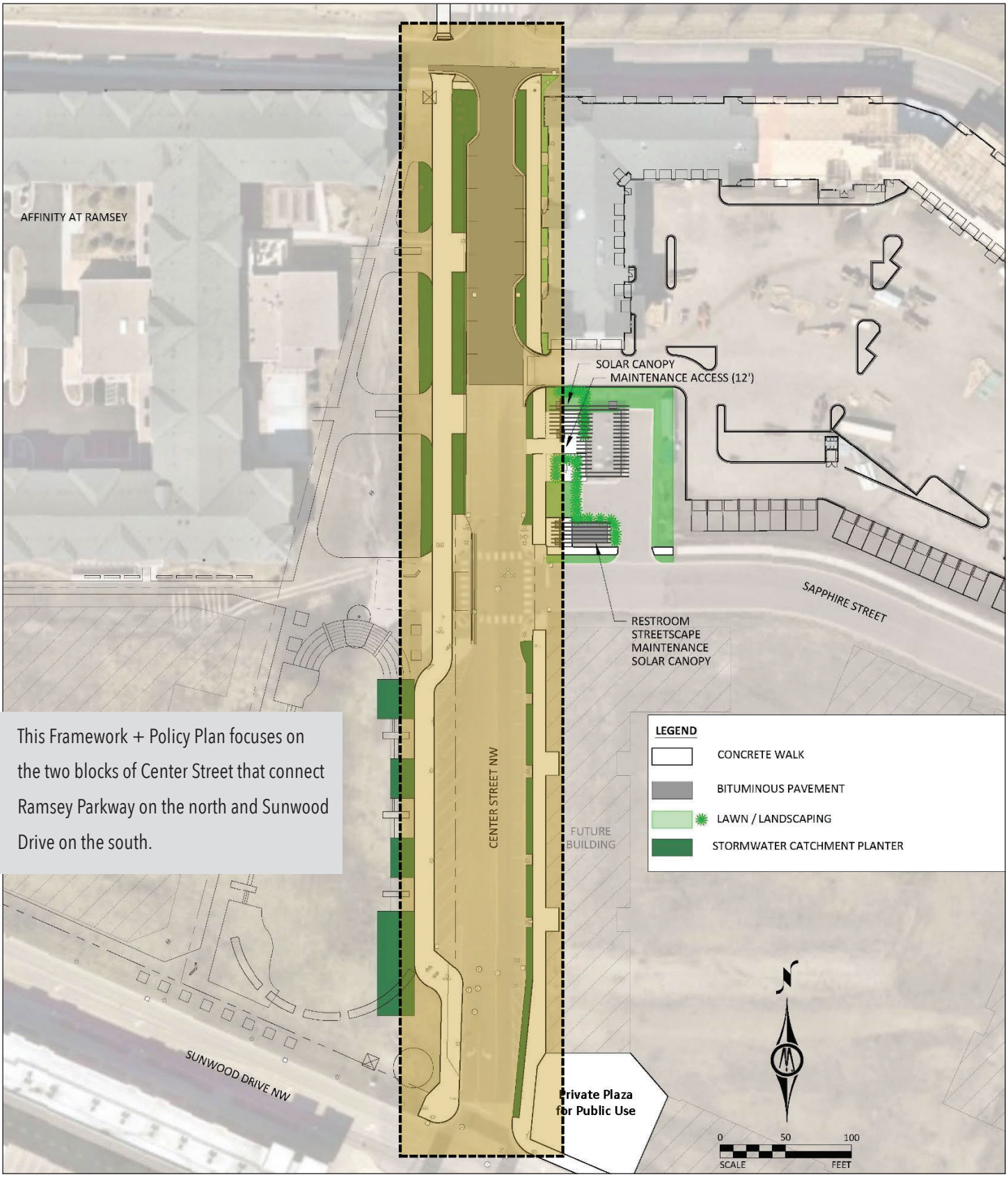
Sapphire Apartment Frontage Project Elements



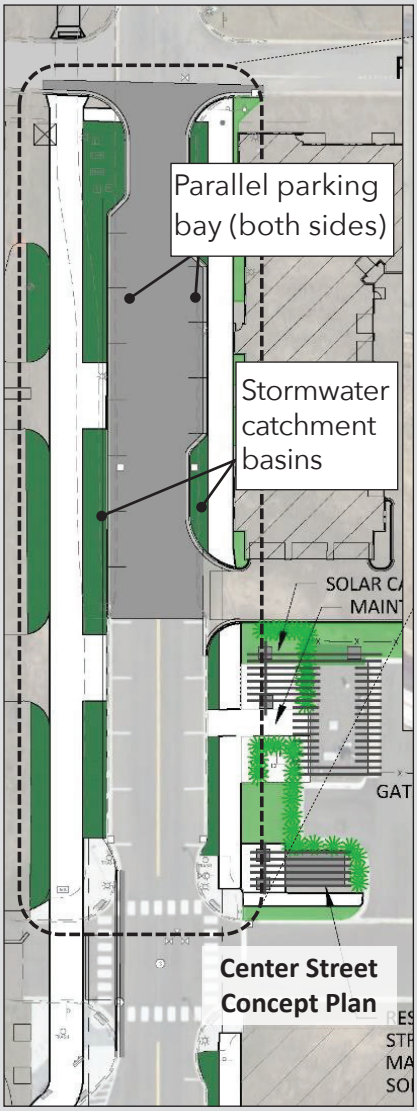


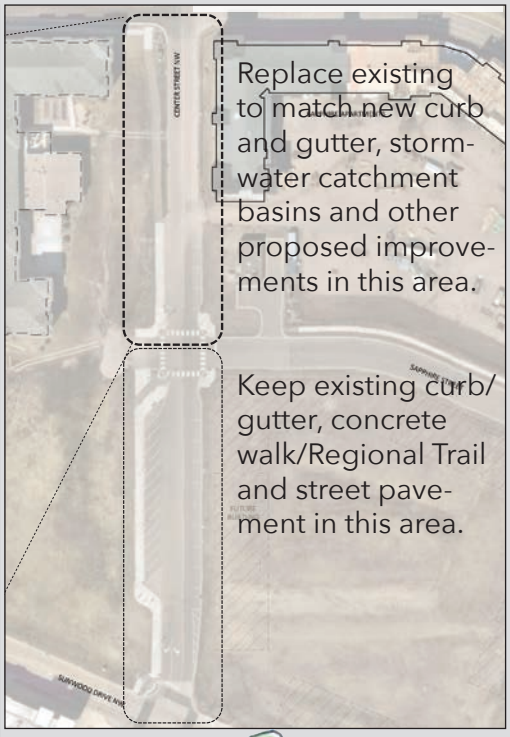


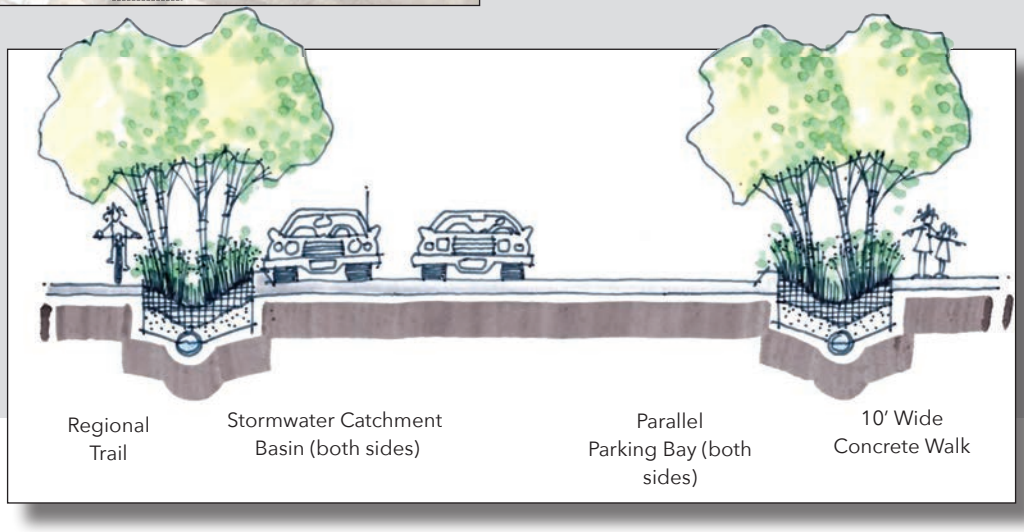
Center Street Location Map



This Framework + Policy Plan focuses on the two blocks of Center Street that connect Ramsey Parkway on the north and Sunwood Drive on the south.







Center Street

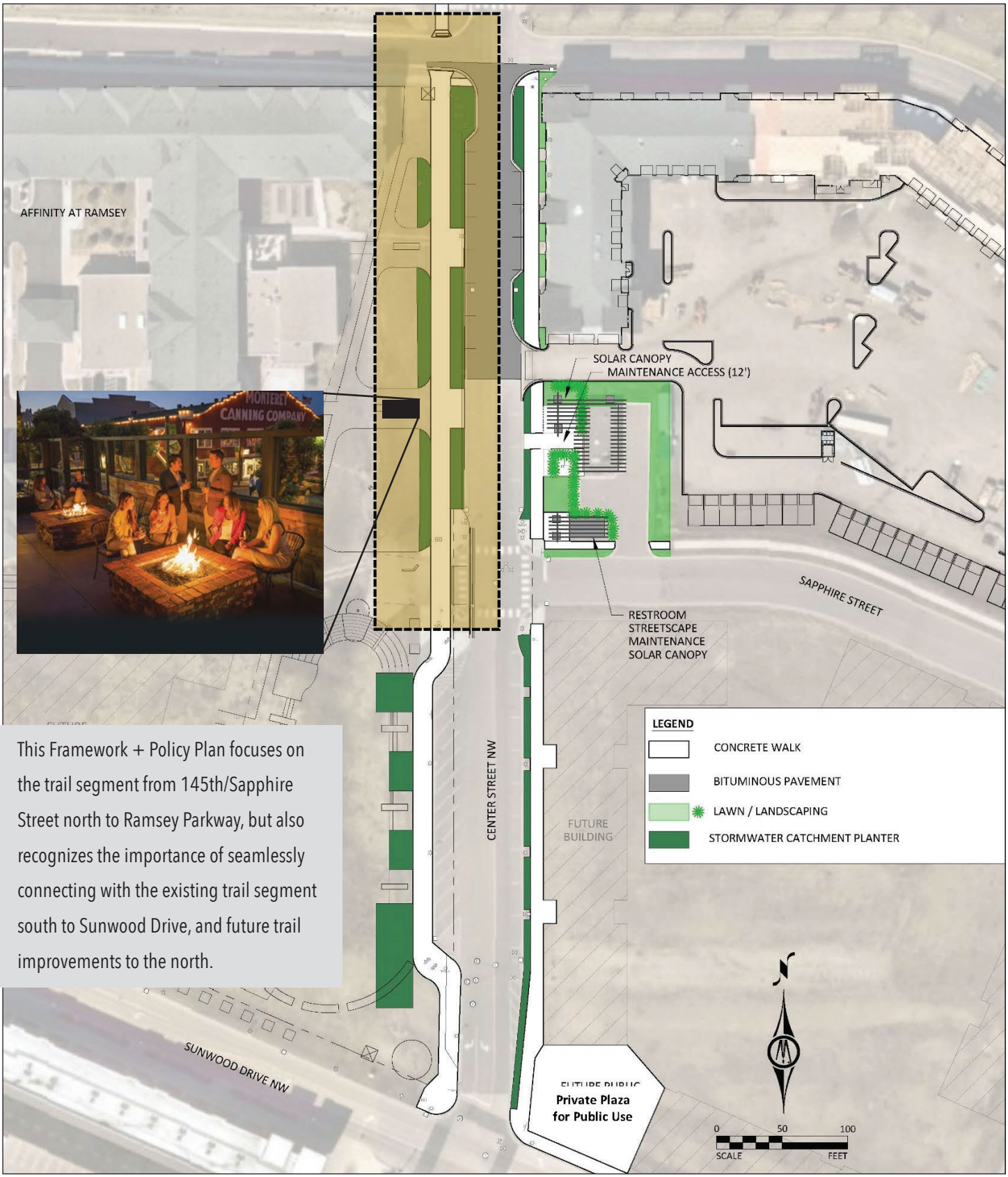
PROJECT DESCRIPTION

The primary purpose of the Conceptual Site Plan for Center Street is to illustrate how this key north/south connector ties together all the other pieces of this Framework + Policy Plan. At the same time, it also promotes various opportunities for innovative district infrastructure as an integral part of current and proposed street, park, trail and private development project design – suggesting shared systems for stormwater capture/reuse, energy production/distribution, waste handling/recycling and other technologies.

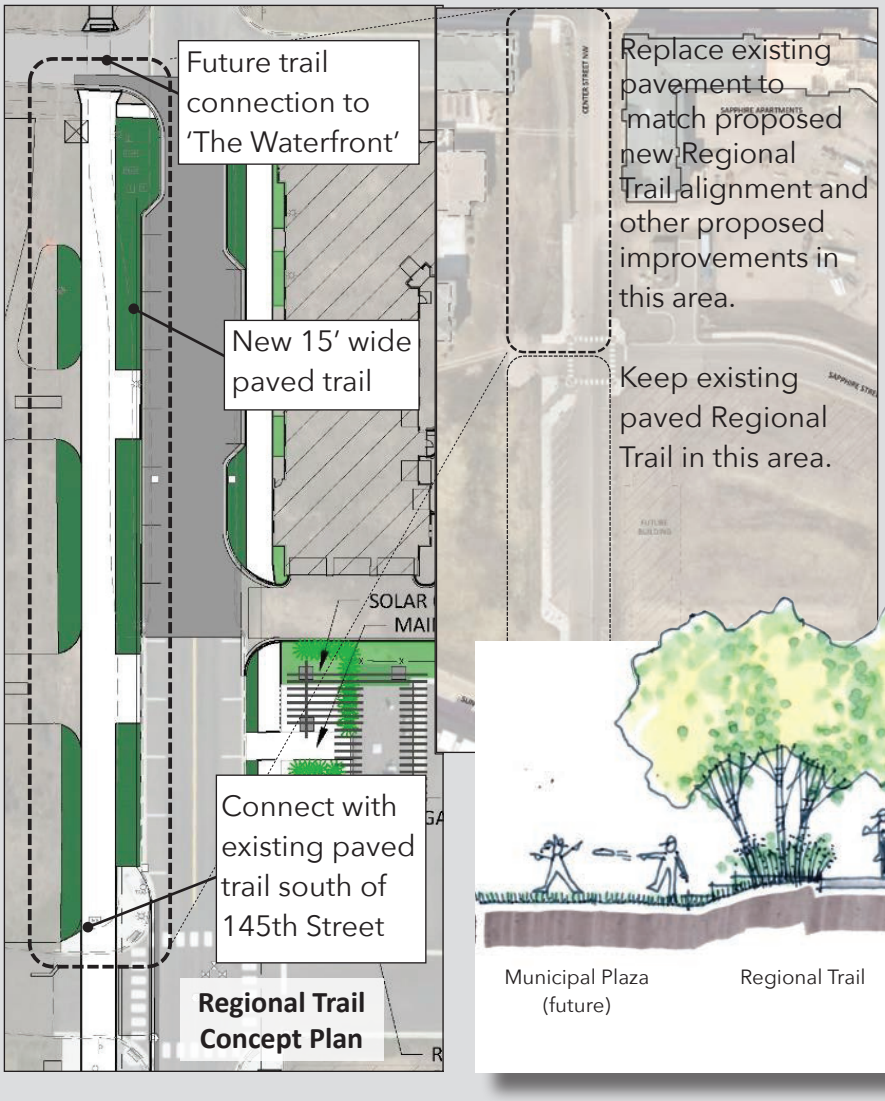
Potential construction cost to be determined as part of other Center Street projects.

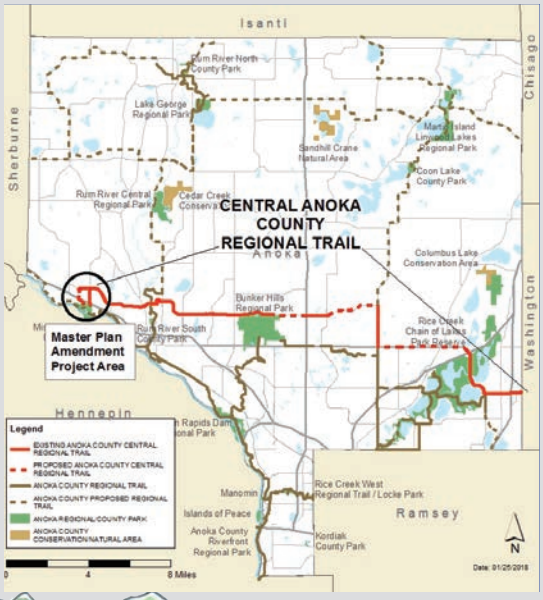
It's important to note however, that this document also presents a somewhat cautious approach, seeking to minimize disruption to existing Center Street improvements. The basic objective is to work with existing curb lines, parking bays and other pavement dimensions as the starting point for completing street construction to Ramsey Parkway and northward to Bunker Lake Boulevard. (Also refer to the Sapphire Apartments Frontage and Central Anoka County Regional Trail information in this Plan)

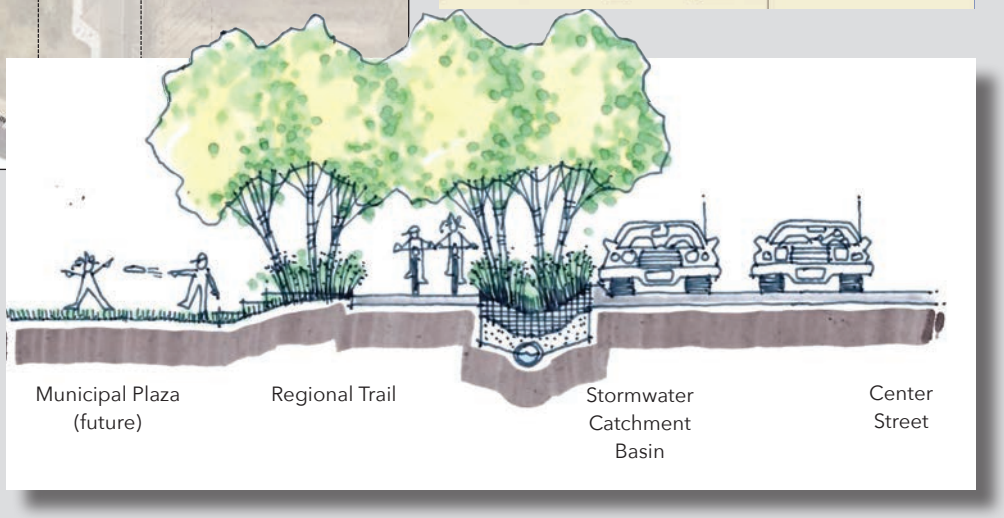
Regional Trail + Municipal Plaza Location Map



This Framework + Policy Plan focuses on the trail segment from 145th/Sapphire Street north to Ramsey Parkway, but also recognizes the importance of seamlessly connecting with the existing trail segment south to Sunwood Drive, and future trail improvements to the north.







Regional Trail + Municipal Plaza

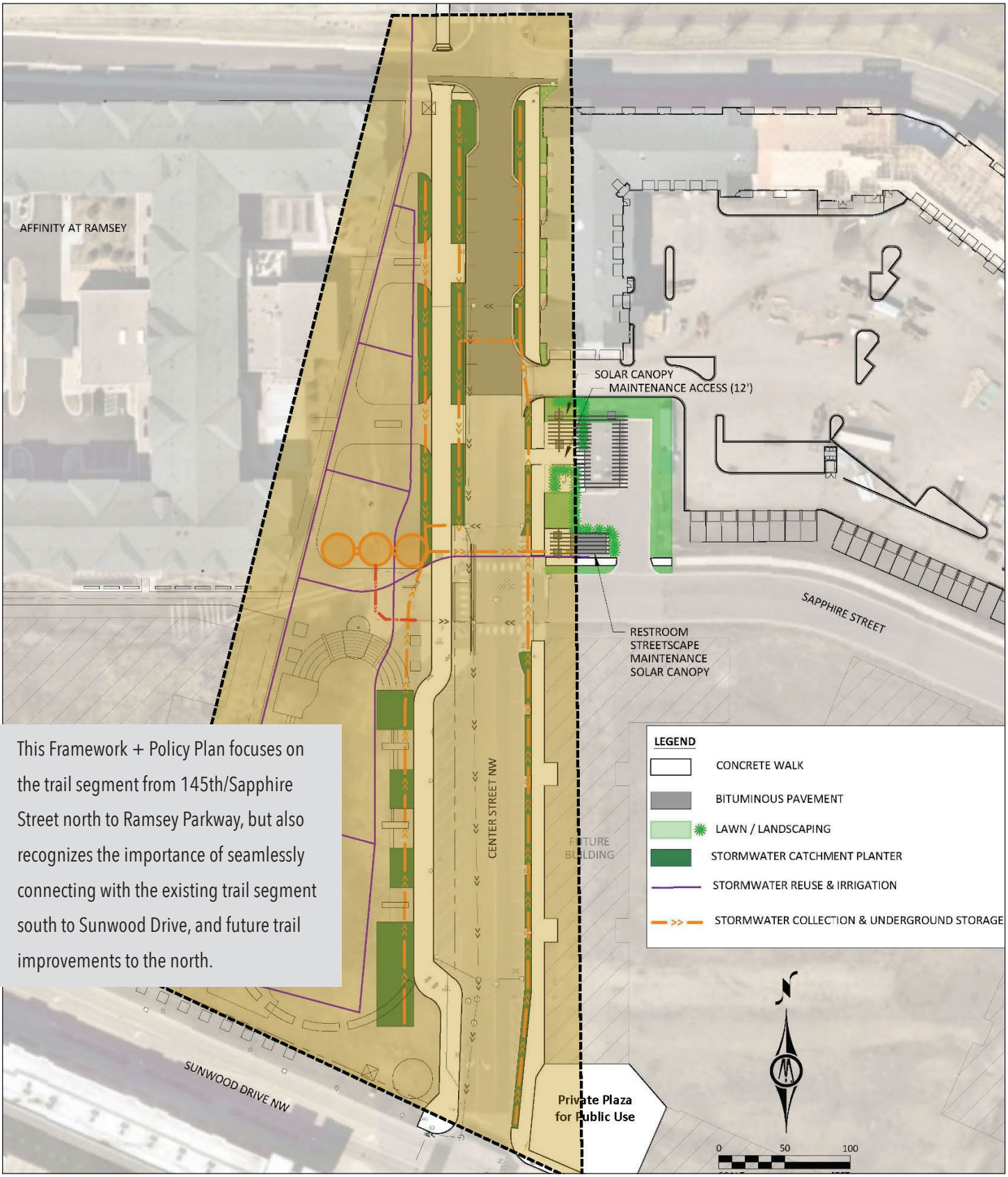
PROJECT DESCRIPTION

The Central Anoka County Regional Trail is a 26 - mile paved regional trail that traverses the middle of the county connecting Mississippi West Regional Park in Ramsey, to Bunker Lake Regional Park, on to the Rice Creek Chain of Lakes Park Reserve in Lino Lakes and Centerville, MN. All but a portion of this Regional Trail in Ham Lake is off-roadway, in place, and in use today, linking residents and trail users to many different destinations and facilities in the county–recreational, business, schools and residential. The trail will be an important connection to the Mississippi River and Mississippi West Regional Park once the remaining portions of the elevated pedestrian crossing over Hwy #10 are funded and the bridge is in place. This pedestrian and bicycle route links not only the isolated Mississippi Recreation District to the other of the 10 districts (and the rest of the city)–but also welcomes all the residents on the South side of Hwy #10, safely to Ramsey's downtown businesses and related recreational opportunities.

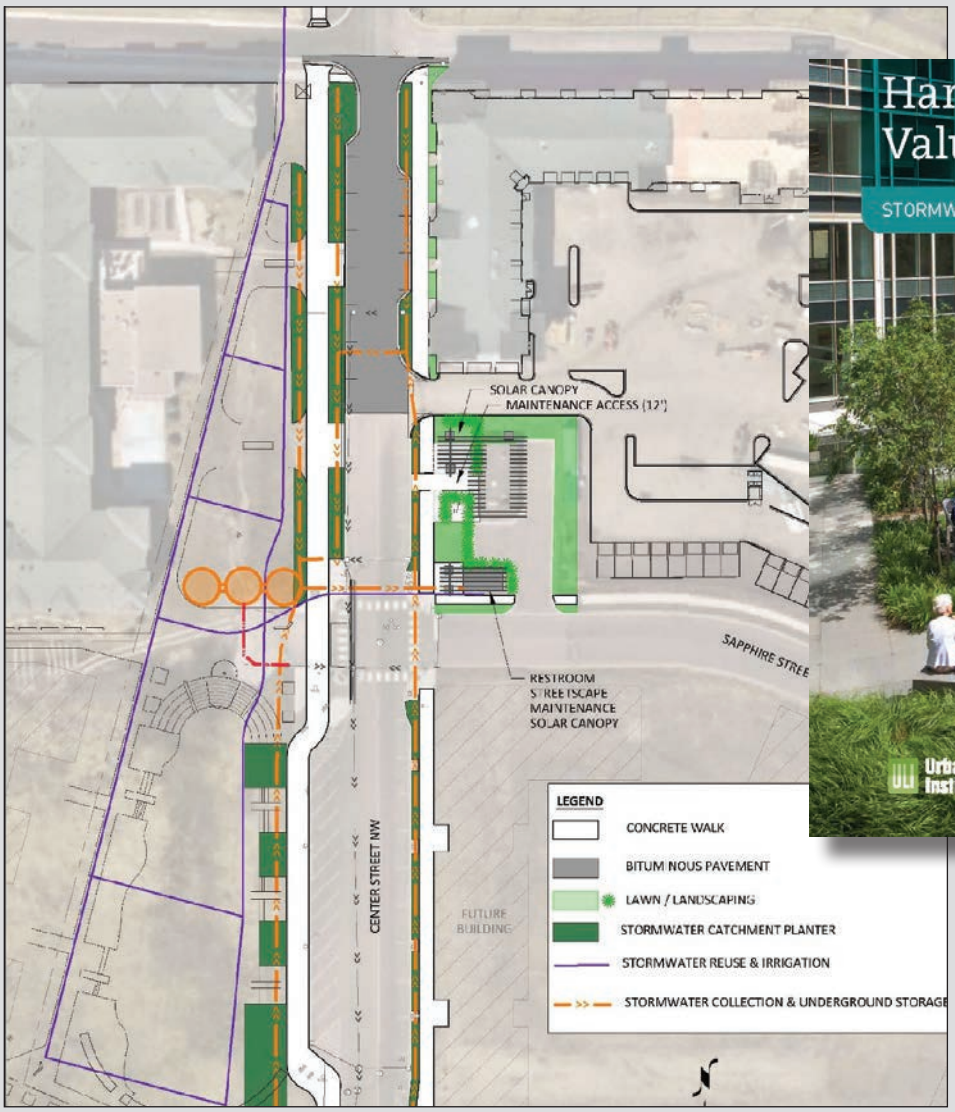
It may be noted, that this trail is an integral part of the Circle of Ramsey Greenway, and accordingly, this downtown area in Ramsey becomes both the nexus of the regional trail system, local trail system, as well as providing non-motorized opportunities in connecting the rest of Ramsey to The COR.

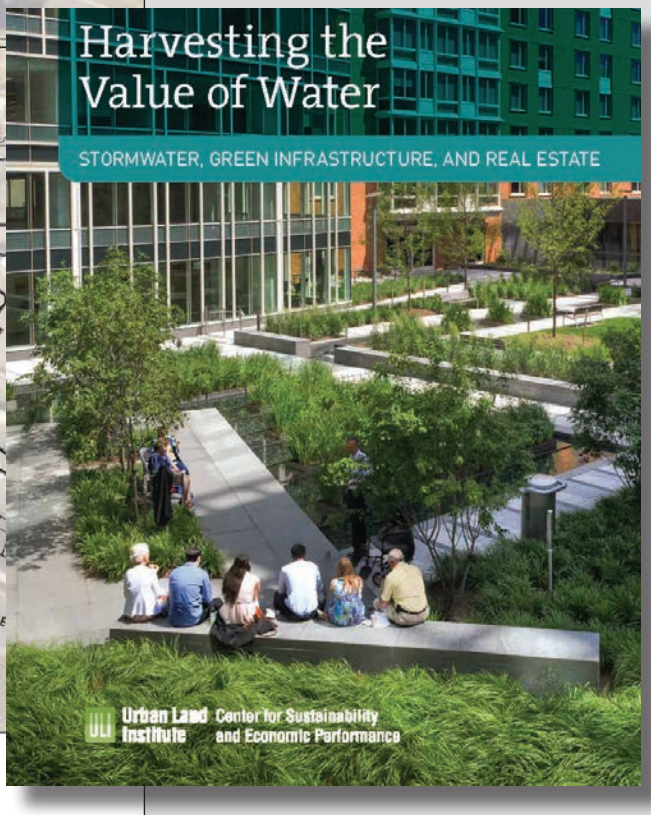
Preliminary estimate of potential construction cost: $80,000 - 100,000

Stormwater Management System Location Map



This Framework + Policy Plan focuses on the trail segment from 145th/Sapphire Street north to Ramsey Parkway, but also recognizes the importance of seamlessly connecting with the existing trail segment south to Sunwood Drive, and future trail improvements to the north.





Stormwater Management System

PROJECT DESCRIPTION

Bolton & Menk, has completed a preliminary study that analyzes the feasibility of integrating stormwater reuse for irrigation of the proposed Municipal Plaza and adjacent Center Street landscape improvements. The reuse system envisioned will include best management practices to collect and treat runoff, storage tanks to store the runoff, and a pump station and piping to convey reuse water to irrigation areas and surface water features. Most of the stormwater runoff will be generated from Center Street NW and the sidewalks on either side of the road. Stormwater runoff is proposed to be collected and treated by a combination of tree vaults and rain gardens located within the boulevard and parking 'bump-outs on both sides of the street. It is assumed that the runoff would drain directly into each of the rain gardens and tree vaults through surface capture systems (i.e.. curb cuts).

Water collected and stored within the storage tanks will discharge via gravity flow to the pump house wet well, where it will be filtered and treated. The Metropolitan Council Storm water Reuse Guide Water Balance Tool for Constant Irrigation Demand was used to determine the percent of time the stormwater reuse system would be functioning, and assumed 1" of water over the irrigable area per week is required for adequate vegetation growth and health. Preliminary estimate of potential construction cost: $800,000 - 950,000

Stormwater Management System Project Elements

SOURCE Site Data				
Impervious Area	83,417	square feet		
Impervious Area	1.91	acres		
USE Demand Data				
Irrigation Area	57,206	square feet		
Irrigation Area	1.31	acres		
Irrigation Season	13	39	week number	
Storage Data				
Storage Provided	150,000	gallons		
Total Storage Required	454,037	gallons		%
Weeks that Flows Must be Augmented	85	weeks		10.2%
Weeks that Reuse System will Meet Demand	752	weeks		89.8%

Exhibit 1: Excerpt from the Met Council Reuse Water Balance Tool.

Exhibit 2: Example concrete vault storage tank (Storm Trap).

Exhibit 3: Example underground fiberglass storage tanks (Xerxes).

Exhibit 1 summarizes the preliminary reuse system sizing. According to the reuse calculator, there will be enough captured stormwater water in approximately 90% of the pumping season weeks to apply I-inch per week of water over the area to be irrigated (a total of 454,000 gallons required). Since rainfall contributes to that total, as well as stored water in that tank, the total required volume per year does not translate to the size of the tank required. Instead, the volume of the tank can be modified to target an irrigation efficiency.

The storage volume could be a single concrete vault or multiple fiberglass underground units. Given the size of individual cisterns, plastic is not available. Fiberglass tanks generally are available up to 50,000 gallons in size. A 50,000-gallon tank has dimensions of approximately 68 feet long with a 12-foot diameter. Three tanks, with space between, could fill a footprint of approximately 5,000 square feet. Concrete vaults can be sized to fit multiple footprint sizes.

Stormwater Management System Project Elements

Rainfall Event	Rainfall Depth (IN)	Runoff Volume (CF)	Runoff Volume (GA)
1" Event	1.00	5,500	41,140
1-Year	2.46	14,700	109,956
2-Year	2.86	17,600	131,648
5-Year	3.58	22,700	169,796
10-Year	4.26	27,500	205,700

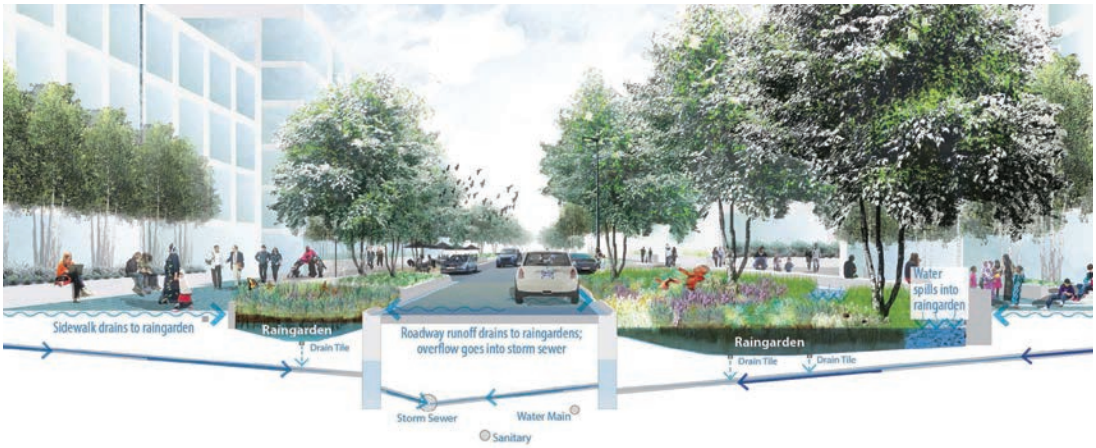
Table 1: Summary of expected runoff volumes.

Additional Considerations

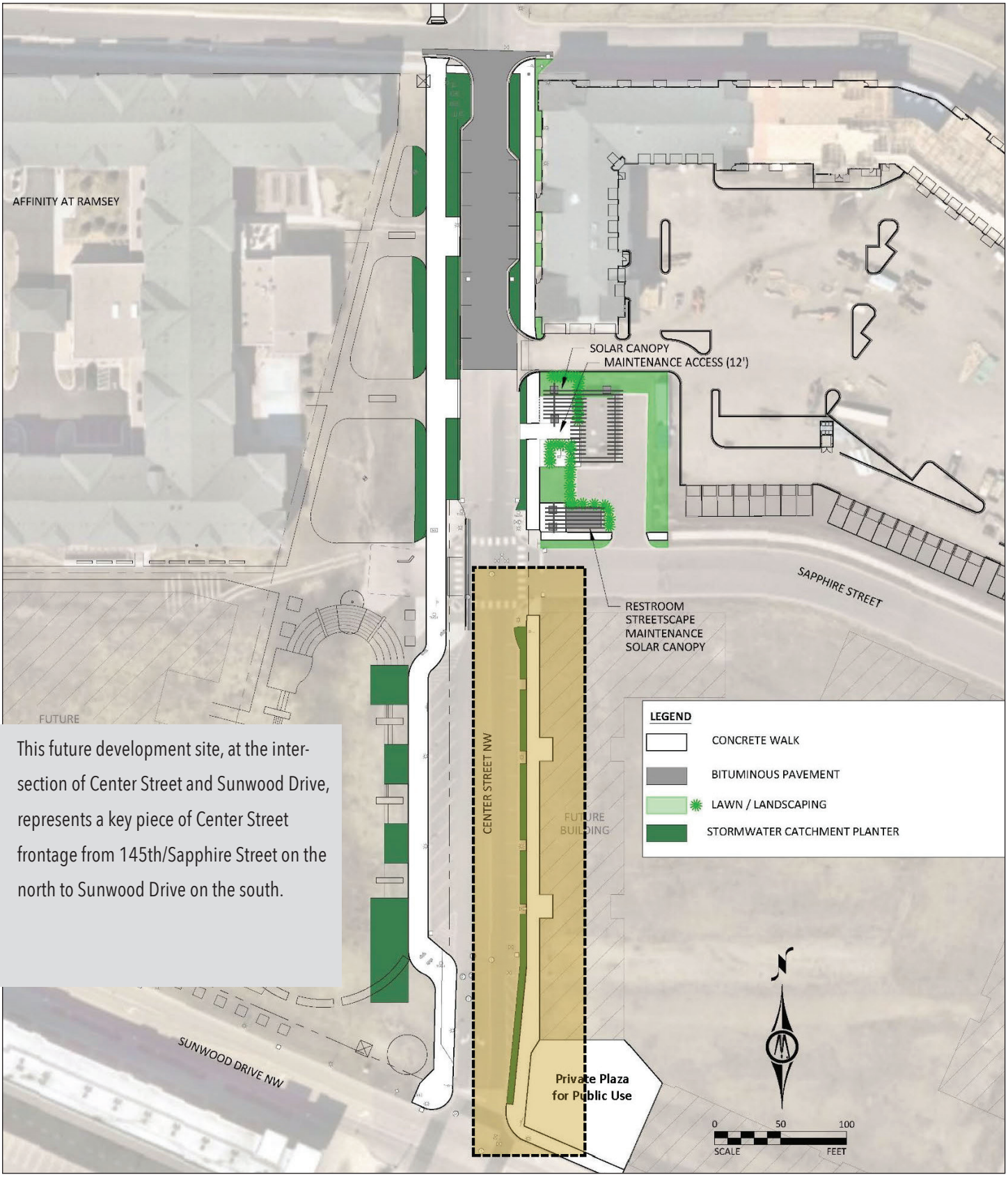
A simplified estimate of stormwater runoff expected from the street section was assembled to ensure the watershed can produce enough runoff to adequately fill the tanks. Table 1 is a summary of expected runoff volumes for a variety of events. A rainfall event producing between 3.6 and 4.3 inches in 24 hours (5-year to IO-year return interval) can completely fill the tank.

During final design, additional hydraulic information will be provided to provide an effective high flow bypass system. In other words, if the tank is full and the City experiences a 100-year rainfall event, there will be adequate bypass capacity to reduce local flooding and protect the tank(s). Also, since the COR trunk storm sewer system is already designed to accommodate a 100-year rainfall event with discharge to regional flood storage areas, the bypass system will effectively mimic the originally designed scenario. In between events when irrigation is occurring, or the tanks is being filled, there will be hydraulic relief on the trunk system and volume control provided.

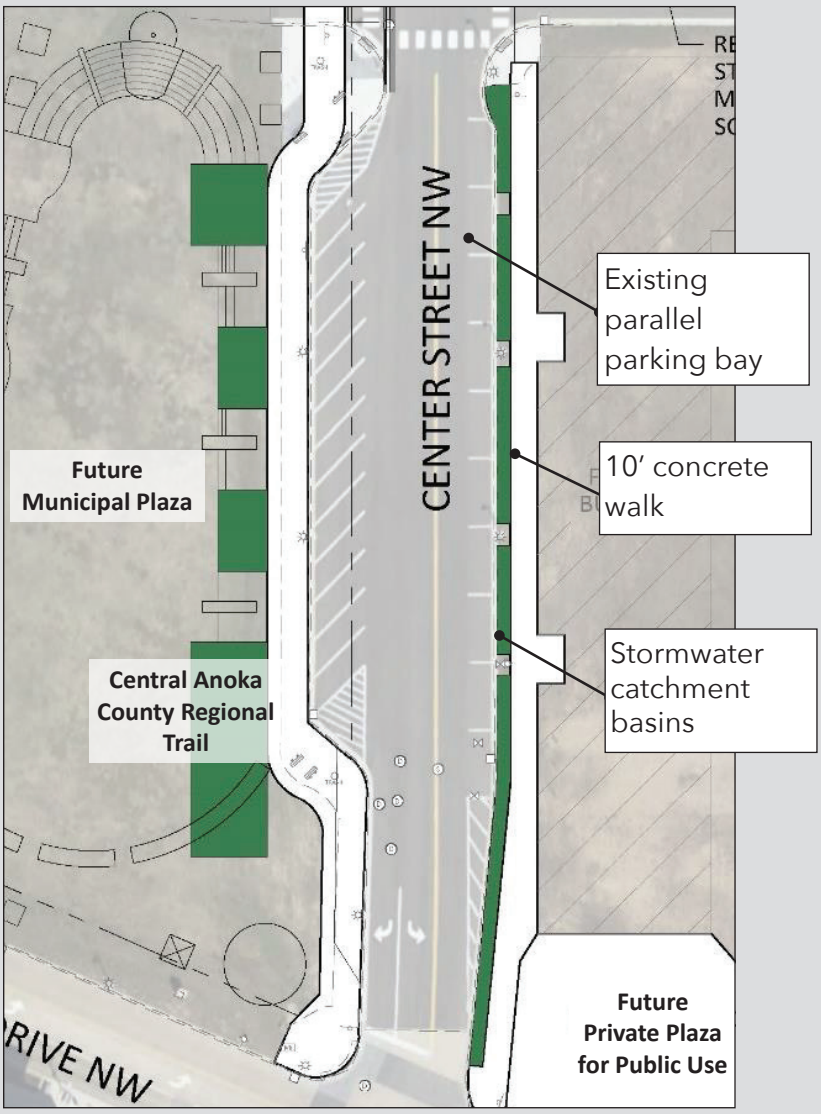
Since the reuse water will pass through a filter and potentially other treatment methods, the impact to groundwater resources through the infiltration of irrigation water is expected to be very minimal. Impacts to groundwater resources in the Downtown District are not anticipated.



Future Development Site Frontage Location Map



This future development site, at the intersection of Center Street and Sunwood Drive, represents a key piece of Center Street frontage from 145th/Sapphire Street on the north to Sunwood Drive on the south.



Future Development Site Frontage

PROJECT DESCRIPTION

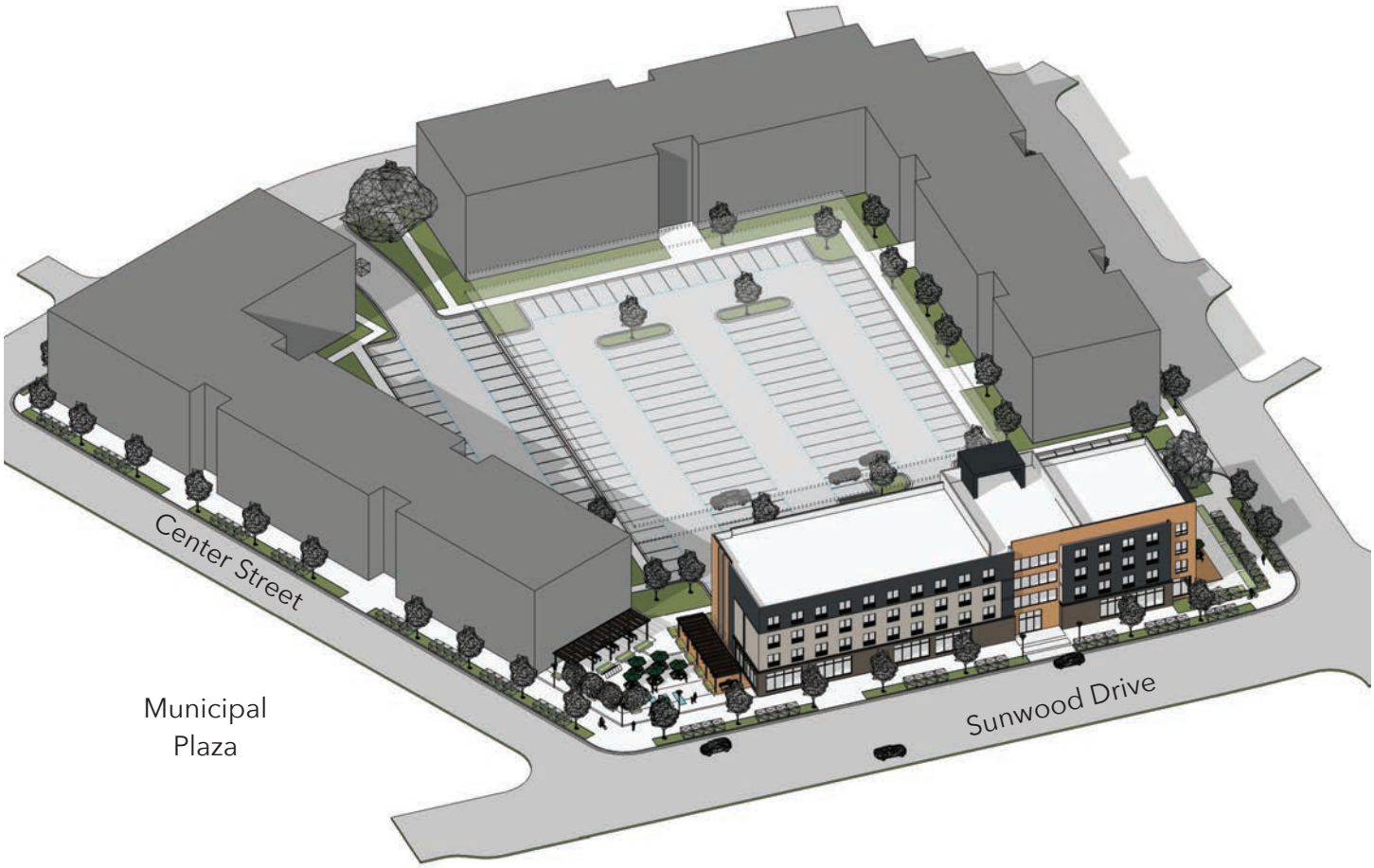
The Concept Site Plan for the Future Development Site Frontage along the east side of Center Street matches recommendations for Sapphire Apartment Frontage and Pump House Plaza to the north, including three primary elements:

- A 10' wide concrete walk;
- Stormwater catchment basins;
- Parallel parking bay.

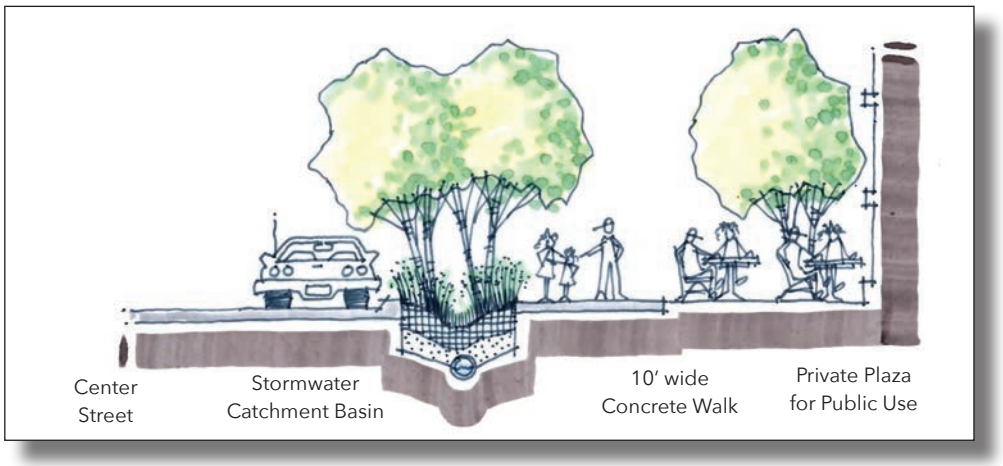
Preliminary estimate of potential construction cost: $80,000 - 100,000

Following in the footsteps of the Sapphire Apartment project, future development of this site will also include a gracious pedestrian walkway (10' width), connected stormwater basins, and landscape plantings that complement existing streetscape, further enhancing the desired Downtown District street character as a welcoming local and regional destination.

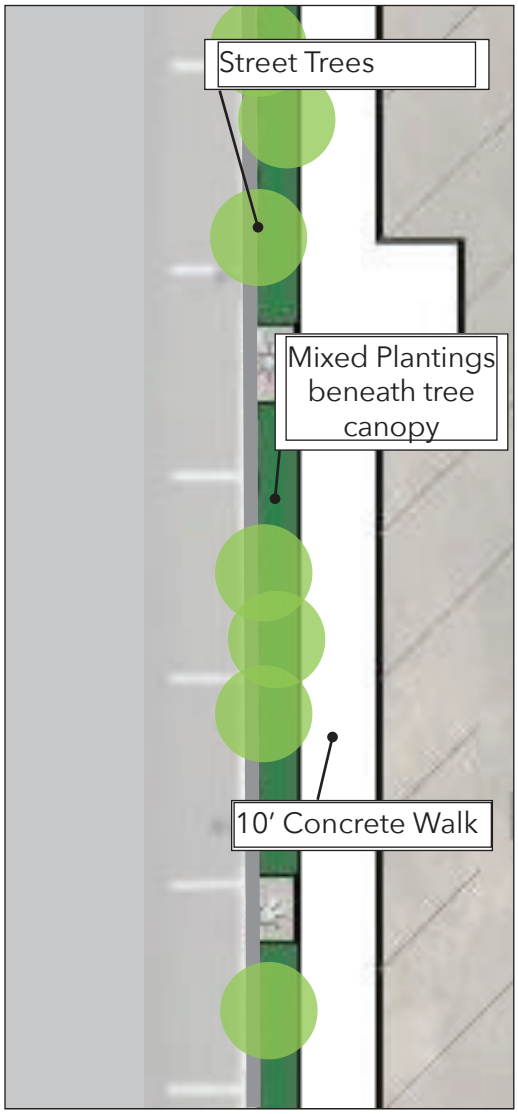
Future Development Site Frontage Project Elements



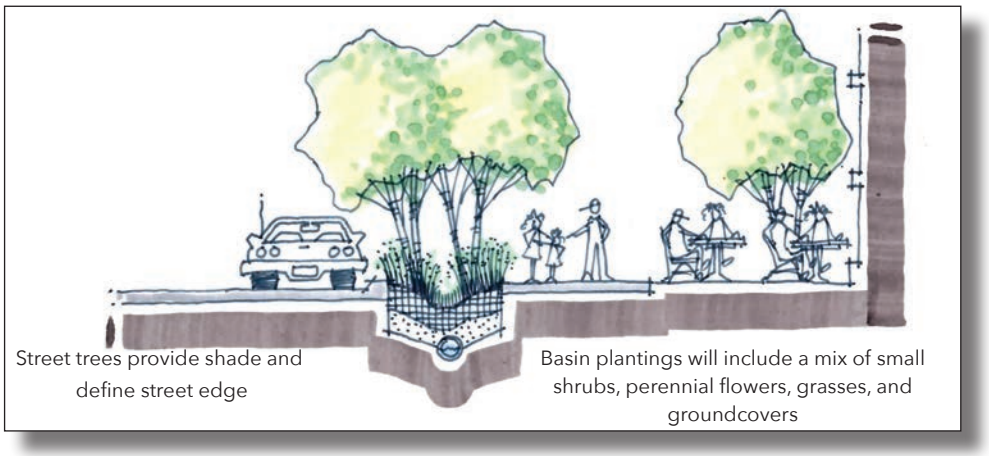
Stormwater catchment basins will be connected to existing storm sewer located in Center Street – future phases will route this water to underground cisterns in Municipal Plaza for irrigation and other re-use purposes.



Future Development Site Frontage Project Elements



Example of private plaza for public use



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.

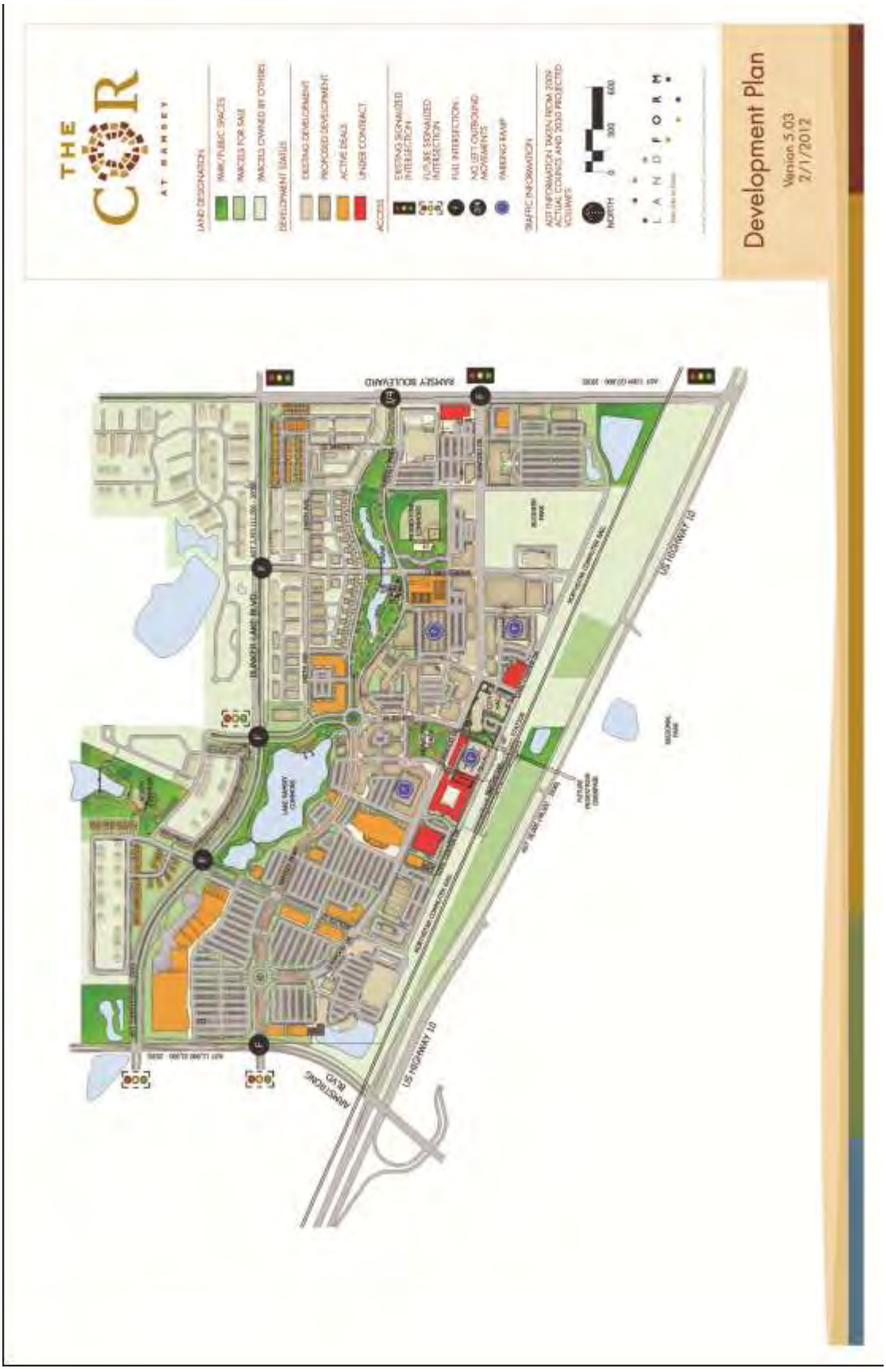


Figure 1: Development Master Plan 5.03

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.

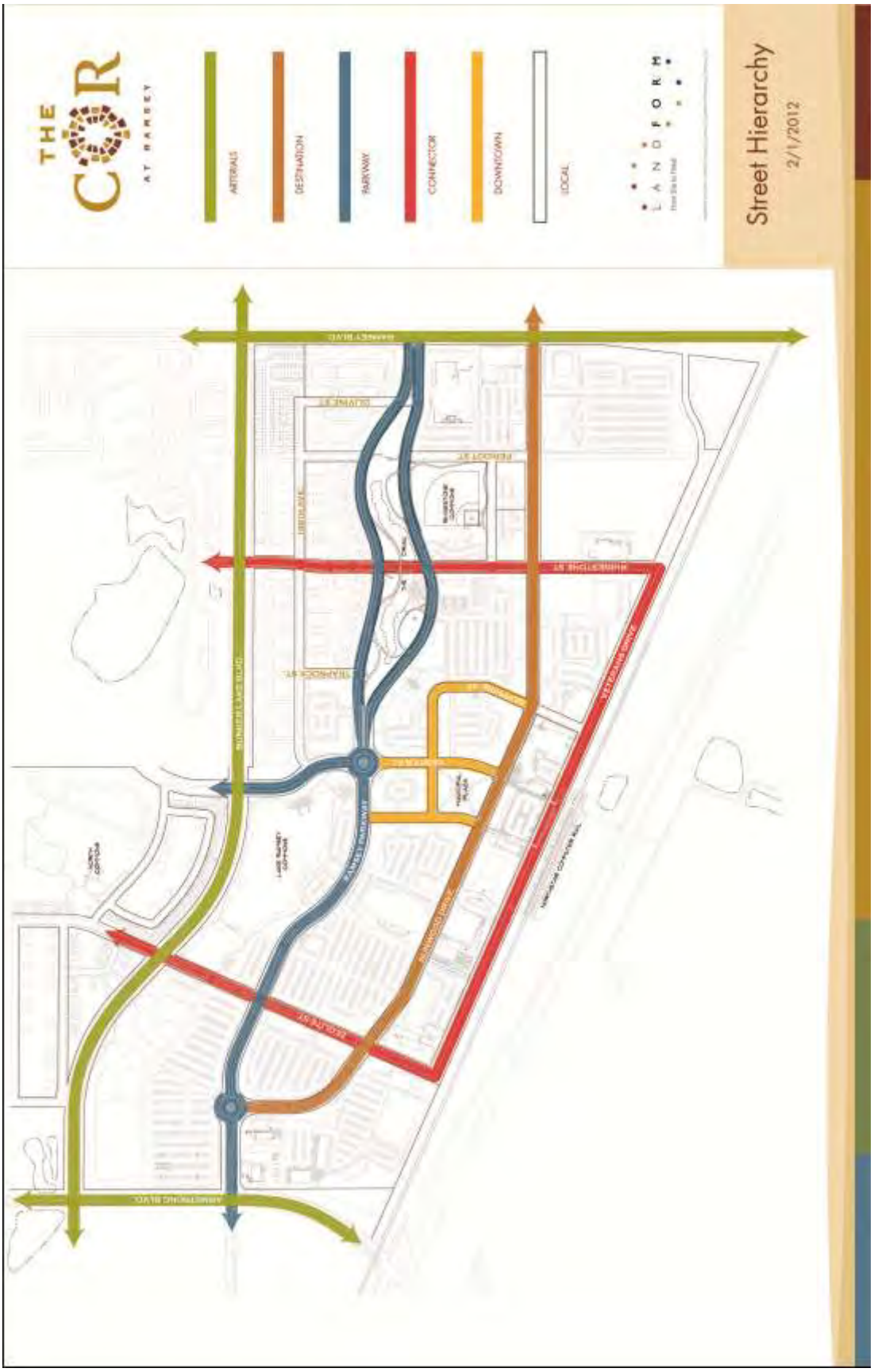


Figure 2: Street Hierarchy Map

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.

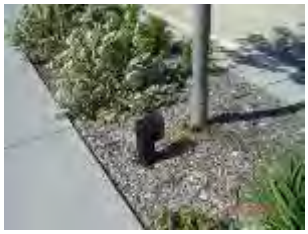
Street Furniture

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

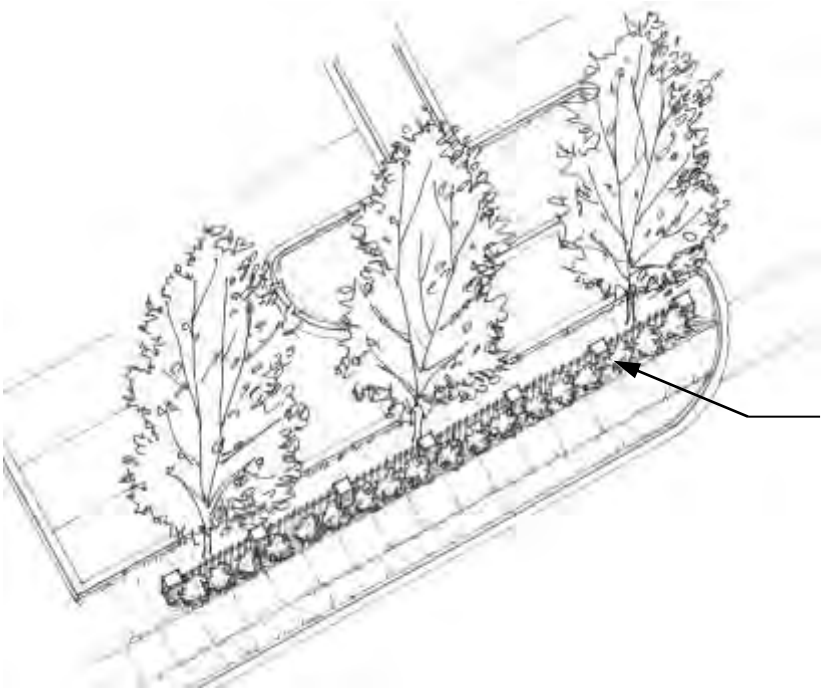
Parking in The COR is intended to be shared to the greatest extent practicable in all mixed-use areas. The parking standards are intended to provide a practical basis for providing adequate parking within the COR District through a careful analysis of uses, shared parking arrangements, use of public 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.

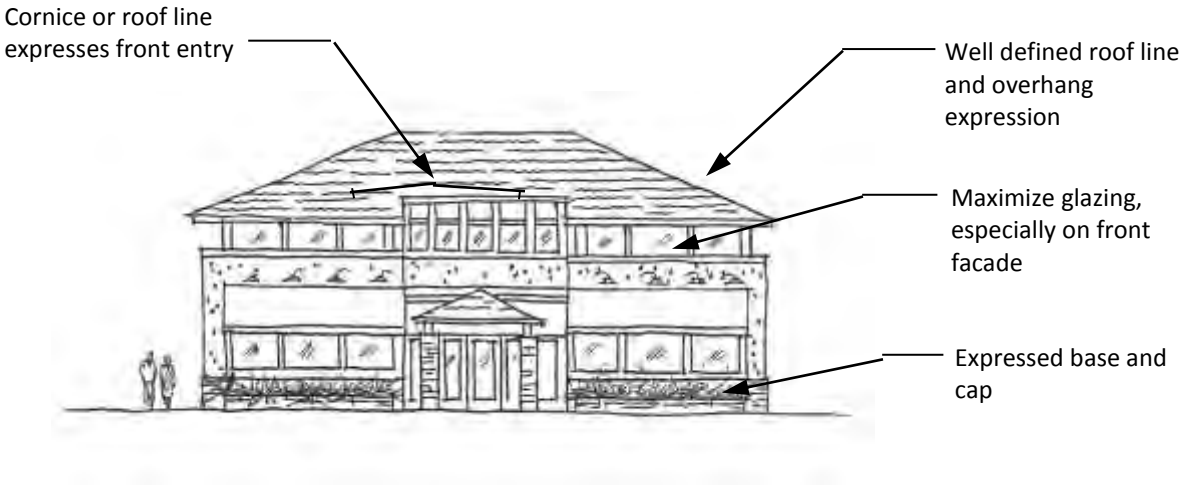
Architectural Overview

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

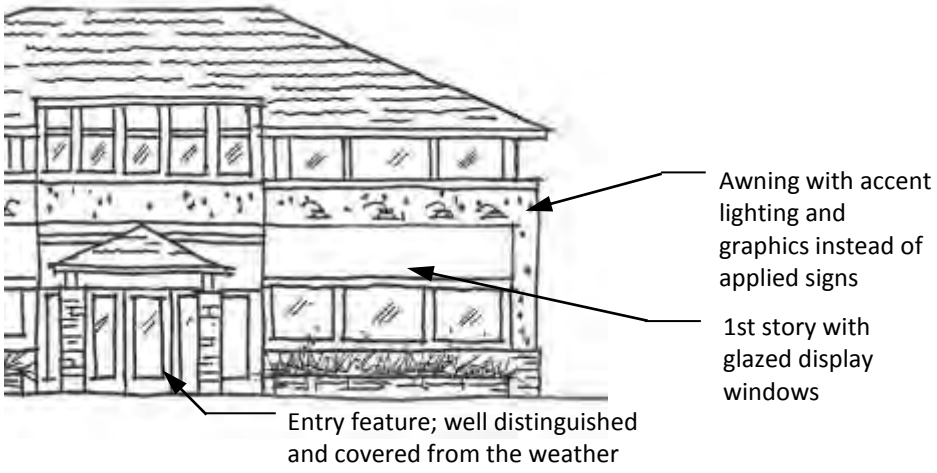
Of all the layers that combine to form The COR Development Plan, architecture will typically be the most prominent development component. Both visually and physically, architecture will play a major role in defining the overall design character and mix of uses for The COR. It is crucial that the design and location of buildings address these architectural guidelines, with specific emphasis on the following:

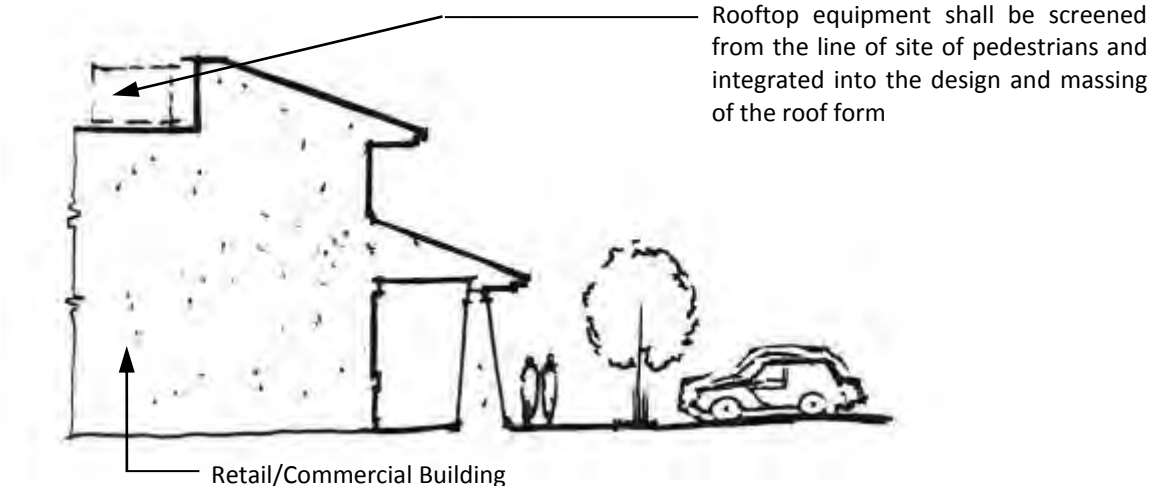
- An animated street presence with a mix of street-level uses, interesting building façades, many doors and windows on the street, careful design of lighting, awnings, signage and other elements that animate the pedestrian experience



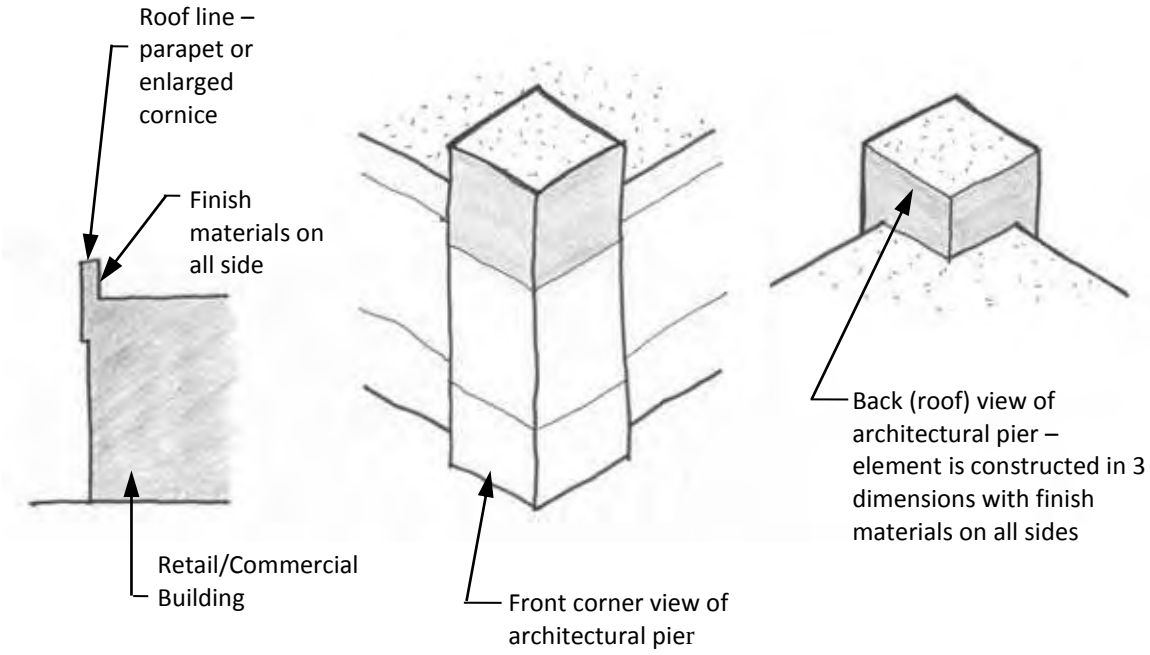
- Variety in building design, character and expression; not one theme or building style, but a thoughtful integration of many design solutions
- Variety of building types including a range of height, scale and proportion, that support an integrated mix of housing options, shopping destinations, entertainment 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.

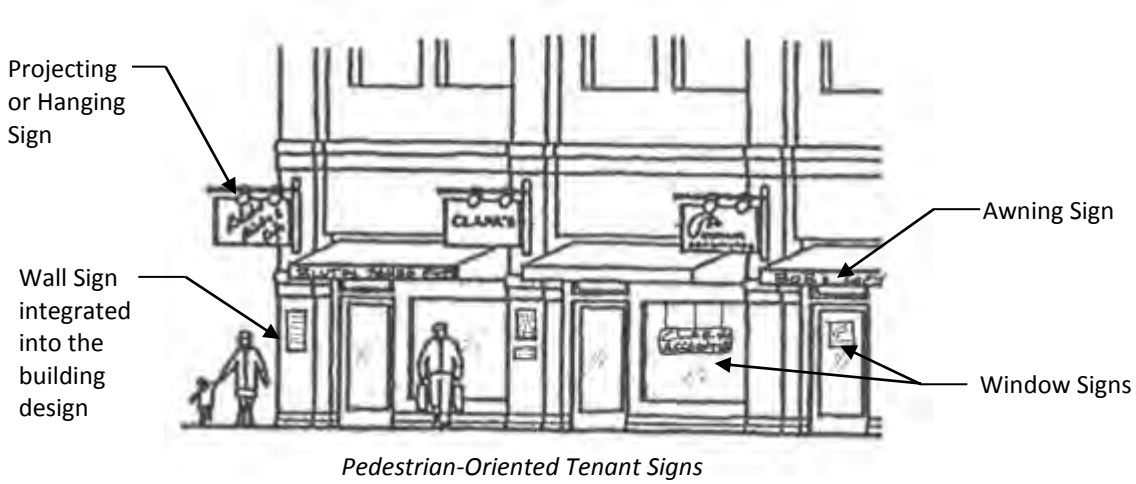
Projecting sign means any sign, all or any part of which extends beyond the surface of the building or wall by more than 16 inches.

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

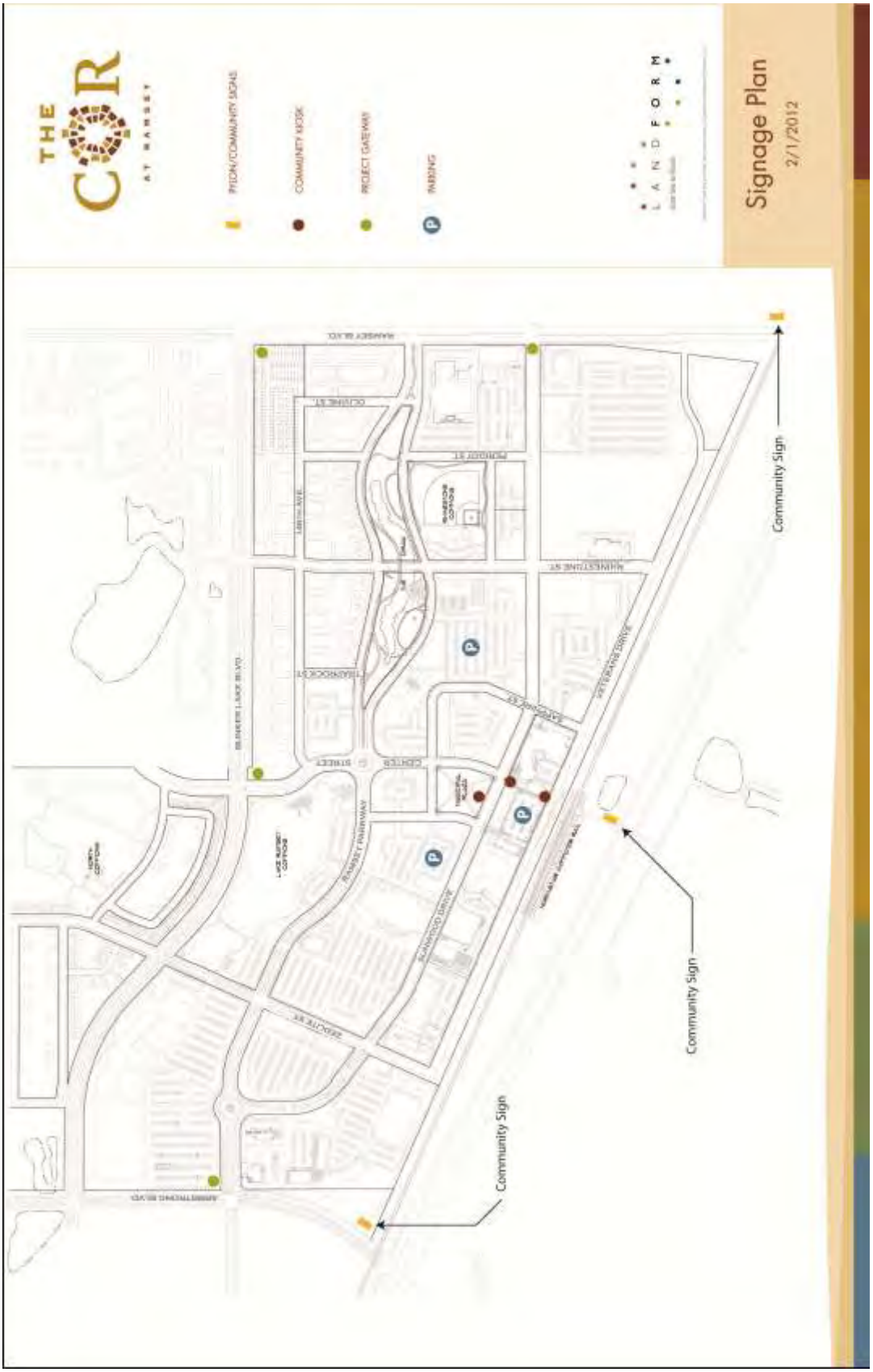


Figure 6: Signage Plan

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.

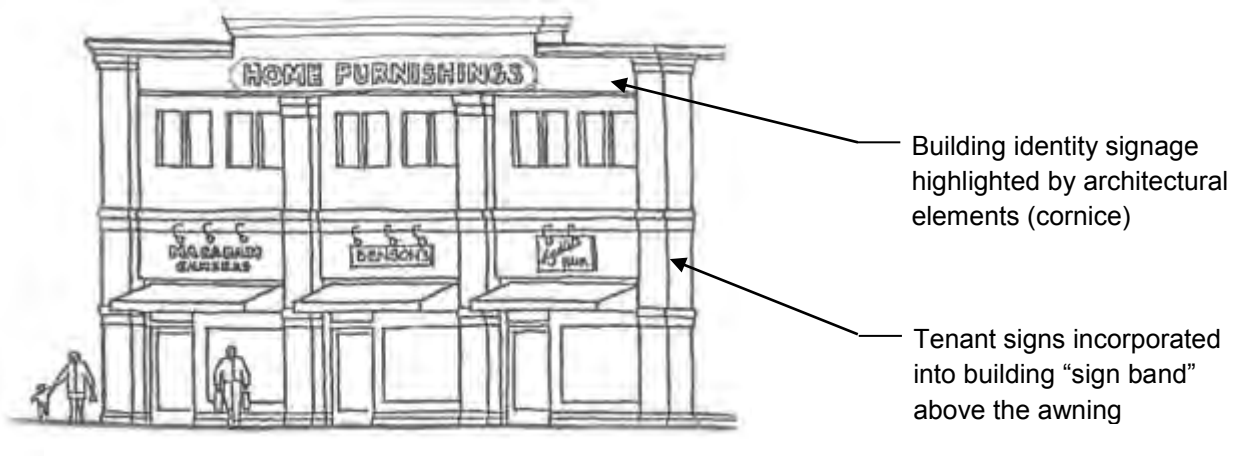
B. Menu board. One (1) on-site menu board per drive-up or walk-up lane of a drive-in restaurant up to a maximum of thirty-two (32) square feet each and a maximum height of three (3) feet. Menu boards are allowed a message on one (1) side only and cannot contain an advertising message.

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

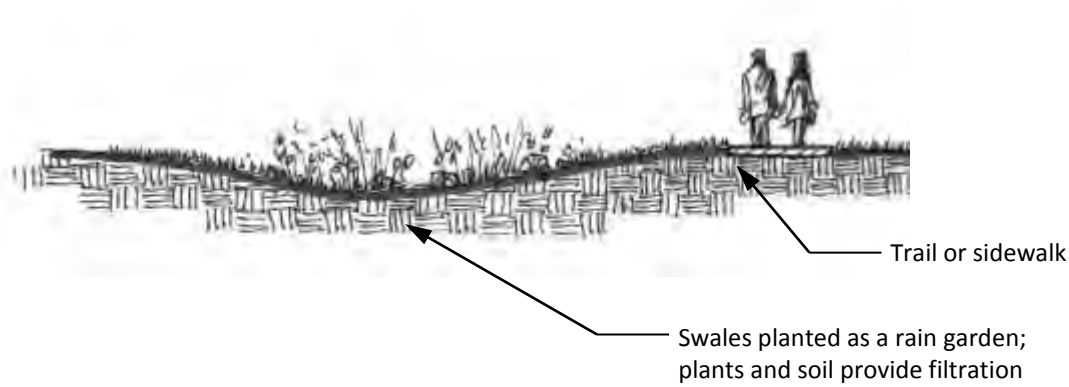
Overview

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.

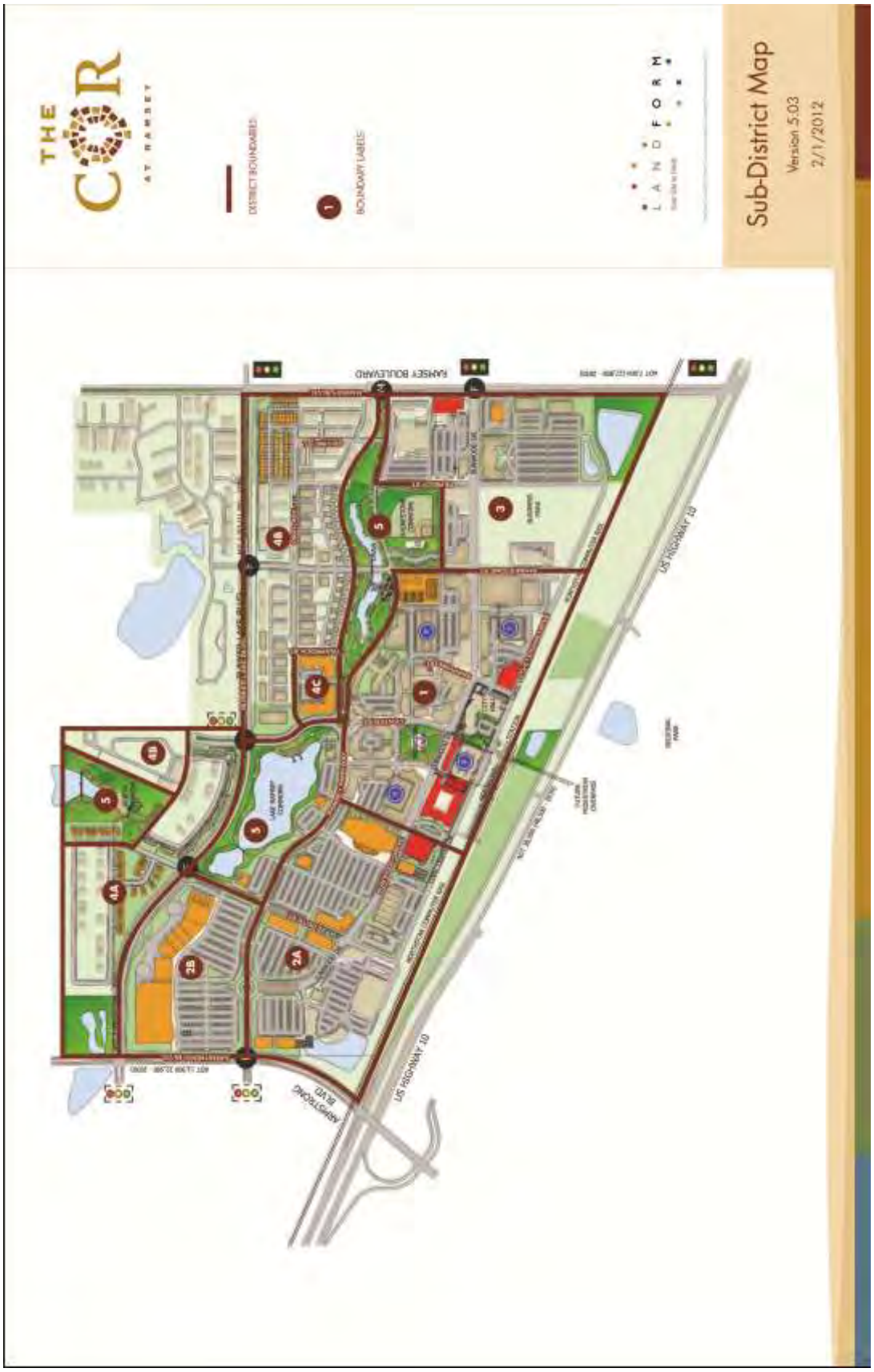


Figure 7: Sub-district Map

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

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Appendix A: Specifications and Details

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 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.

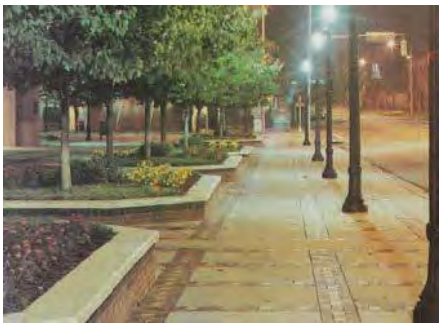
THE COR
RAMSEY, MINNESOTA
DEVELOPMENT STATUS
EXISTING DEVELOPMENT
PROPOSED DEVELOPMENT
ACTIVE DEALS
UNDER CONTRACT
COMPLETED
ACCESS
EXISTING SIGNALIZED INTERSECTION
FUTURE SIGNALIZED INTERSECTION
FULL INTERSECTION
NO LEFT OUTBOUND MOVEMENTS
PARKING RAMP
TRAFFIC INFORMATION
ADT INFORMATION TAKEN FROM 2009 ACTUAL COUNTS AND 2030 PROJECTED VOLUMES
NORTH
0
300
600
LANDFORM
From Site to Finish
DEVELOPMENT PLAN 6.1
09.06.2012
RAMSEY BOULEVARD
BUNKER LAKE BLVD.
ARMSTRONG BLVD
US HIGHWAY 10
NORTHSTAR COMMUTER RAIL
SUNWOOD DR.
RHINESTONE COMMONS
BUSINESS PARK
CITY HALL
REGIONAL PARK
FUTURE PEDESTRIAN OVERPASS
LAKE RAMSEY COMMONS
LEGACY CHRISTIAN ACADEMY
PAGE No. 1 of 1

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 1: 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 1: 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 2: 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 2: 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 3: Streetscape Master Plan

Figure 4: Parking District Map

Minimum Standards

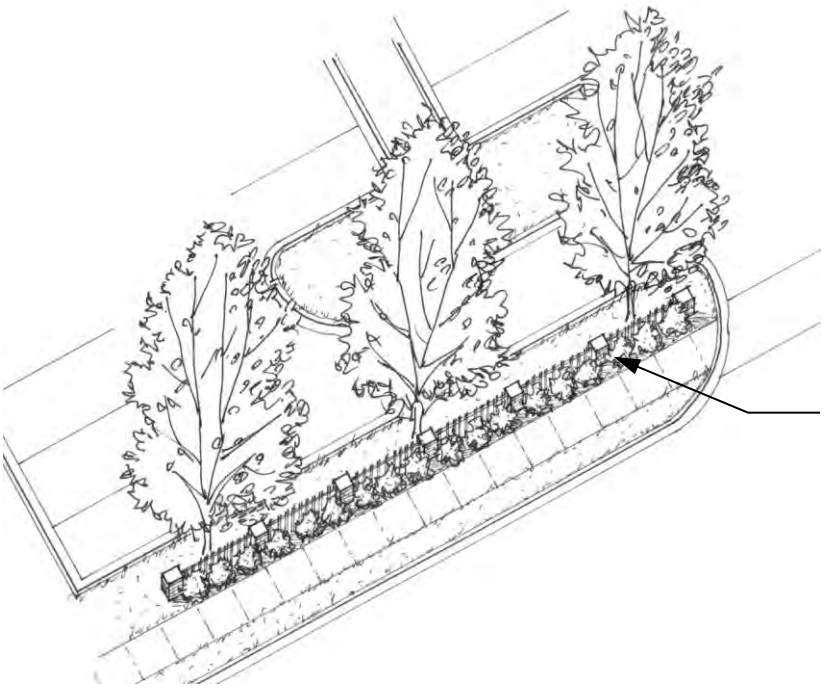
Parking in The COR is intended to be shared to the greatest extent practicable in all mixed-use areas. The parking standards are intended to provide a practical basis for providing adequate parking within the COR District through a careful analysis of uses, shared parking arrangements, use of public 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 3: Streetscape Master Plan and Figure 4: 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		1 per each 2 seats	1 per each 1 seats.
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.

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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.

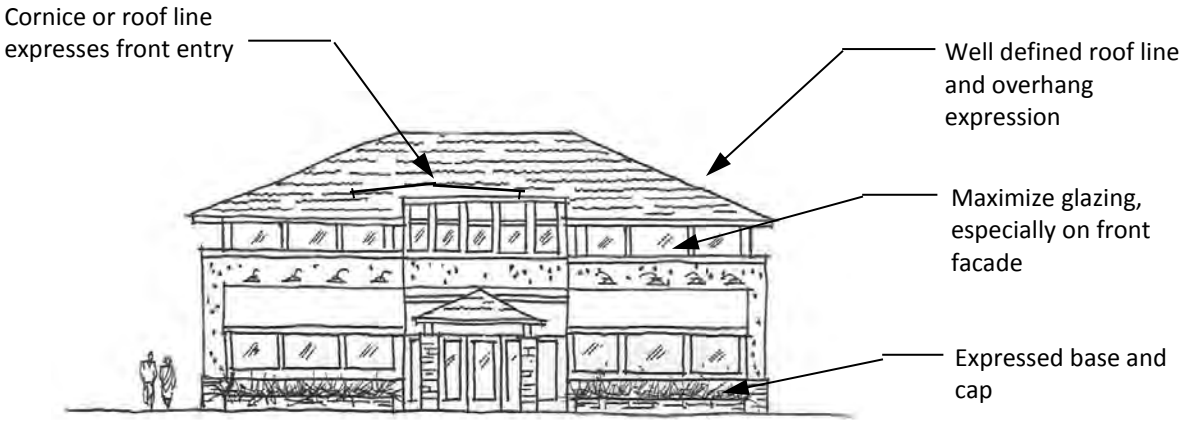
Architectural Overview

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

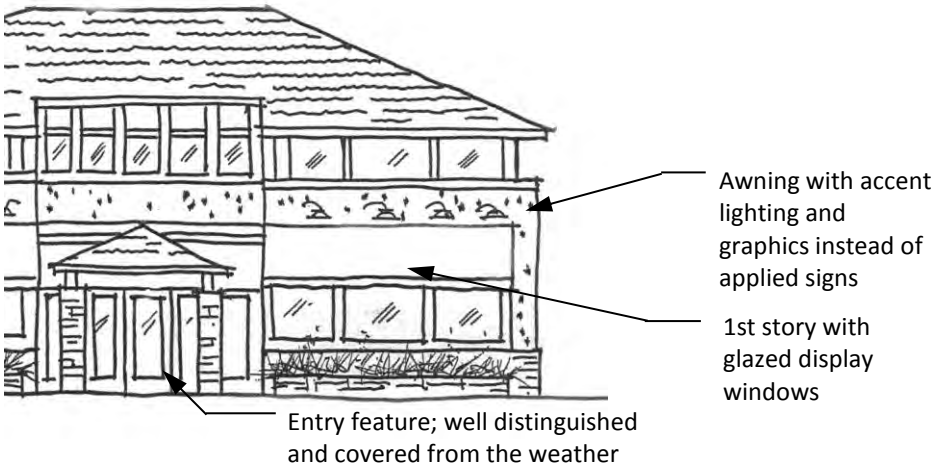
Of all the layers that combine to form The COR Development Plan, architecture will typically be the most prominent development component. Both visually and physically, architecture will play a major role in defining the overall design character and mix of uses for The COR. It is crucial that the design and location of buildings address these architectural guidelines, with specific emphasis on the following:

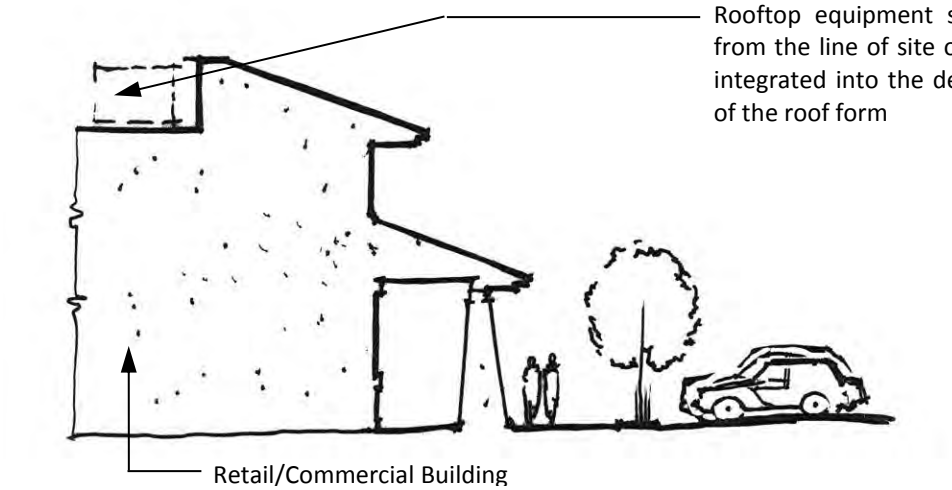
- An animated street presence with a mix of street-level uses, interesting building façades, many doors and windows on the street, careful design of lighting, awnings, signage and other elements that animate the pedestrian experience



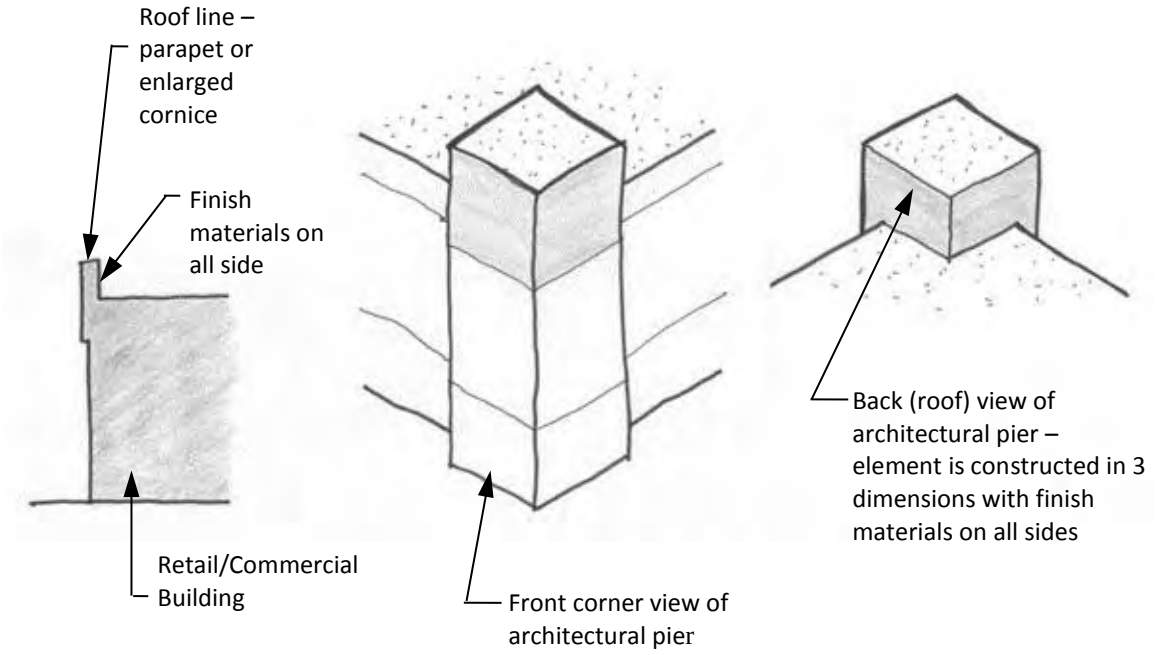
- Variety in building design, character and expression; not one theme or building style, but a thoughtful integration of many design solutions
- Variety of building types including a range of height, scale and proportion, that support an integrated mix of housing options, shopping destinations, entertainment 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.



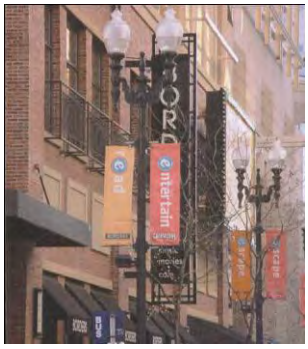
Overall Framework - Signage

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 5: 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. Gateway and kiosk signs are part of this category.

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 site as the development it identifies. A site shall be identified as the block in which the use is located.

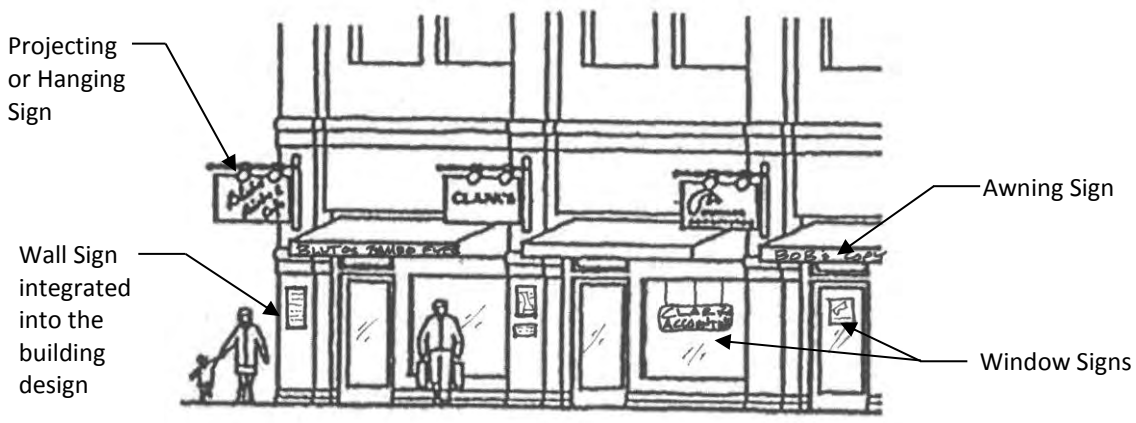
Projecting sign means any sign, all or any part of which extends beyond the surface of the building or wall by more than 16 inches.

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 5: 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 Master Sign Plan is included as Appendix B. Size, location, and construction specifications of these signs shall be determined by the Master Sign Plan, which must be approved by the City Council, after a recommendation by the Planning Commission. Careful foresight has been given to size of signs based on needs of the adjacent roadways in order to maintain adequate safety standards that may otherwise be compromised by poor design. Roadways with higher speeds warrant larger lettering to maintain safe travel.

Community and Gateway signs

Community signs include are planned to include three (3) signs on Highway 10, as shown on the Signage Plan (see Figure 5: 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.

Gateway signs are planned at multiple locations at entrances to The COR from major roadways, as shown on the Signage Plan. General gateway signs may identify The COR only. Retail Gateway signs may include provisions for off-premise, tenant sign panels.

These off-site signs, part of a unified development, are allowed as shown on the signage plan and shall have consistent materials and colors. Community and Gateway Signs shall conform to the design of the Master Sign Plan. Tenants within the unified development shall be allowed to utilize tenant panels on the Community and Retail Gateway Signs.

Amendments to the Master Sign Plan and Approved Community Signs. As the Master Sign Plan is adopted as part of the zoning ordinance, and has the effect of being a zoning ordinances, amendments to the Master Sign Plan must be processed by Ordinance and approved by City Council after review and recommendation by the Planning Commission.

Sign Type	Allowable Size	Architecture	Allowable Height
Community Sign	300 Square Feet	Per Appendix B	30 Feet *
Gateway Sign	50 Square Feet	Per Appendix B	10 Feet
Retail Gateway Sign	150 Square Feet	Per Appendix B	12 Feet
Community Kiosk	32 Square Feet	Per Appendix B	10 Feet*
Parking Ramp Signage	100 Square Feet	Per Appendix B	(Wall Signage)

* From highest point of adjacent road centerline

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. The signboard may exceed six (6) square feet, but not more than 32 square feet, provided that the sign consists of individual letters, without internally illuminated box letters. Lighting may be achieved through 'halo' lighting effects.

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. Ground signs may be shared and combined at areas of shared entrances for multiple users. Shared ground signs shall not exceed 150 square feet. A shared sign shall be allowed for each entrance to the site (defined as bordered by public streets).

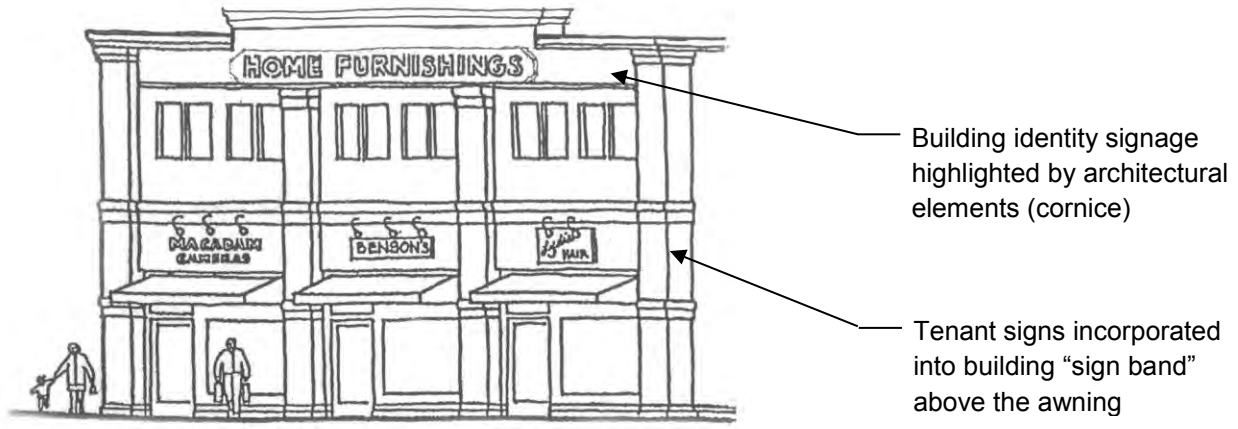
B. Menu board. One (1) on-site menu board per drive-up or walk-up lane of a drive-in restaurant up to a maximum of thirty-two (32) square feet each and a maximum height of three (3) feet. Menu boards are allowed a message on one (1) side only and cannot contain an advertising message.

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 fifteen (15%) percent of the ground floor building facade area. Individual signs may not exceed.

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. Individual signs may not exceed 50 square feet.
    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 fifteen (15%) 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 height of the lettering, numbers, or graphics shall not exceed twelve inches (12").

5. 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 thirty-two (32) 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.

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, per frontage.

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 COR2 and COR3 Districts.

B. In all other COR districts, temporary signs shall be limited to temporary sandwich board signs or temporary wall signage, without interchangeable letters.

C. Real estate and leasing signs shall be exempt from temporary and permanent sign regulations, provided that these signs do not exceed thirty-two (32) square feet.

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 lane/40 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	15% of the ground floor façade area, -or- 15% of the front façade area when facing Highway 10.	15% of façade area	15% of the ground floor façade area,	5% of the ground floor façade area,	5% of the ground floor façade area,
Multi-Tenant Buildings	15% of the façade area,	15% of façade area	15% of the façade area,	15% of the façade area,	15% of the façade area,
Building Facing Highway 10	15% of the façade area	15% of façade area	15% of the façade area	15% of the façade area	15% 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.

***See Page 32, 'Project Signs' for allowances up to 32 square feet.

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.

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Overall Framework – Stormwater Management

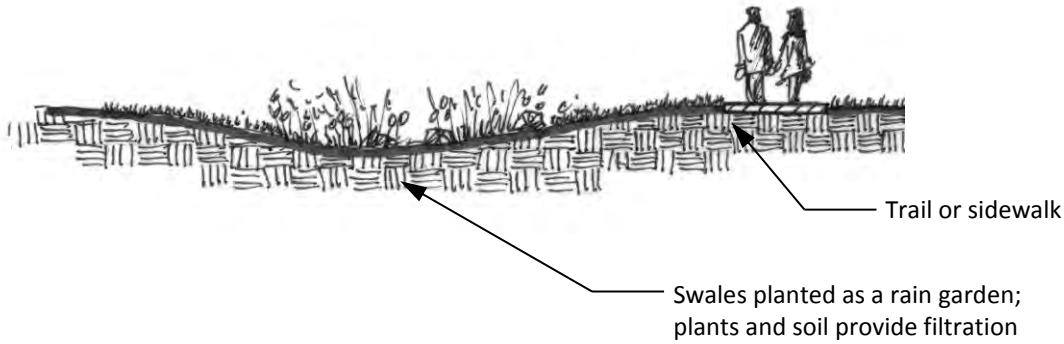
Overview

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:

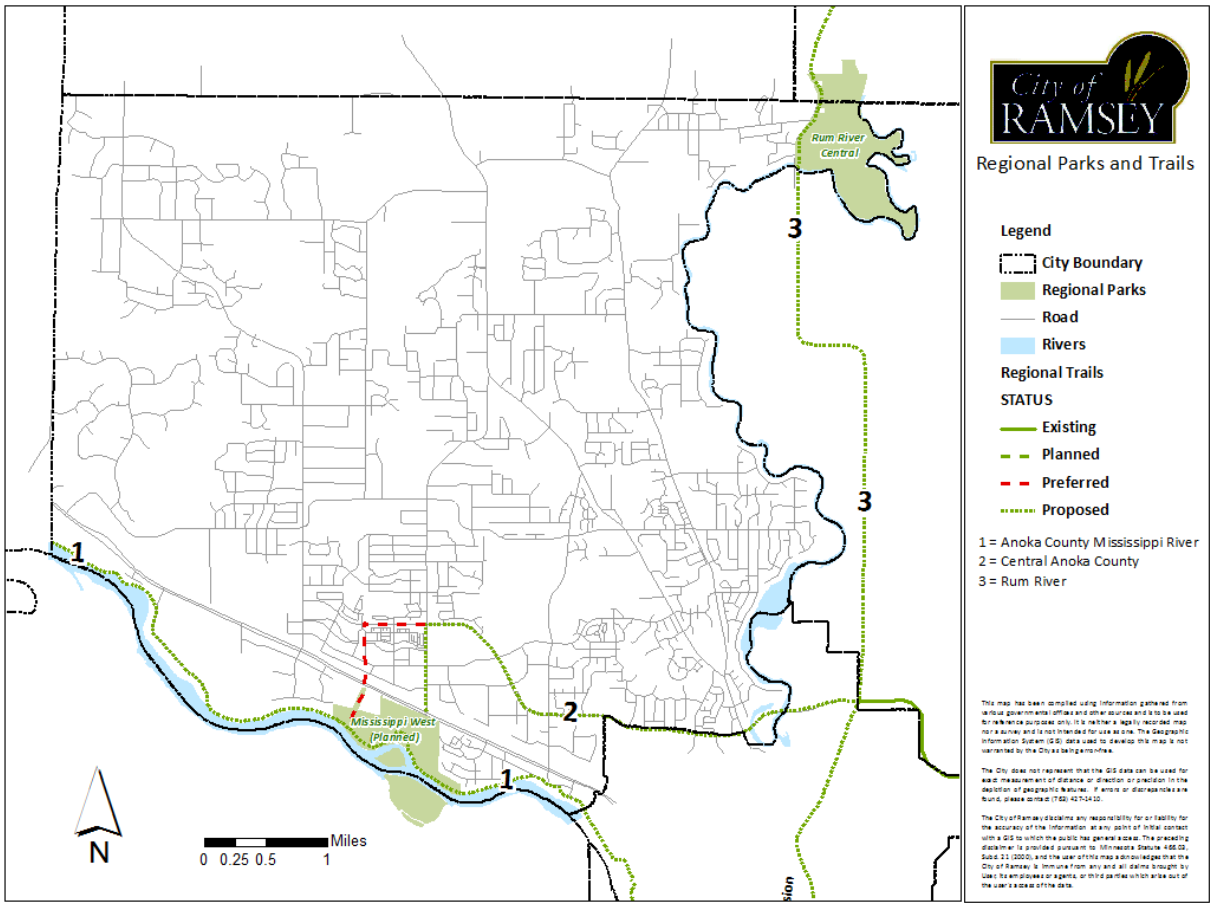
- Each block and each project will provide intentional, creative, innovative, useable green areas as integral components of site development and building design.
- At the individual block scale, small squares and greens will provide places for gathering and relaxation, especially targeted to meet the 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.

Regional Systems

The COR is the heart of several regional systems that are either located within or adjacent to The COR. These regional systems include the Northstar Commuter Rail, the Central Anoka County Regional Trail, the Mississippi West Regional Park, and the Mississippi River Trail.

A number of these systems have a pedestrian component. As such, Ramsey desires to locate the future Central Anoka County Regional Trail through the heart of The COR, along Center Street. The map below indicates Ramsey's preferred route for this trail. As this trail requires crossing Highway 10, it is imperative that a safe, grade-separated crossing is realized. This pedestrian overpass is envisioned to be connected to the Northstar Commuter Rail – Ramsey Station, and has been named the 'Mississippi Skyway'.



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 (**Error! Reference source not found.**). 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.

THE COR
AT RAMSEY
DISTRICT BOUNDARIES
BOUNDARY LABELS
NORTH
LANDFORM
From Site to Finish
Sub-District Map
Version 6.2
11/07/2012
RAMSEY BLVD.
ARMSTRONG BLVD.
US HIGHWAY 10
LAKE RAMSEY COMMONS
BUSINESS PARK
CITY HALL
FUTURE PEDESTRIAN OVERPASS
FUTURE RIVER CROSSING
WEST MISSISSIPPI REGIONAL PARK

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.

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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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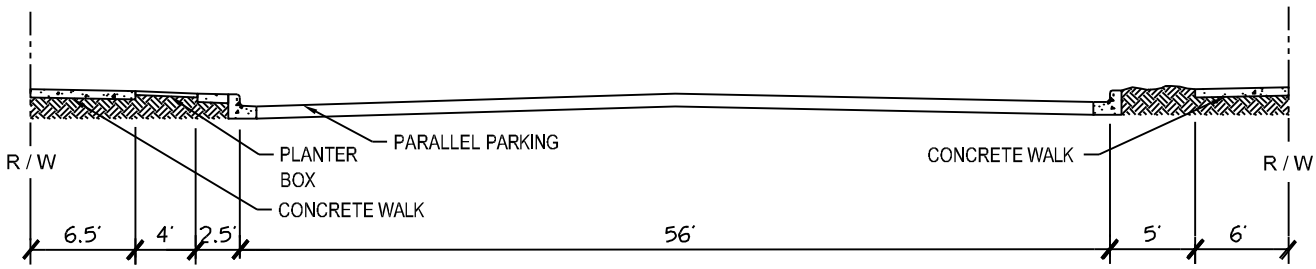
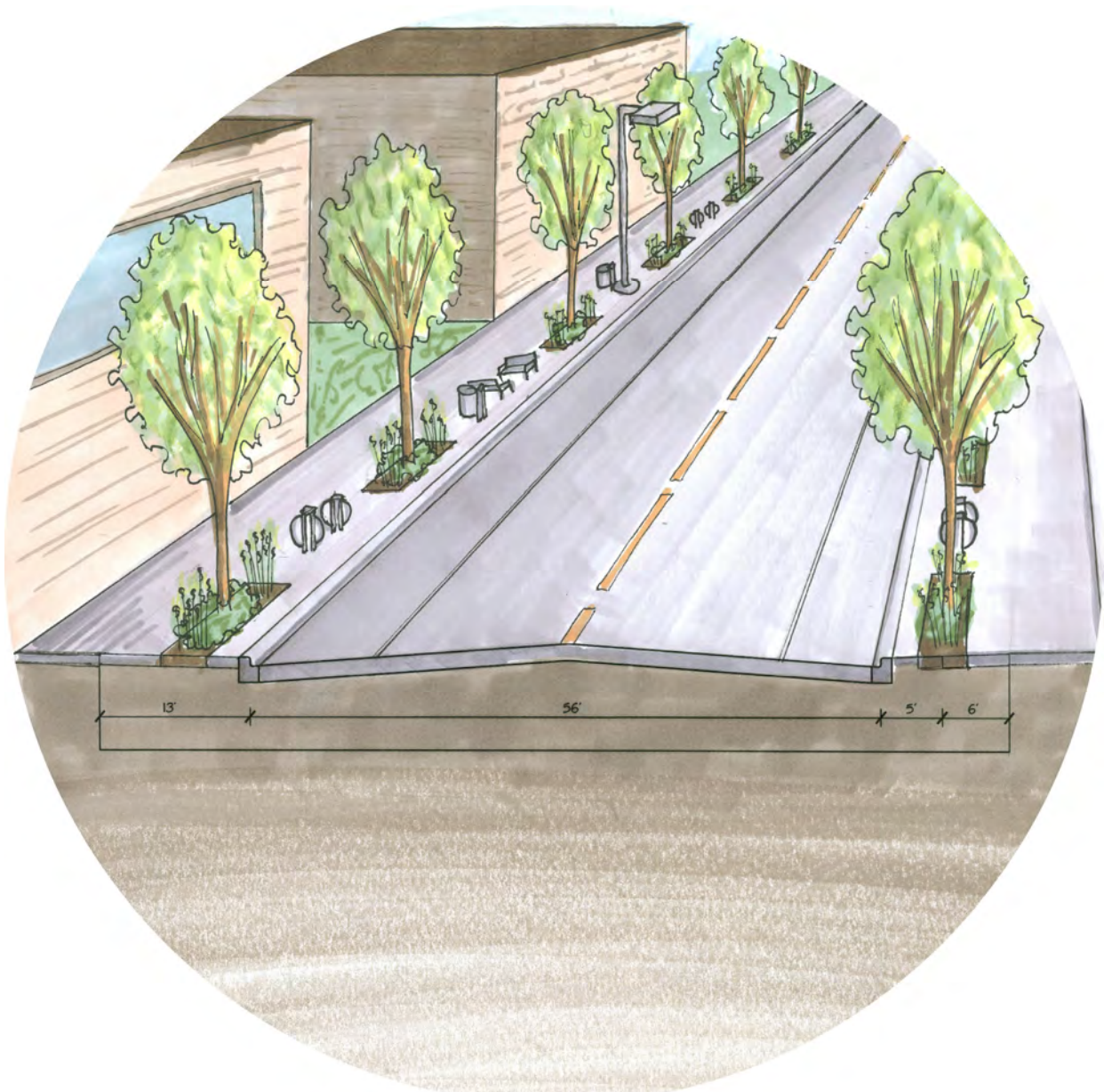
APPENDIX A:
SPECIFICATIONS AND DETAILS



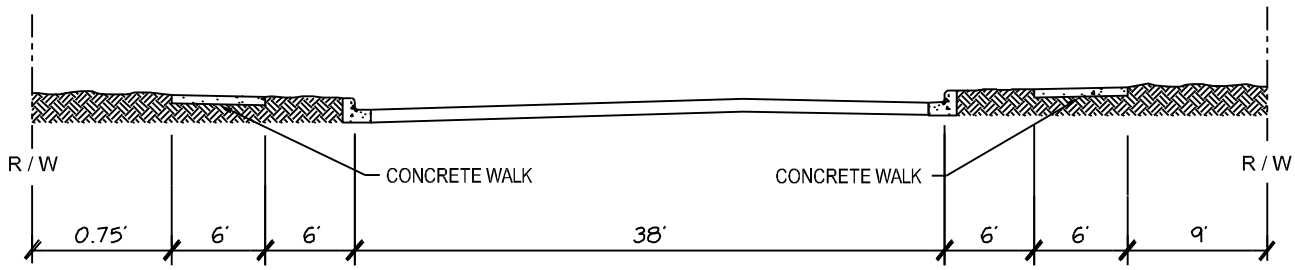


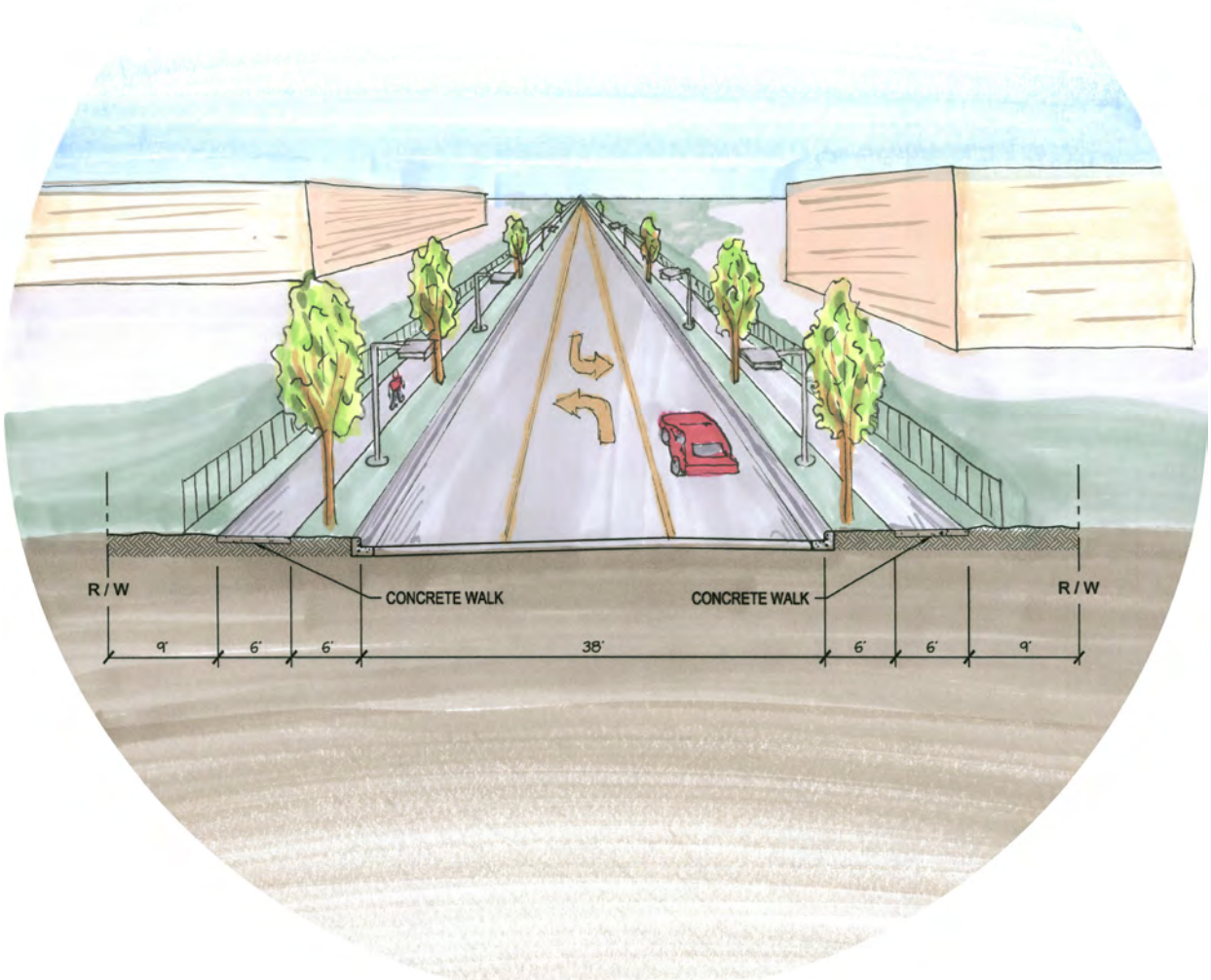
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #1
Sunwood Dr. East of Zeolite St.

THE COR
RAMSEY, MINNESOTA



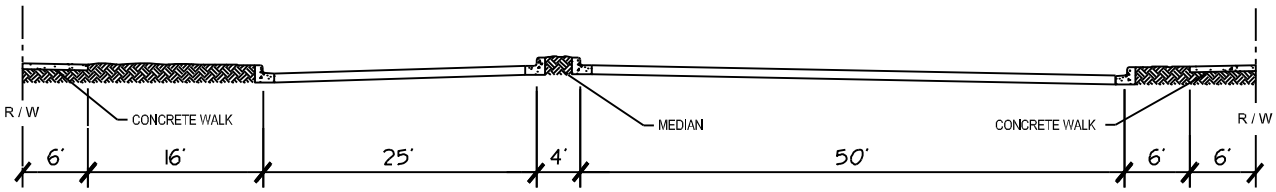


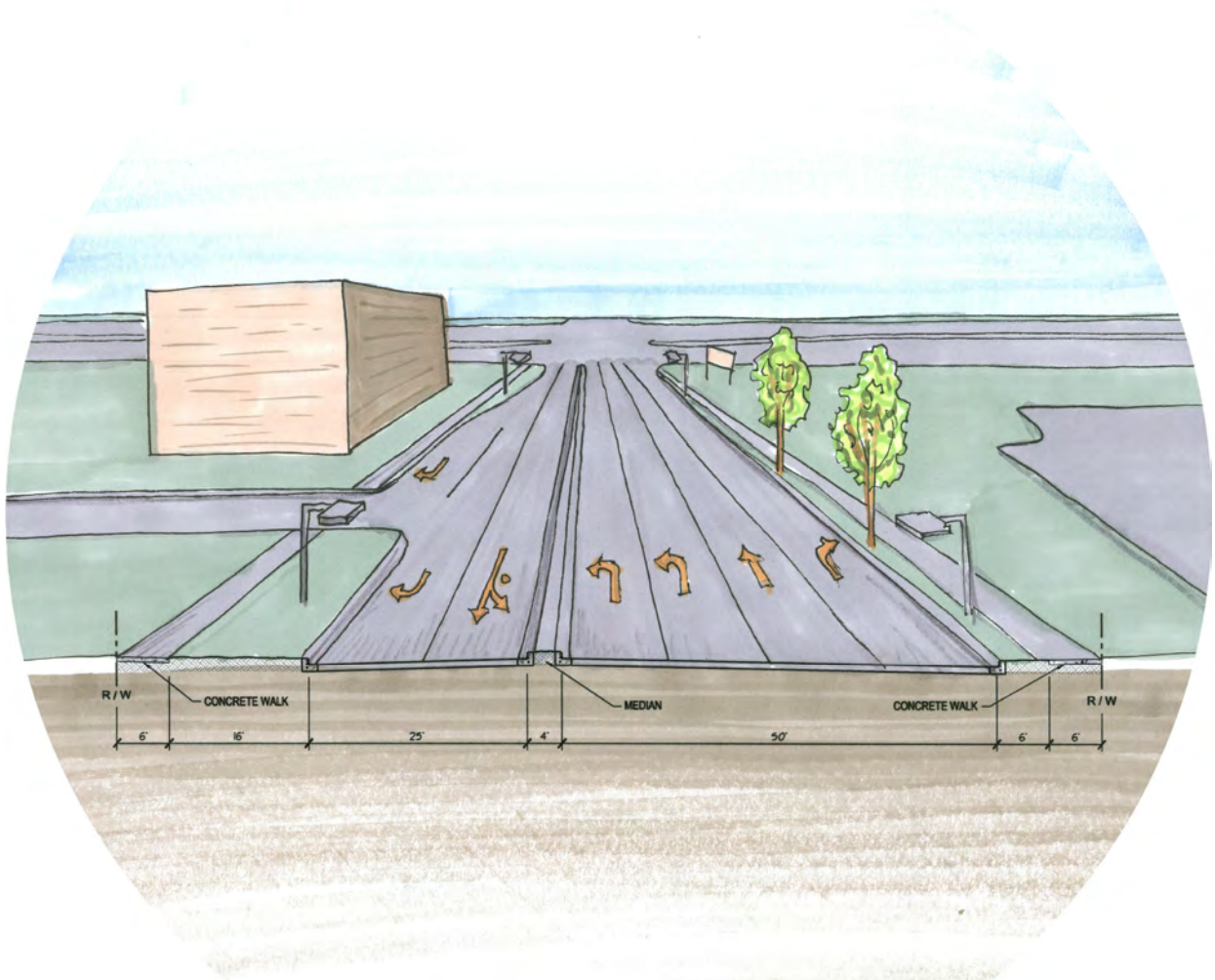
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #2
Sunwood Dr. West of Zeolite St.

THE COR
RAMSEY, MINNESOTA



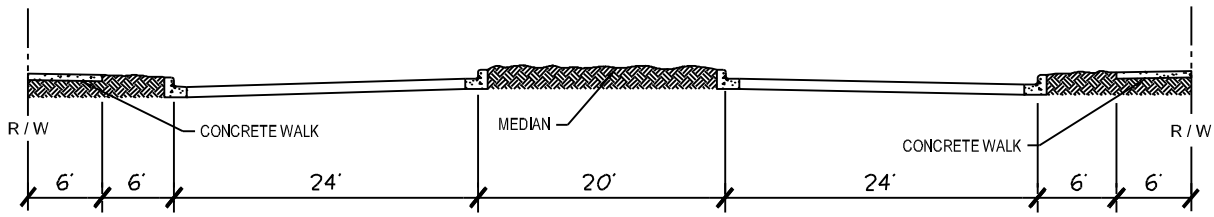


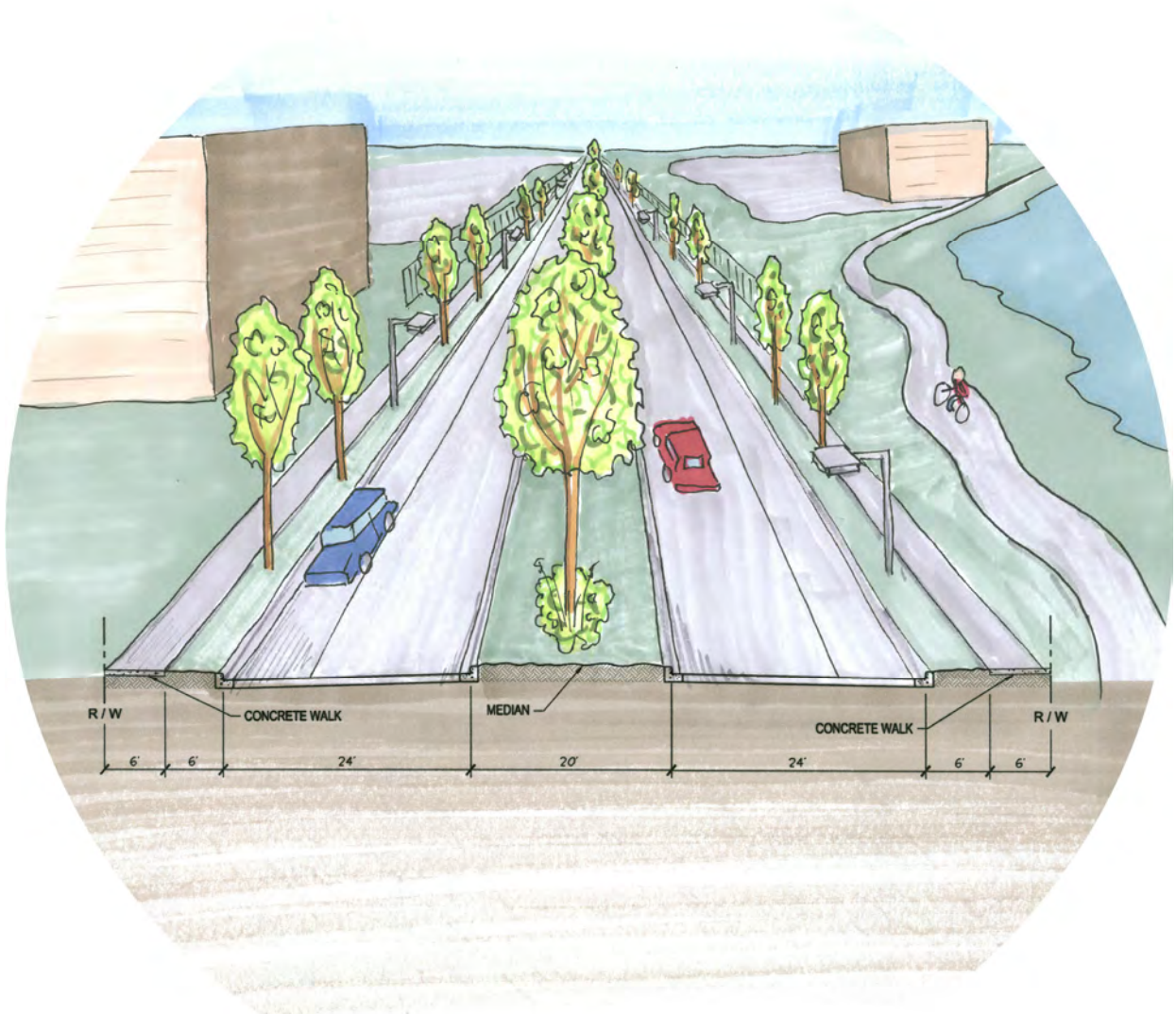
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #3
Ramsey Pkwy. West of Roundabout

THE COR
RAMSEY, MINNESOTA



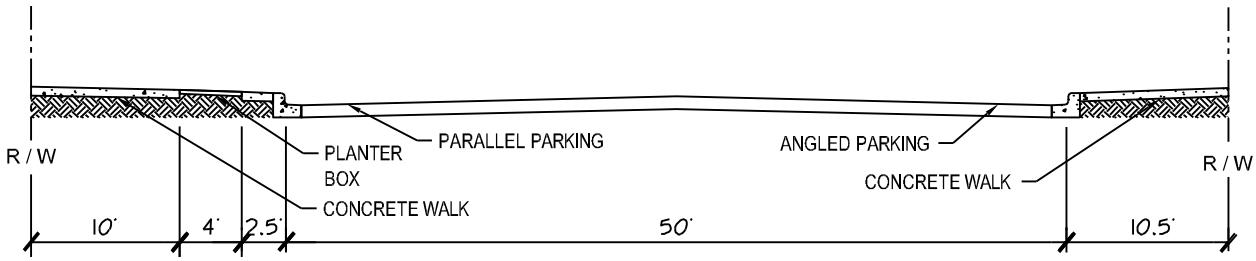


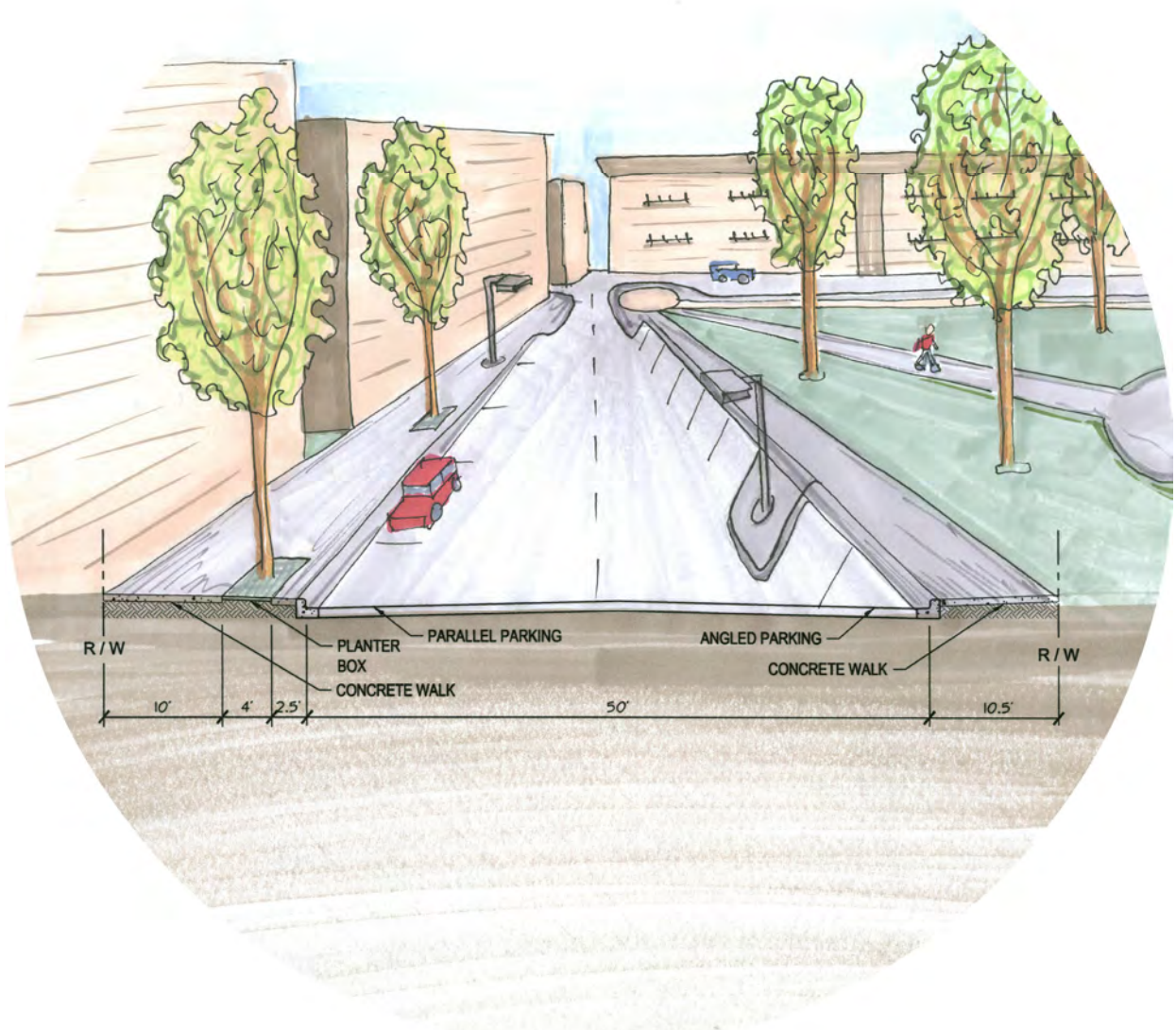
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #4
Ramsey Pkwy. East of Zeolite St.

THE COR
RAMSEY, MINNESOTA



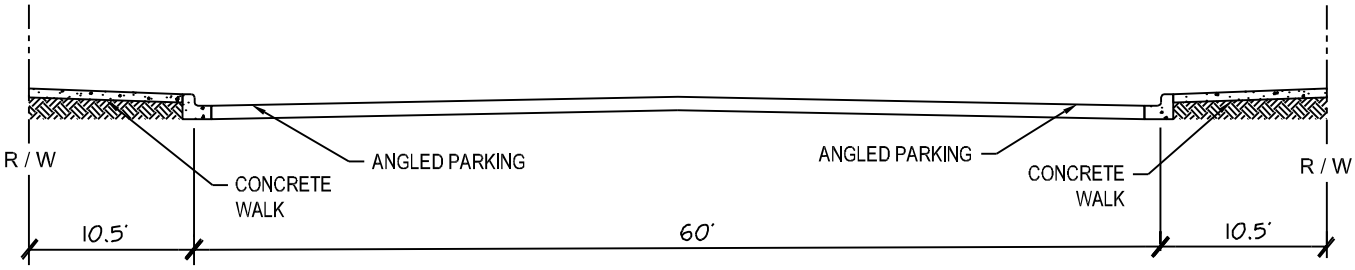


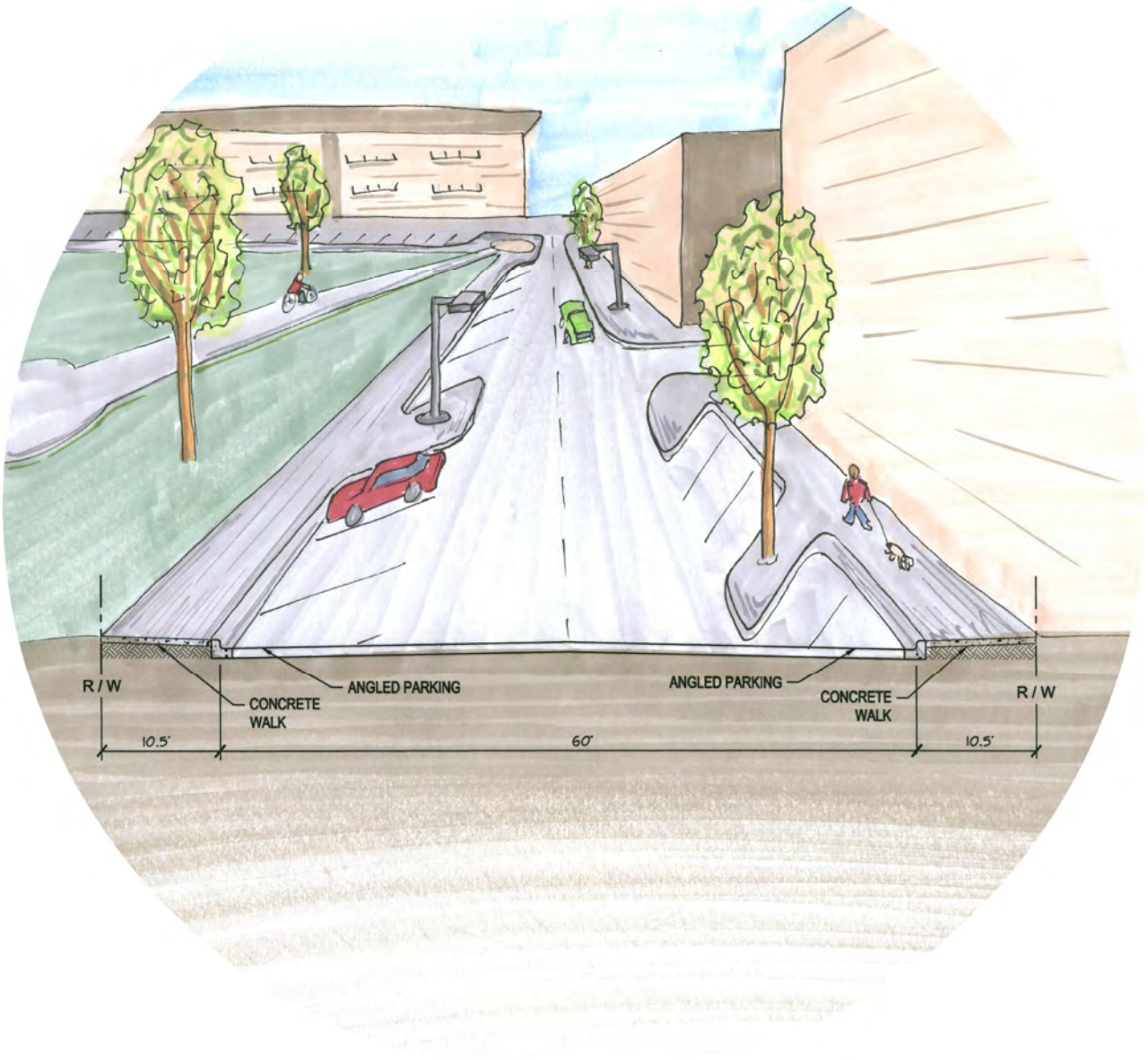
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #5
West of Municipal Plaza

THE COR
RAMSEY, MINNESOTA



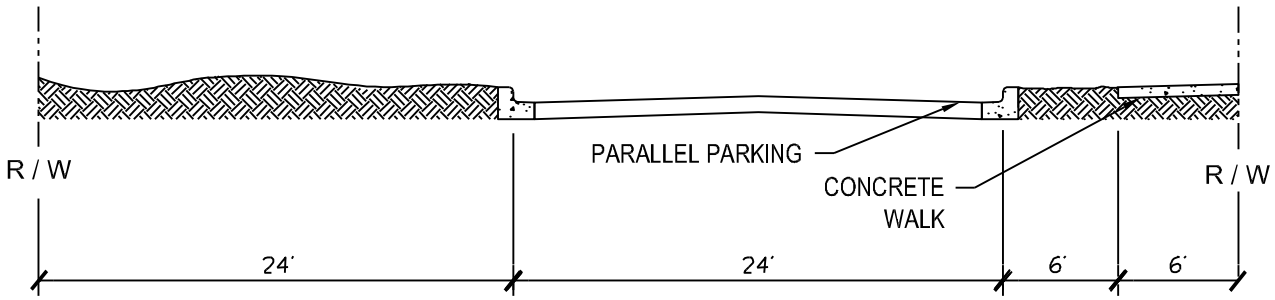


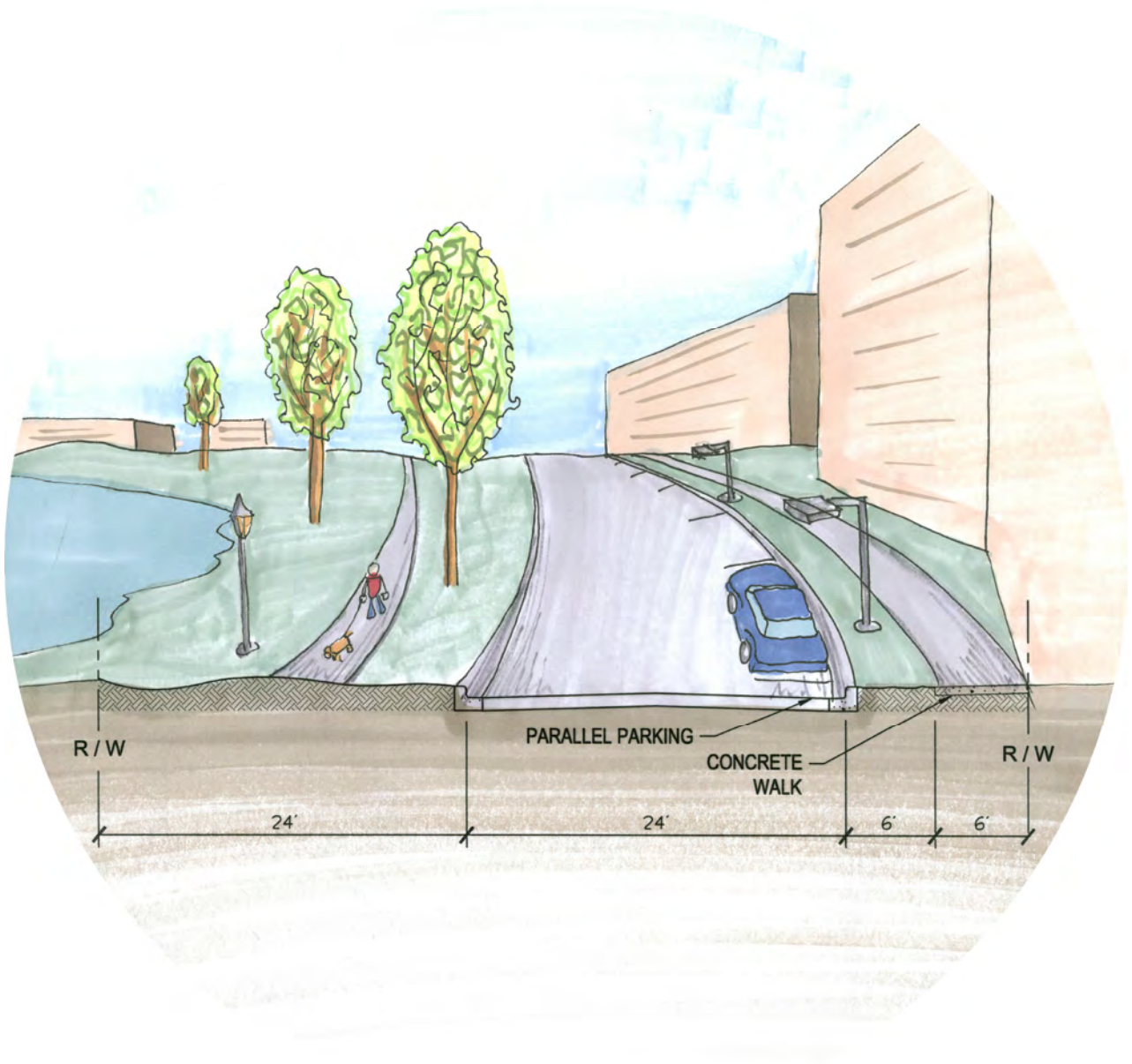
LANDFORM
From Site to Finish

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

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

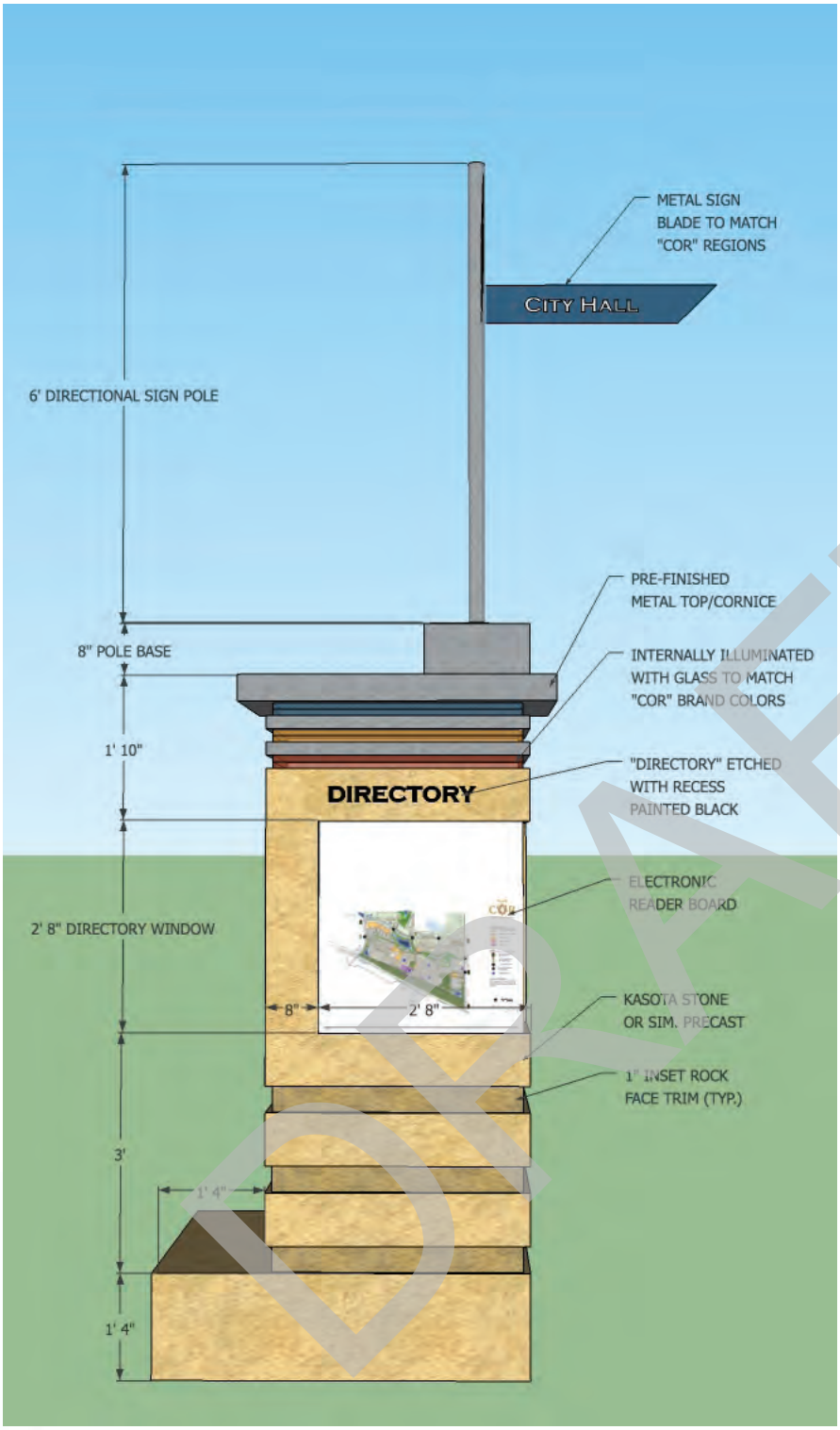
EXHIBIT B.3

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

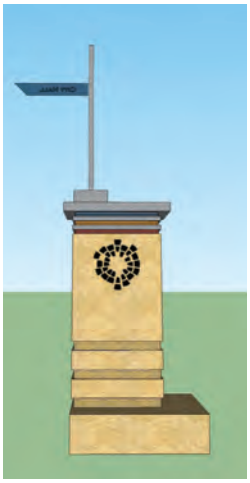
PYLON/COMMUNITY SIGN 'C'
Ramsey Blvd. & Highway 10

THE COR
RAMSEY, MINNESOTA

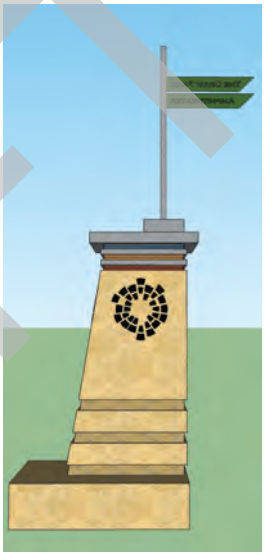


DIRECTORY PANEL VIEW

EVENTS PANEL VIEW

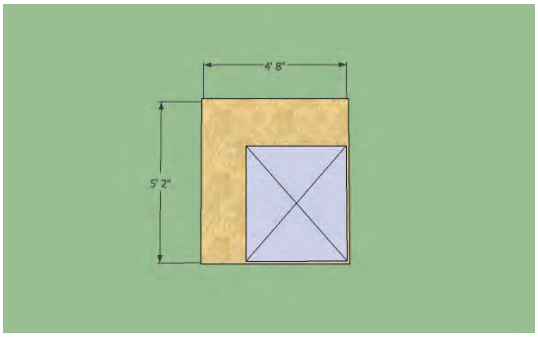


REAR VIEW



SIDE VIEW

PERSPECTIVE



PLAN VIEW

DRAFT

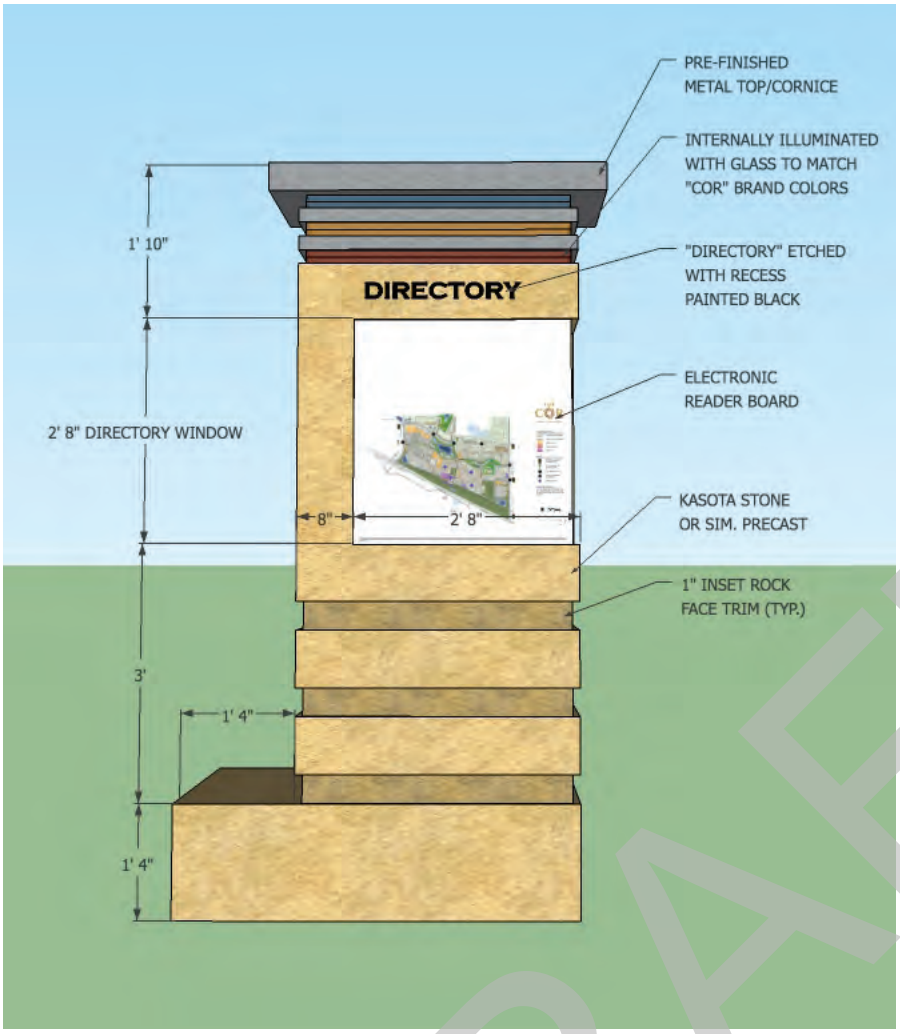
EXHIBIT B.4

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

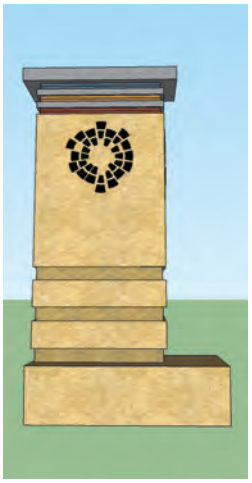
COMMUNITY KIOSK 'A'
Commuter Rail & Veterans Dr.

THE COR
RAMSEY, MINNESOTA



DIRECTORY PANEL VIEW

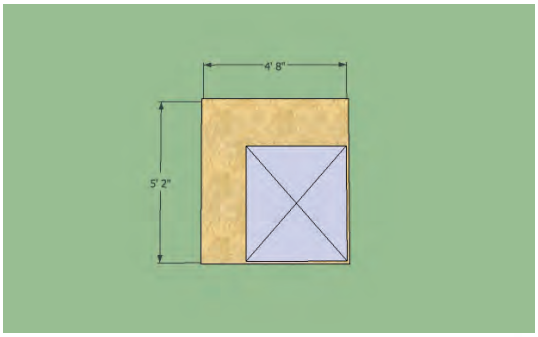
EVENTS PANEL VIEW



REAR VIEW

SIDE VIEW

PERSPECTIVE



PLAN VIEW

DRAFT

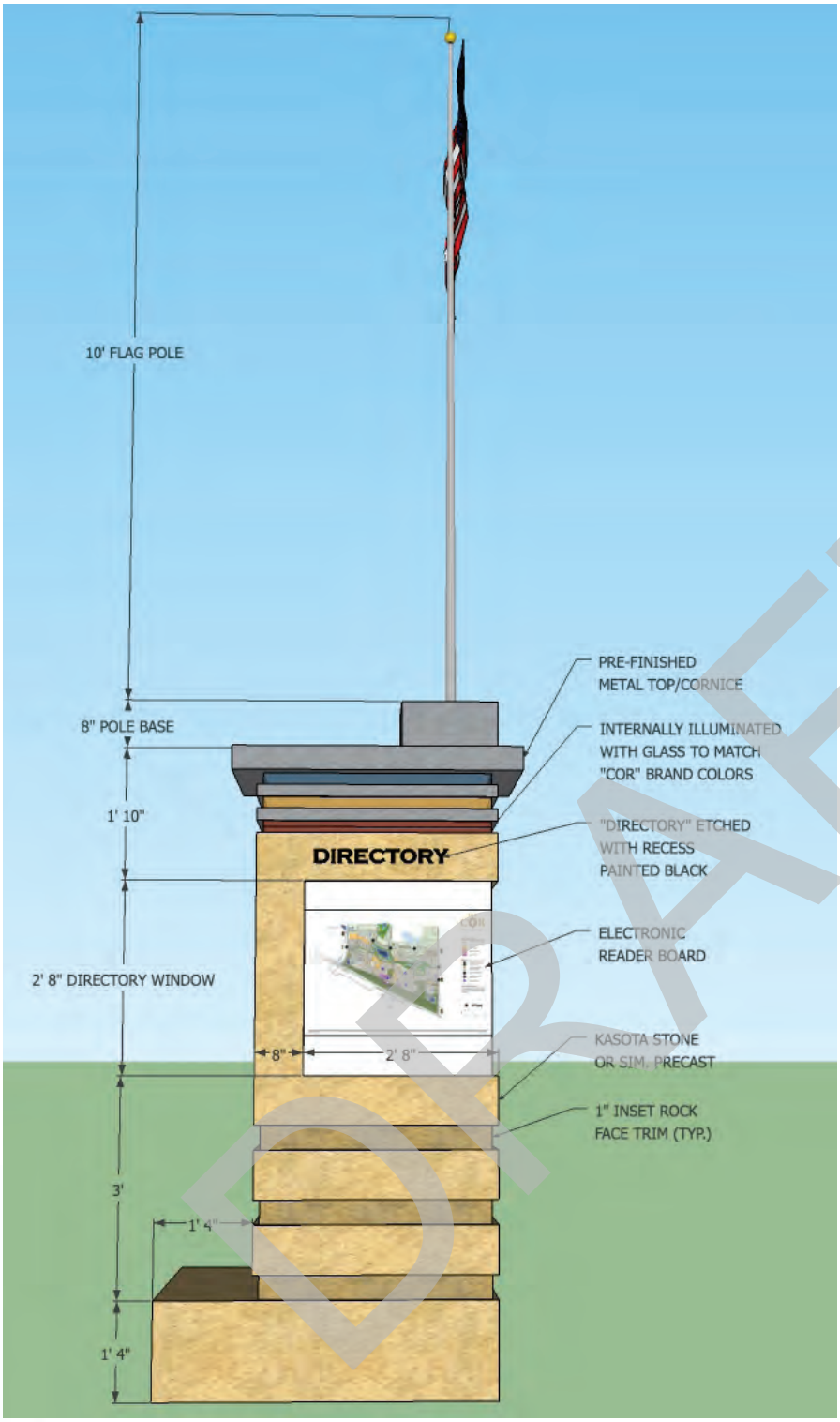
EXHIBIT B.5

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

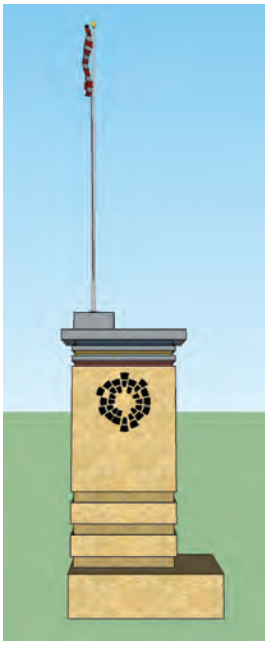
COMMUNITY KIOSK 'B'
Sunwood Dr. & Center St.

THE COR
RAMSEY, MINNESOTA



DIRECTORY PANEL VIEW

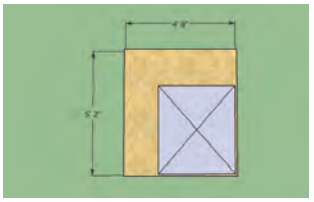
EVENTS PANEL VIEW



REAR VIEW

SIDE VIEW

PERSPECTIVE



PLAN VIEW

DRAFT

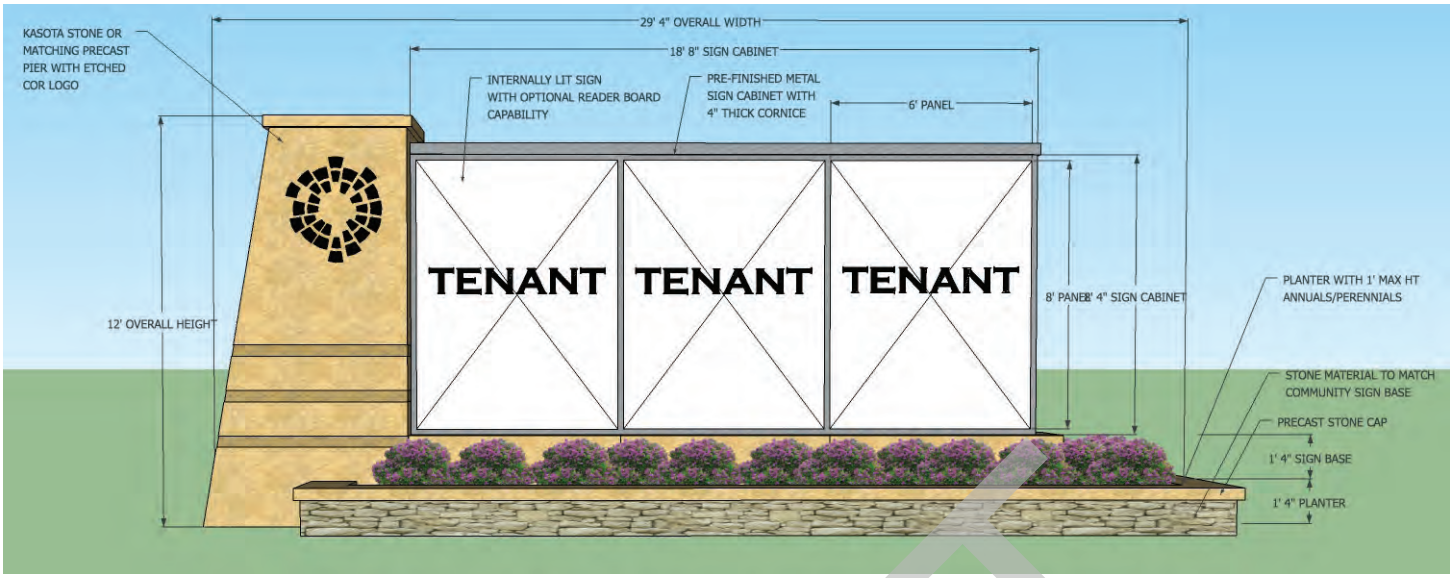
EXHIBIT B.6

LANDFORM
From Site to Finish

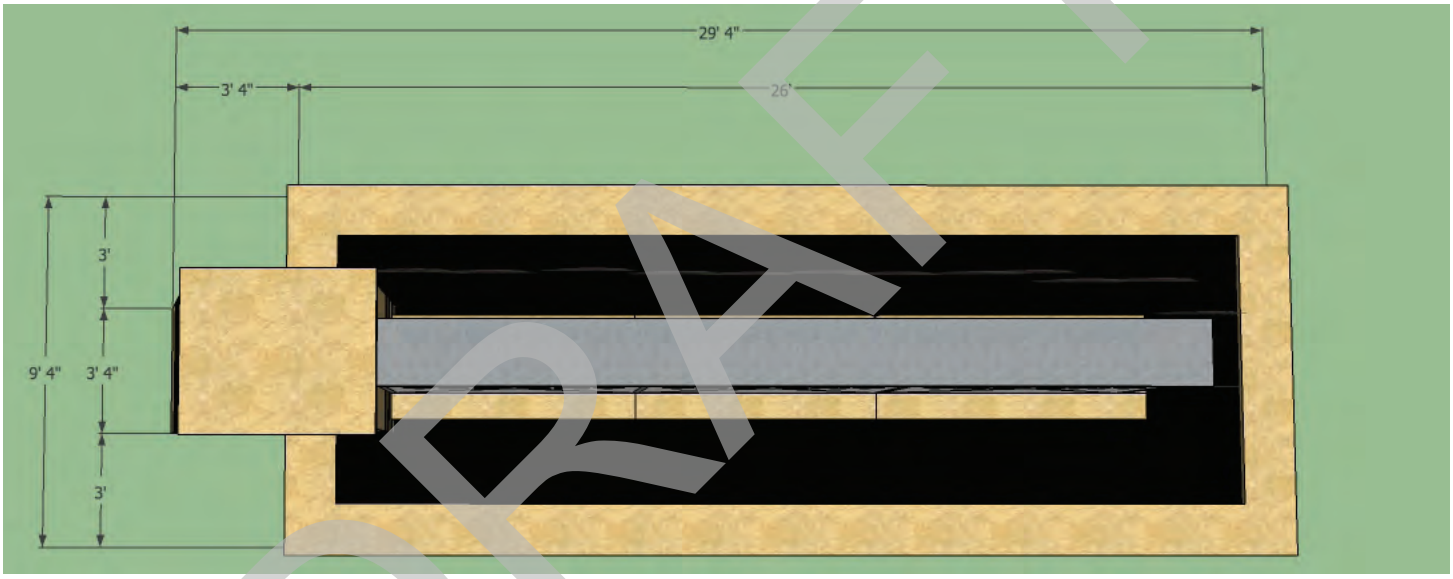
DESIGN FRAMEWORK
The COR at Ramsey

COMMUNITY KIOSK 'C'
Sunwood Dr. at Municipal Plaza

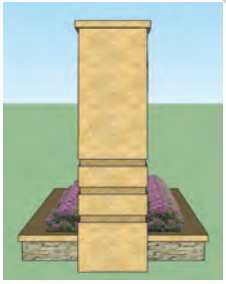
THE COR
RAMSEY, MINNESOTA



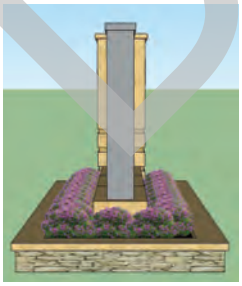
ELEVATION AT SUNWOOD



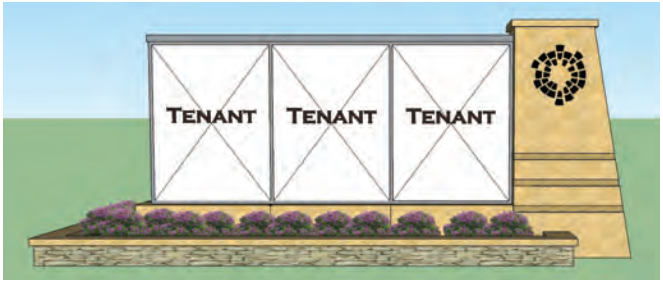
PLAN VIEW



PROFILE VIEW



PROFILE VIEW



ELEVATION

EXHIBIT B.7

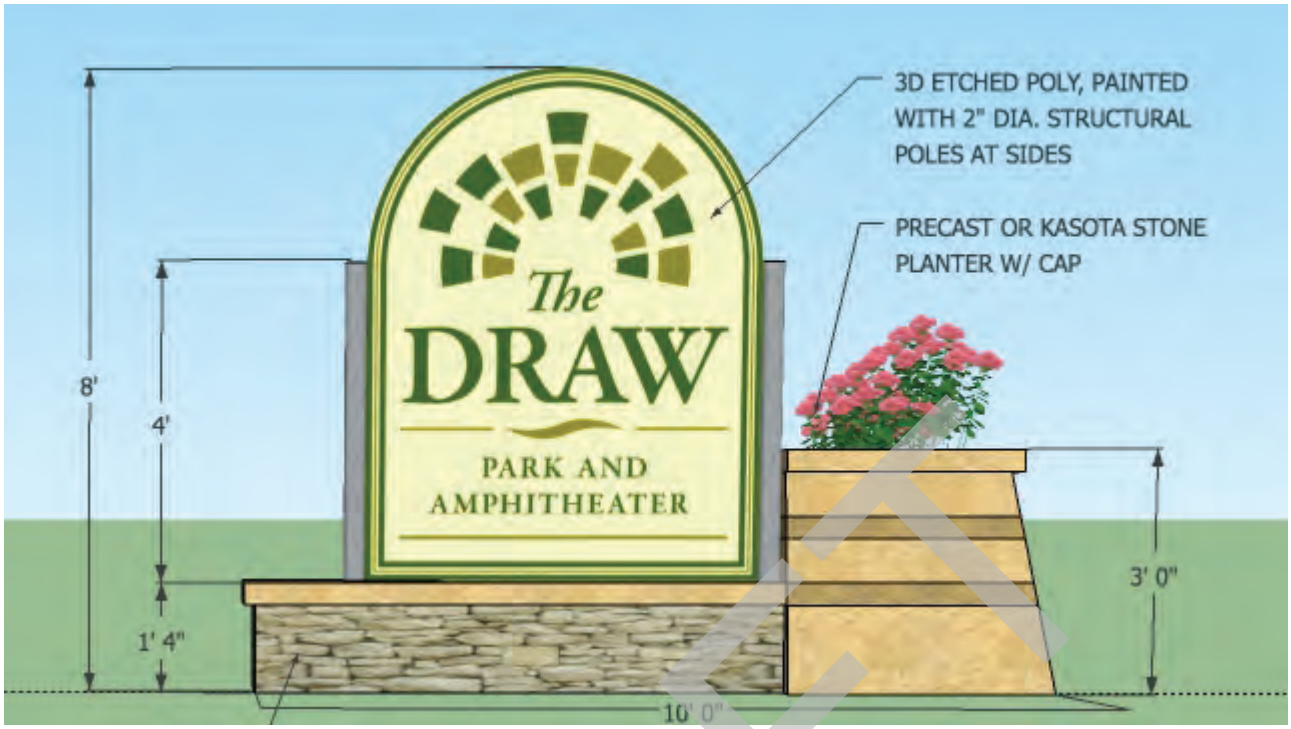
DRAFT

LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PROJECT GATEWAY SIGN 'A'
Sunwood Dr. & Armstrong Blvd.

THE COR
RAMSEY, MINNESOTA



DRAFT

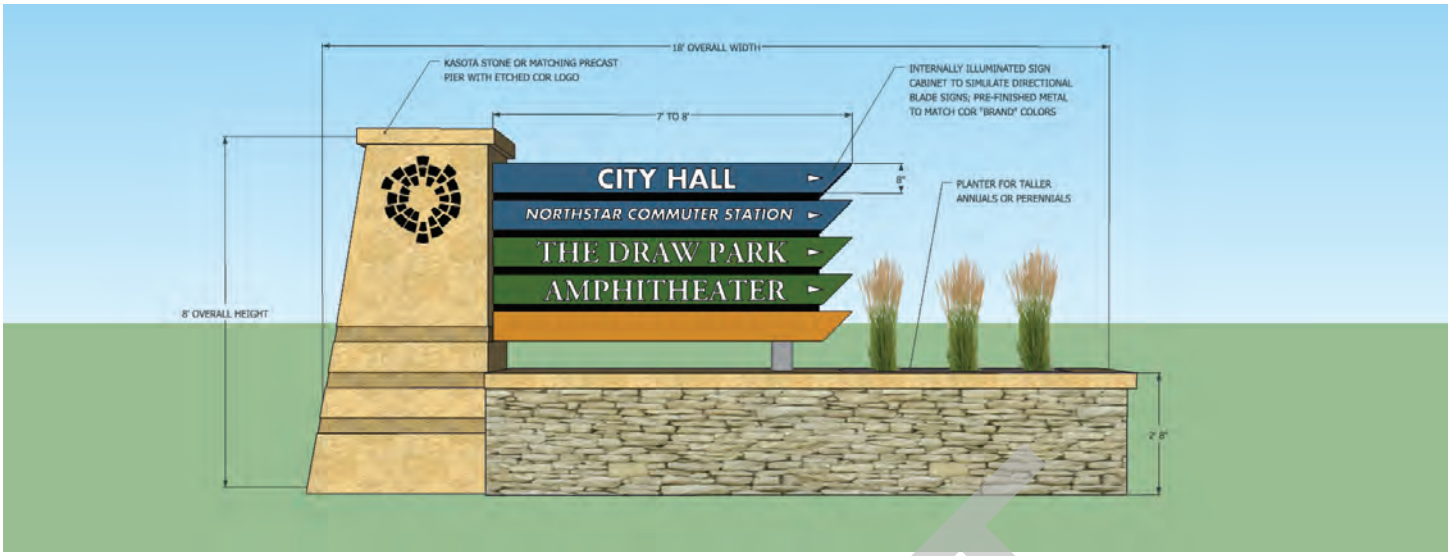
EXHIBIT B.8

LANDFORM
From Site to Finish

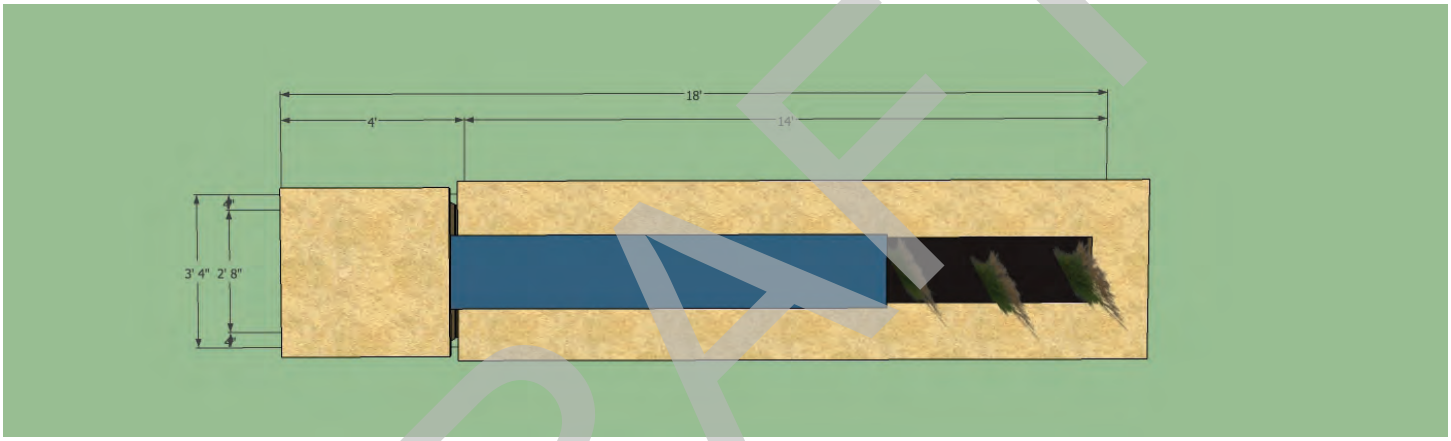
DESIGN FRAMEWORK
The COR at Ramsey

PUBLIC PARK SIGNS

THE COR
RAMSEY, MINNESOTA

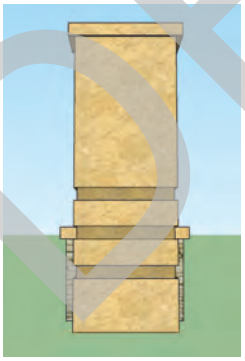


ELEVATION AT EASTBOUND BUNKER LAKE



PLAN VIEW

PROFILE VIEW



PROFILE VIEW

ELEVATION AT WESTBOUND BUNKER LAKE

DRAFT

EXHIBIT B.9

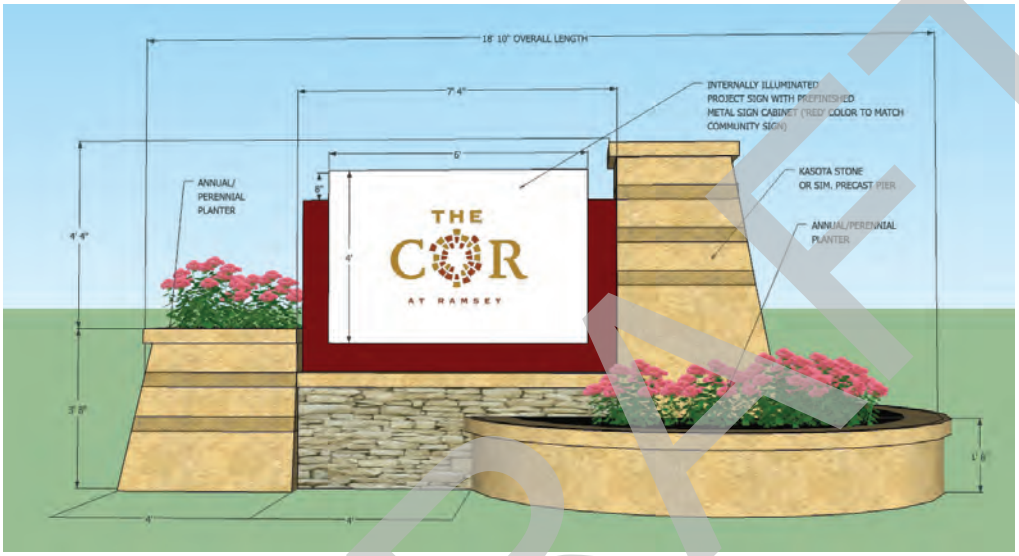
LANDFORM
From Site to Finish

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

PERSPECTIVE

DRAFT

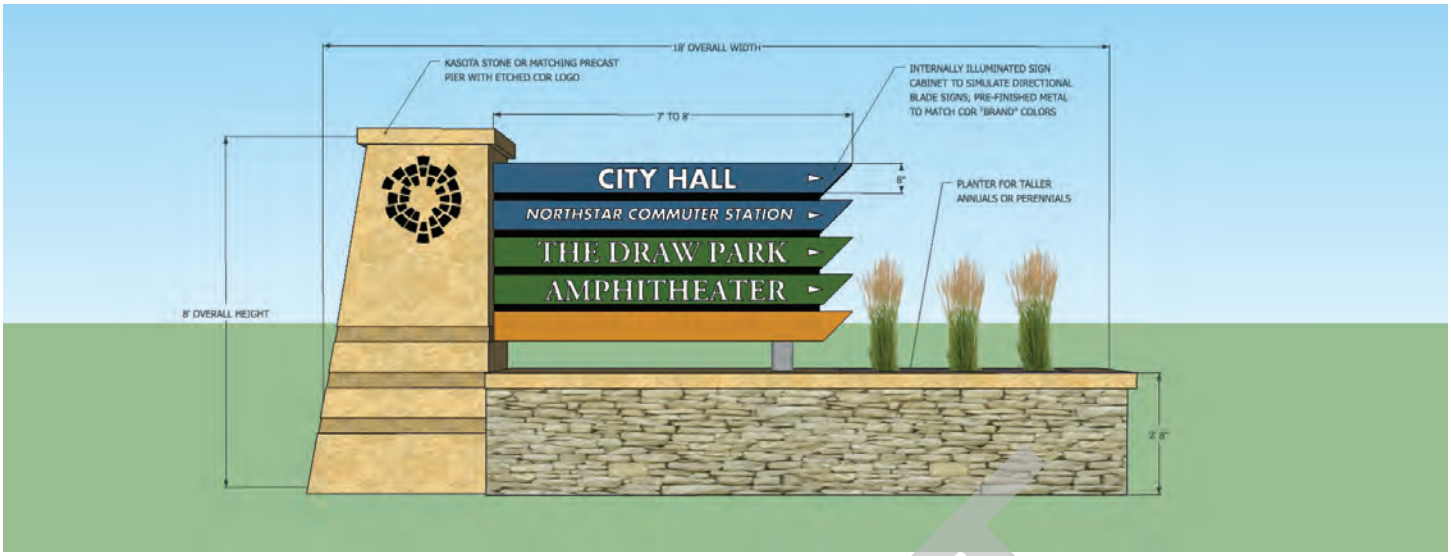
EXHIBIT B.10

LANDFORM
From Site to Finish

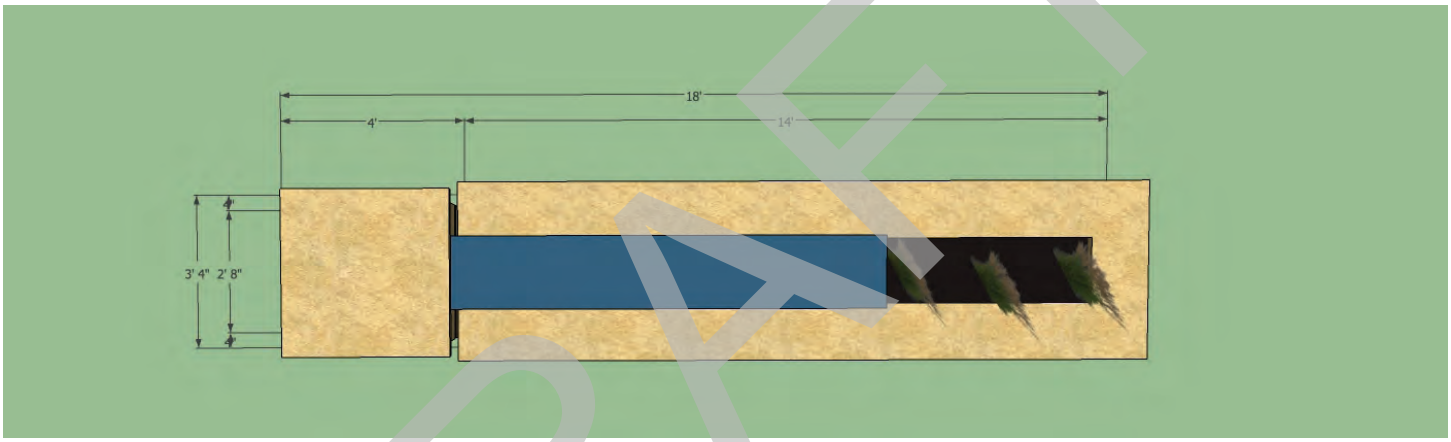
DESIGN FRAMEWORK
The COR at Ramsey

PROJECT GATEWAY SIGN 'D'
Bunker Lake Blvd. & Ramsey Blvd.

THE COR
RAMSEY, MINNESOTA

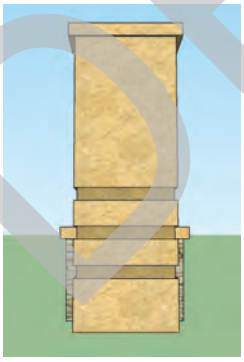


ELEVATION AT SOUTHBOUND RAMSEY



PLAN VIEW

PROFILE VIEW



PROFILE VIEW

ELEVATION AT NORTHBOUND RAMSEY

DRAFT

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

Capital Improvement Program

2020 *thru* 2029

City of Ramsey, Minnesota

Project # 04-WTR-005

Project Name Complete Pump House 3

Department Water Utility
Contact Unassigned
Type Improvement
Useful Life 50 Years
Category Water Utility Improvement
Priority 1-Existing Obligation (High)
Status Active

Total Cost $240,000

Description

This project would add stone and other treatments to the exterior of the unfinished pumphouse to reflect the civic architecture in The COR, to include public buildings, landscaping, as well as, streetscaping.

Additionally, detailed planning in 2019 identified the value in adding to this highly visible public site - a restroom and a plaza/seating area along Center Street. The project will also consider photovoltaic panels to screen some of the industrial looking roofline and shade for the seating area. This power can be available for some the of the public irrigation systems - ex: the pumphouse.

Justification

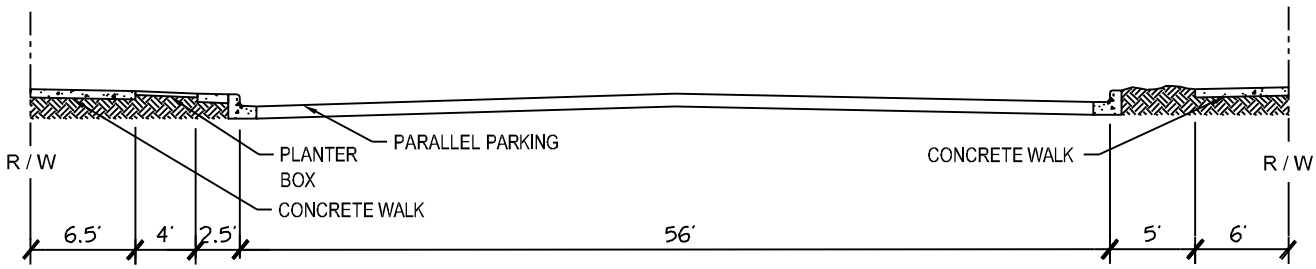
The purpose and outcome would be to complete the building that has been in an unfinished state for more than a decade. The improvements coincide with the tens of millions of dollwars in adjoining private investments in Ramsey's Downtown District.

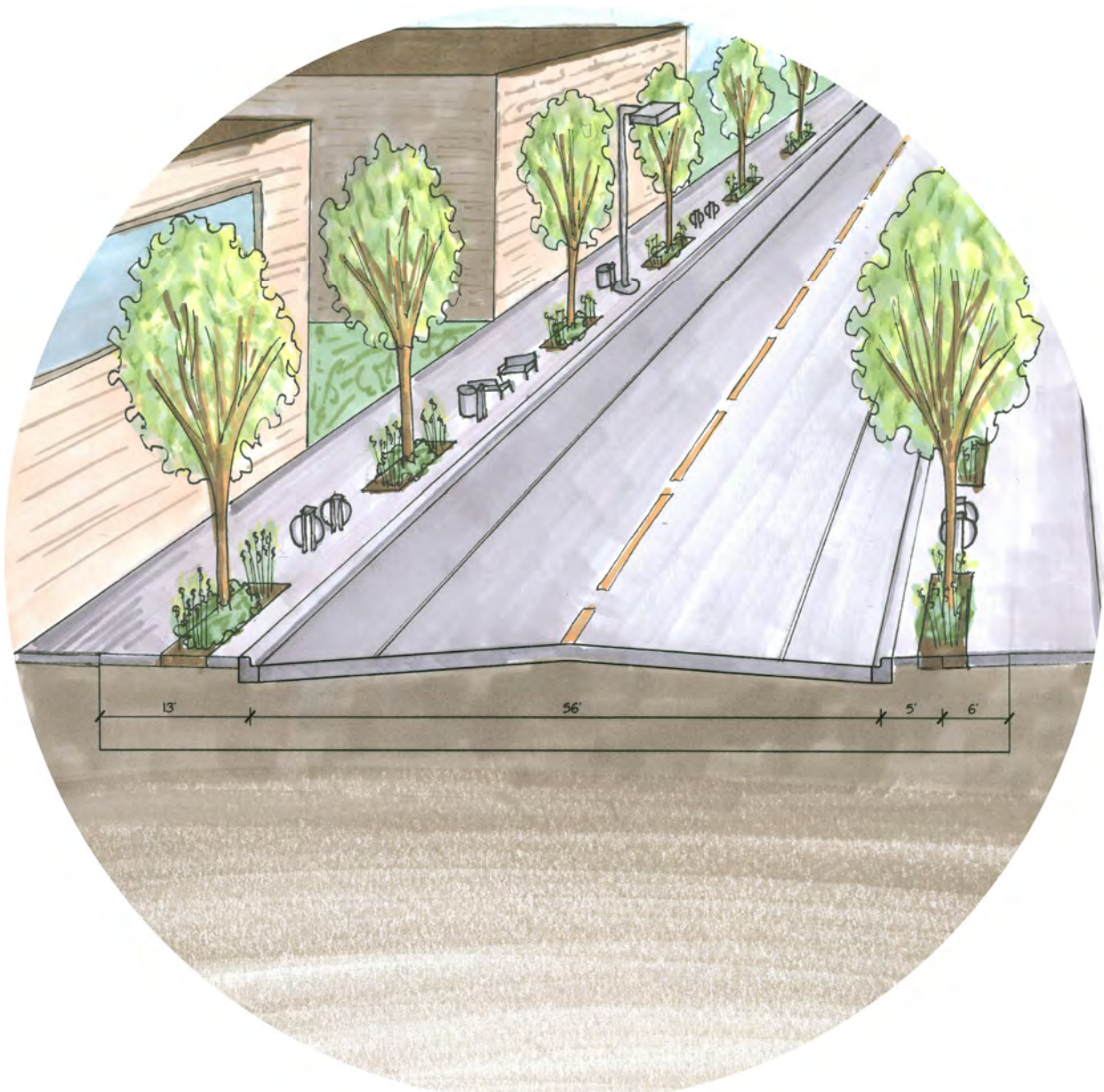
Expenditures	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Improvements Other than Building Cost	240,000										240,000
Total	**240,000**										**240,000**

Funding Sources	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Grants/Outside Sources	30,000										30,000
Water Utility Fund	210,000										210,000
Total	**240,000**										**240,000**

DANGER
CHEMICAL ROOM
AUTHORIZED
PERSONNEL
ONLY
DANGER
CHLORINE
GAS

DANGER !
EAR PROTECTION
REQUIRED IN
THIS AREA



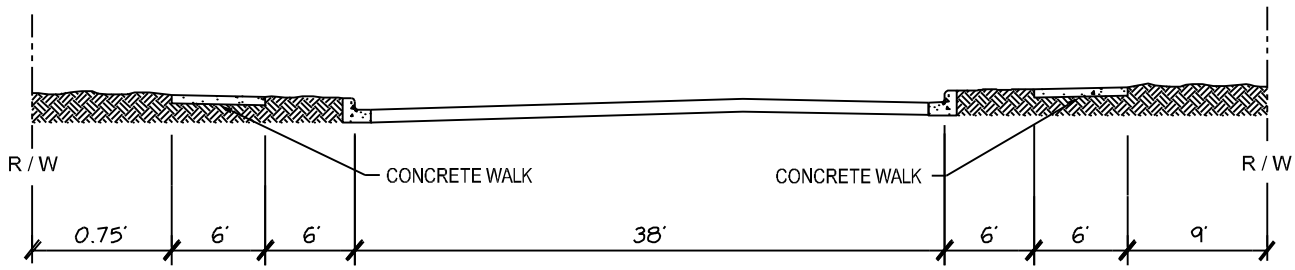


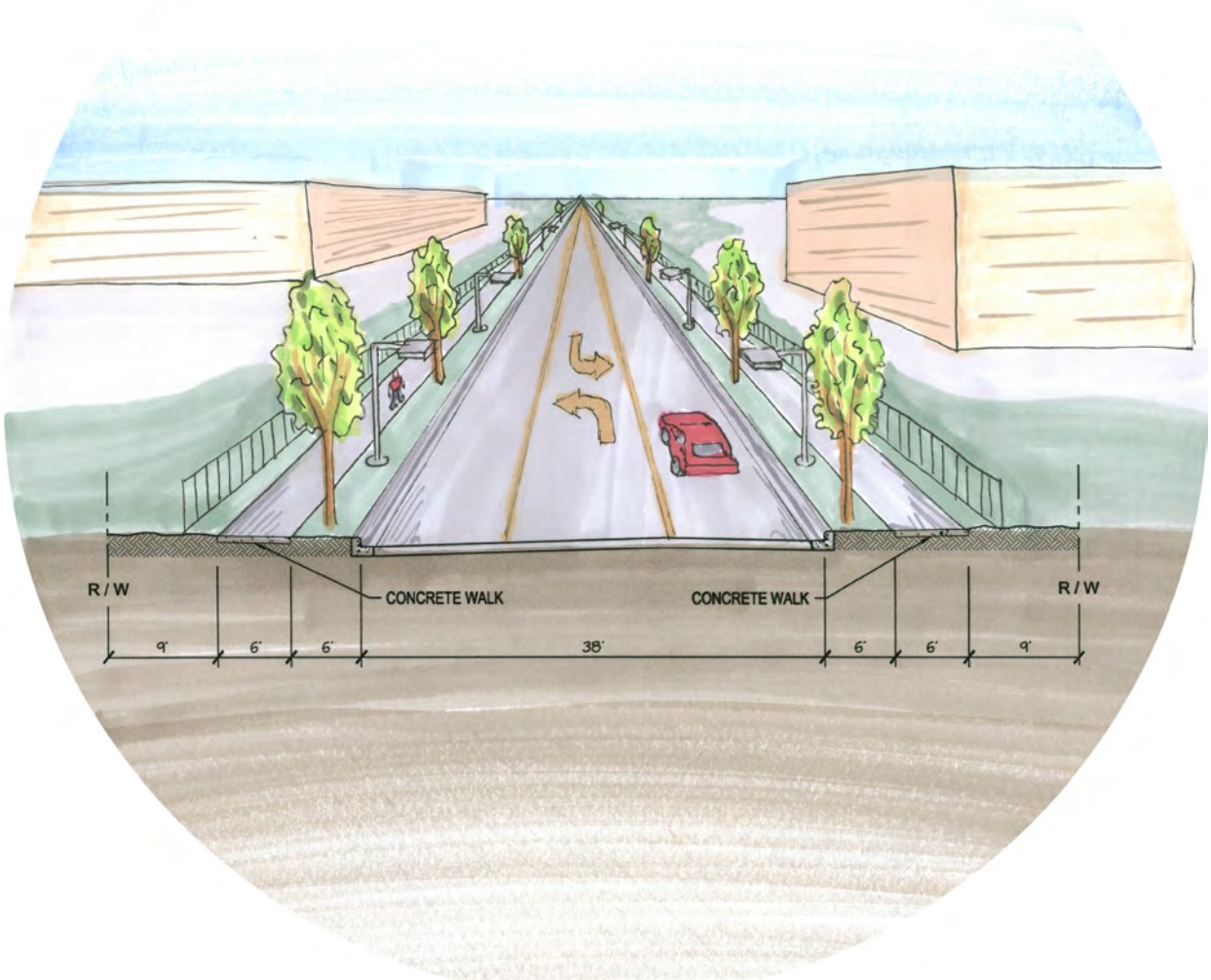
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #1
Sunwood Dr. East of Zeolite St.

THE COR
RAMSEY, MINNESOTA



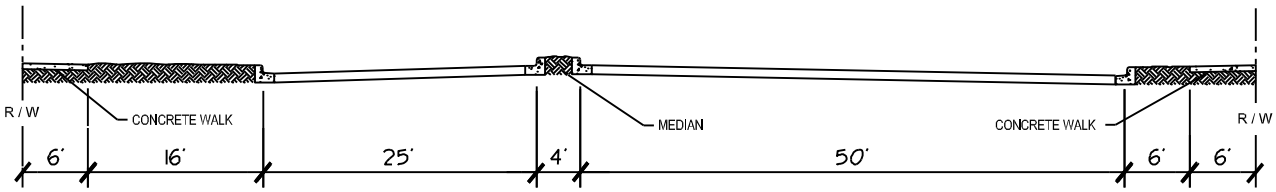


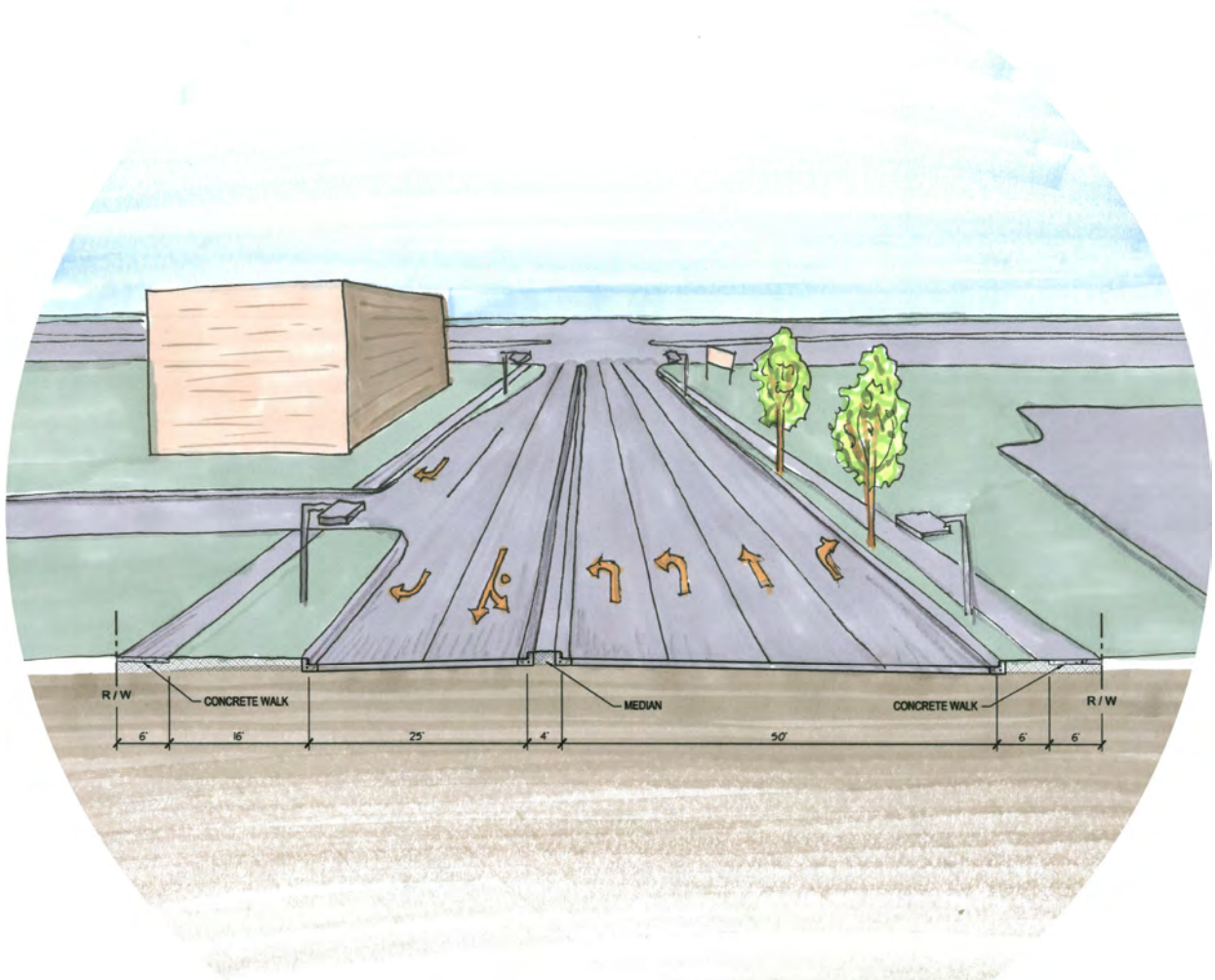
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #2
Sunwood Dr. West of Zeolite St.

THE COR
RAMSEY, MINNESOTA



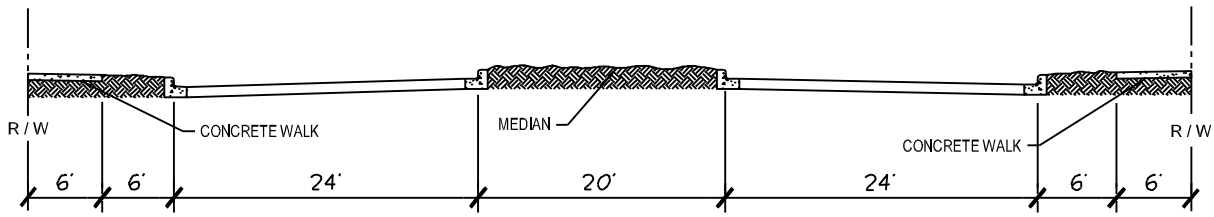


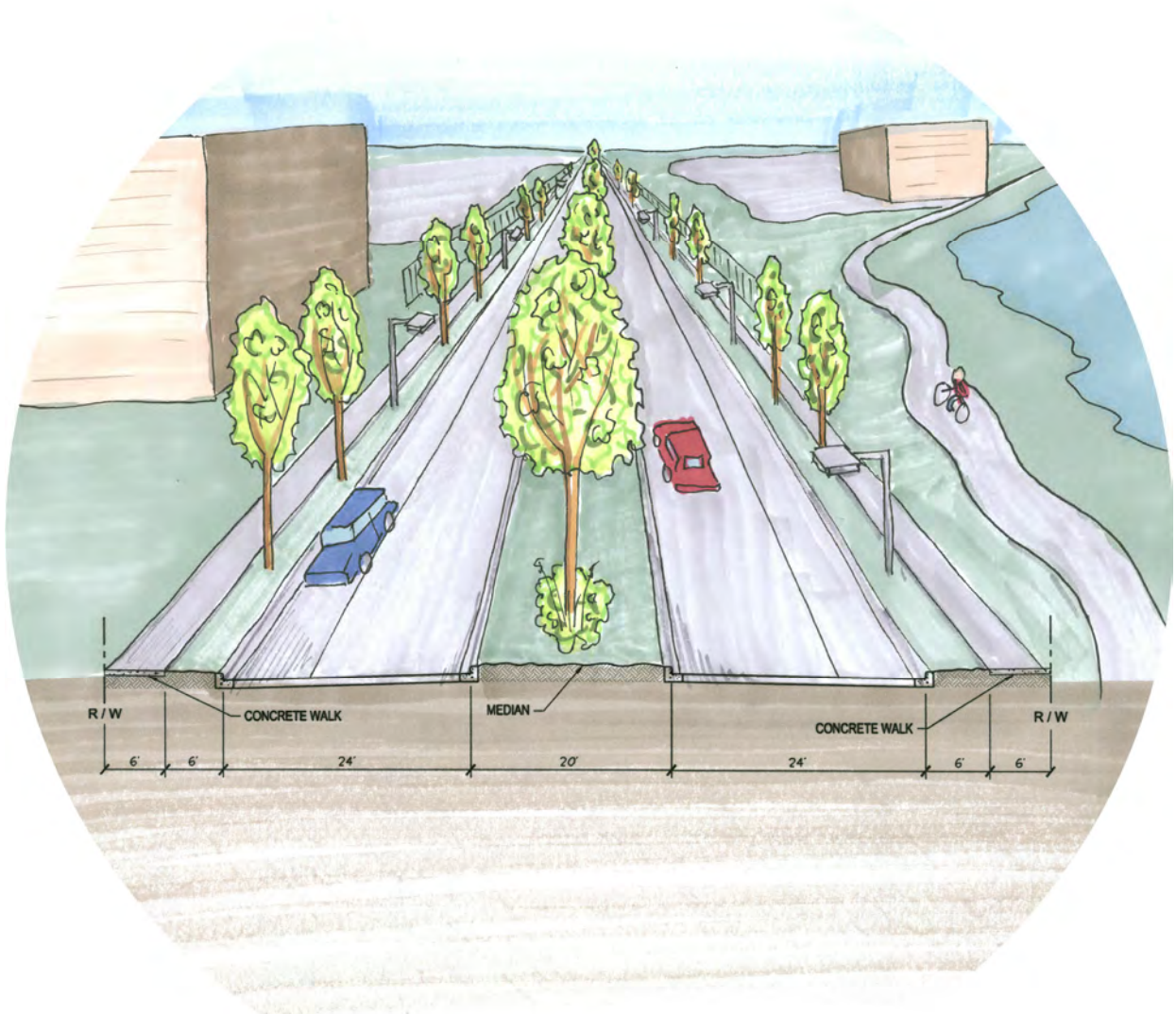
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #3
Ramsey Pkwy. West of Roundabout

THE COR
RAMSEY, MINNESOTA



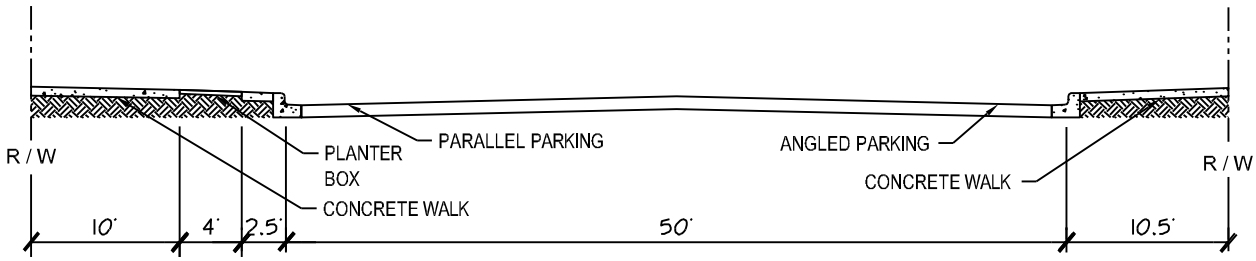


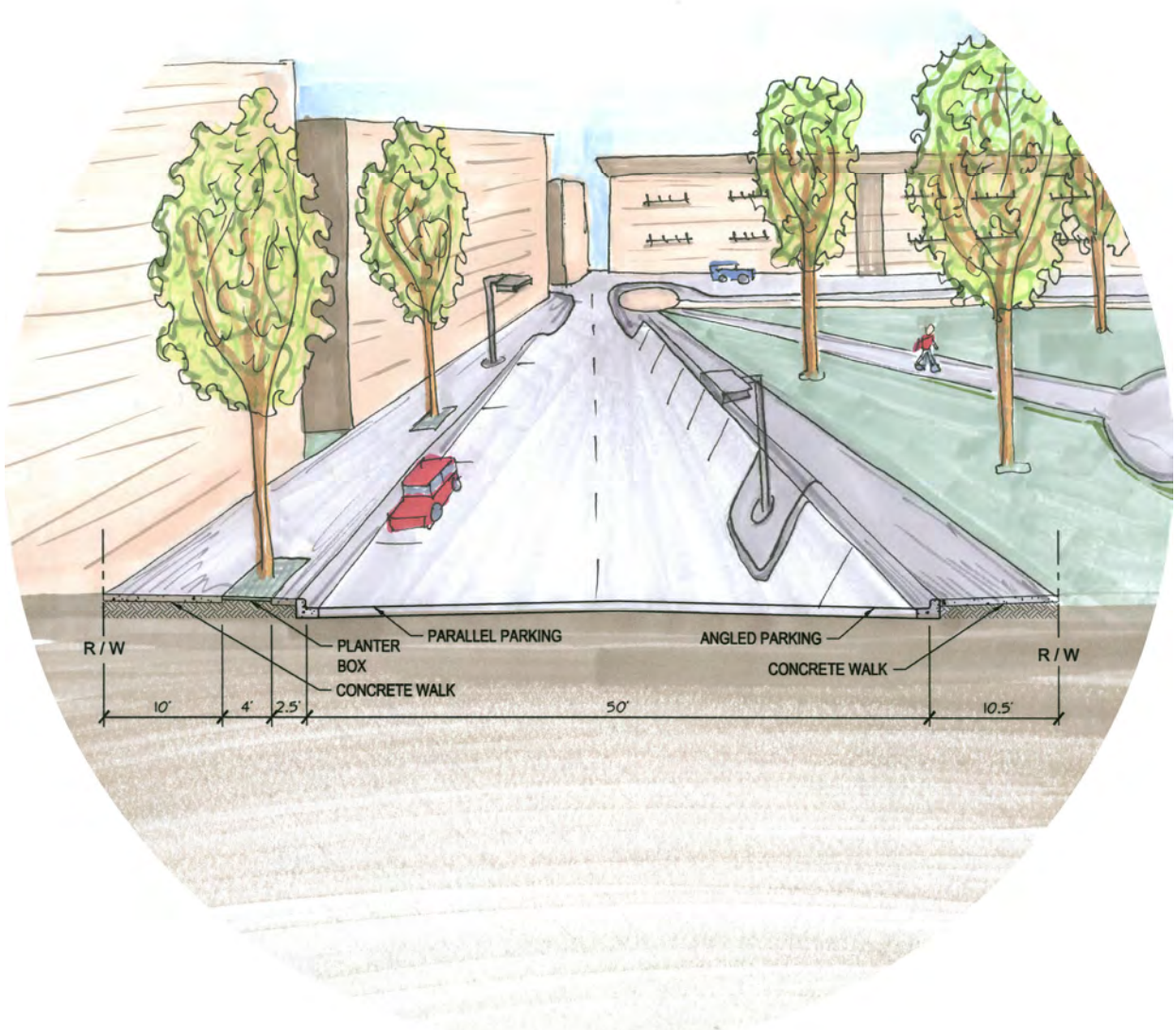
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #4
Ramsey Pkwy. East of Zeolite St.

THE COR
RAMSEY, MINNESOTA



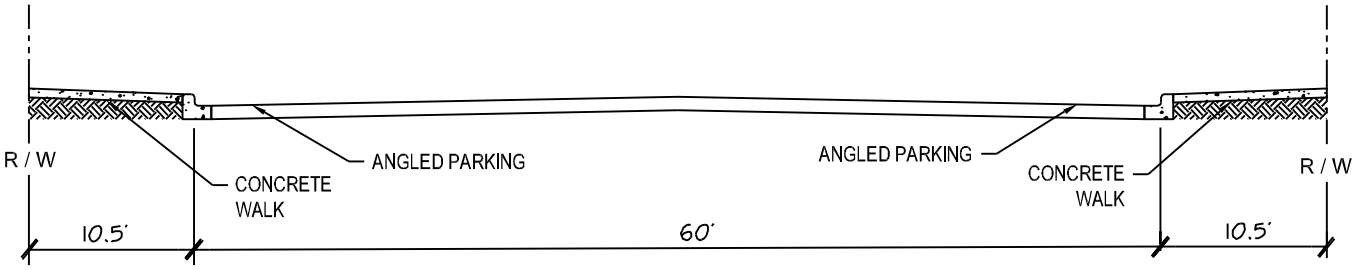


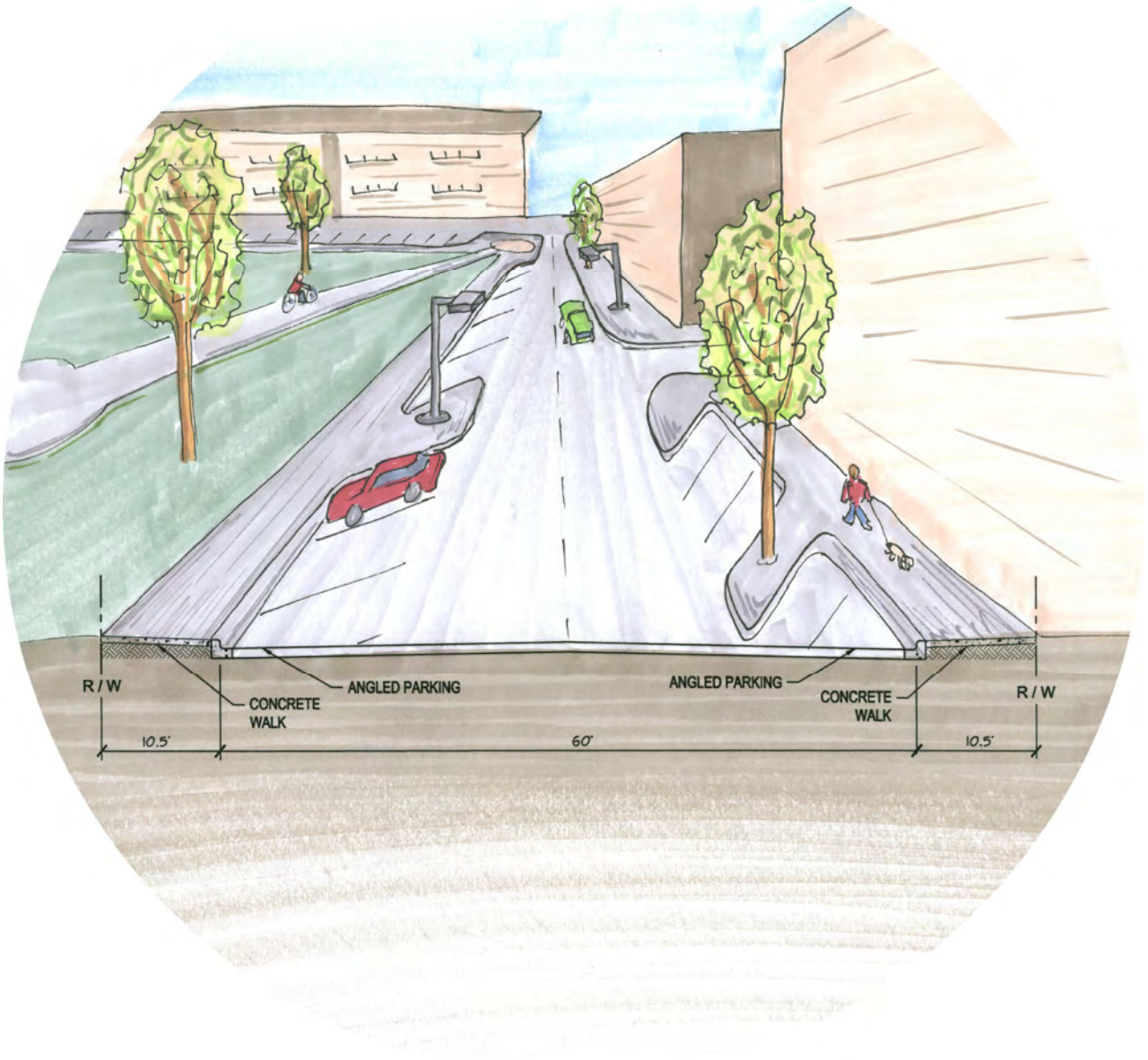
LANDFORM
From Site to Finish

DESIGN FRAMEWORK
The COR at Ramsey

PERSPECTIVE SECTION #5
West of Municipal Plaza

THE COR
RAMSEY, MINNESOTA



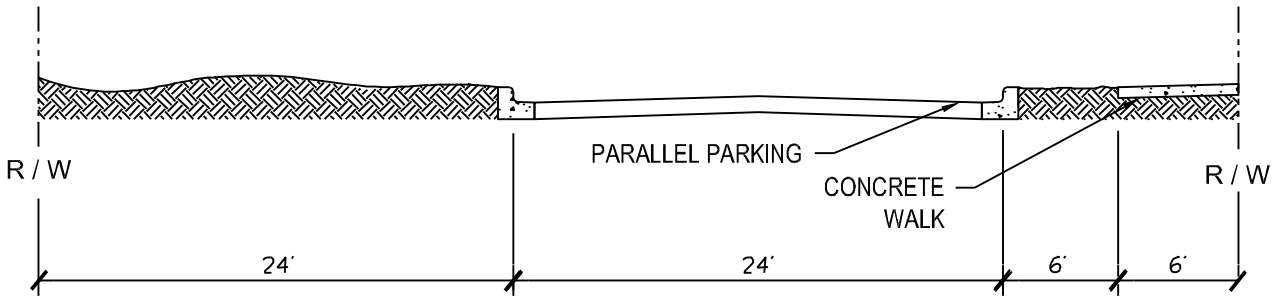


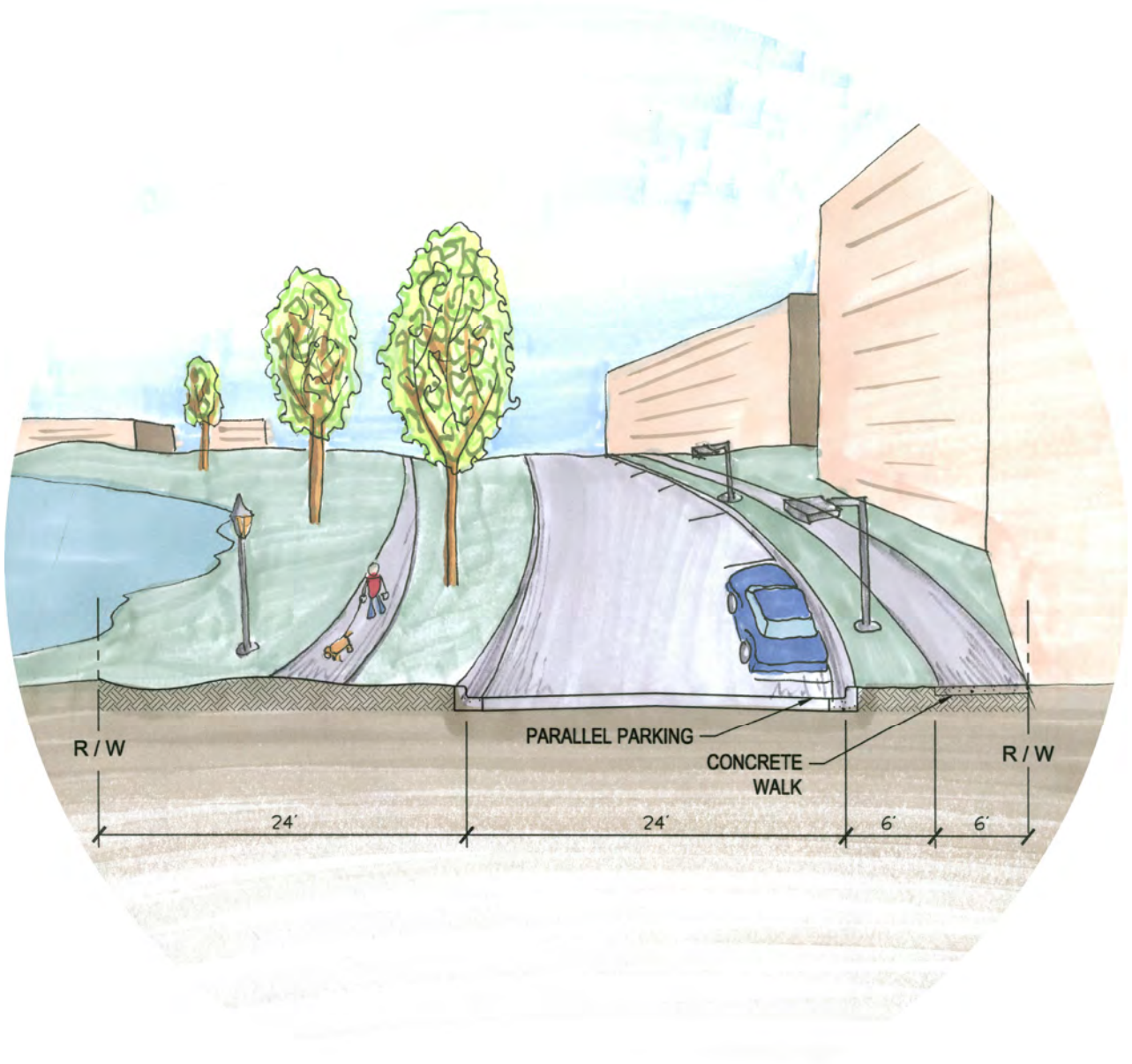
LANDFORM
From Site to Finish

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

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City Hall: 763.427.1410 • Fax: 763.427.5543
www.cityoframsey.com

The COR Interim Development Plan

Anticipated Adoption: 2017

City Council	Mayor Sarah Strommen Councilmember At-Large John LeTourneau Councilmember At-Large Kristine Williams Ward 1 Councilmember Jill Johns Ward 2 Councilmember Mark Kuzma Ward 3 Councilmember Melody Shryock Ward 4 Councilmember Chris Riley
Planning Commission	Chairperson Randy Bauer Vice-Chairperson Gary Van Scoy Bruce Anderson Ralph Brauer Cheri Gengler Cindy Nosan Patrick Surma Former Chairperson Gary Levine (in memory)
Economic Development Authority	Chairperson Jim Steffen Vice-Chairperson Wayne Skaff Philip Brundt Brian Burandt Glen Hardin Chris Riley (Council Representative) Kristine Williams (Council Representative)
Parks and Recreation Commission:	Shane Bennett, Chairperson Russell Bayer Andrew Fyten Jennifer Lestico Brandon Sis Charles Tchuinkwa Jon Trappen

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Environmental Policy Board	Thomas Stadola, Chairperson Michael Valentine, Vice-Chairperson Colleen Anderson Reid Bernard Jane Covart Michael Hiatt Lucas Trossen
Staff Team:	Tim Gladhill, Community Development Director Kurt Ulrich, City Administrator Patrick Brama, Asst. City Administrator/Economic Dev. Manager Chris Anderson, City Planner Bruce Westby, City Engineer Mark Riverblood, Parks and Asst. Public Works Superintendent

Version: I:\The Cor\2015 Vision Clarification\Vision Document 2017\Interim Development Plan\The COR Interim Development Plan.Docx 4/3/2017 2:07 PM

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Purpose of Interim Plan

The purpose of this document is to set into motion potential land use policy changes for The COR. In 2015, the City's Planning Commission described a need to evaluate and clarify the vision for The COR in response to several project approvals.

The Land Use Plan and Zoning Code are not the vision. They are the tool to achieve the vision. Focus on the elements that are important to us, regardless of the land use (examples include, but are not limited to greenway connections, sense of place, walkability). There are ways to achieve the vision, regardless of the use.

Common Terms

The COR Development Plan. This is the existing land use plan for The COR circa 2011. This is the official control and legal basis for land use decisions within The COR. Also referred to as the 'Development Plan'. This is the 'second generation plan' for the development, preceded by the Ramsey Town Center Master Plan.

The COR Interim Development Plan. This is the document you are reading now. While the City continues to refine land use recommendations and feasibility analysis for The COR, this document is intended to be a guiding policy document to review quality projects that do not meet the strict adherence to The COR Development Plan. Also referred to as the 'Interim Development Plan'.

The COR Development Plan Amendment. This is a future document. This will be the document that updates the Zoning Code, otherwise known as the official controls, for The COR. This will replace existing Comprehensive Plan, Zoning Code, and Design Framework. Also referred to as the 'Plan Amendment'. This will be considered the 'third generation plan' for The COR.

Using this Document

This land use plan is an interim plan that will guide land use decisions prior to a formal amendment for The COR. Uses currently allowed in The COR Development Plan shall be allowed consistent with applicable law. Projects consistent with options contained within this Interim Development Plan, but conflict with the existing plan, may proceed forward, but shall require a formal Plan Amendment. The policy directives of this document are advisory in nature, and are not binding. If a proposed project meets the minimum requirements of the existing Development Plan, it shall be considered consistent with the Development Plan and Zoning Code and shall be approved.

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Vision

The Vision Statement was created for the purpose of crafting update land use scenarios and is not intended to approve or disapprove individual projects. Projects must be reviewed using the City's Zoning Code as the official land use control. The Vision Statement is not a regulatory tool, yet a visionary tool.

> *The COR will serve as a City Center primarily to bring people of Ramsey together that embraces natural market opportunities. The COR will also attract energy from the surrounding region. It will be a unique destination, technology-accessible, and serve as a gathering place. It will feature unique architecture stressing historical feel and function.*

Development-Wide Assumptions

1. The development is part of a broader **GROWTH MANAGEMENT STRATEGY** that protects the City's primary land use goal to respect the **BALANCE OF RURAL AND URBAN CHARACTER**.
2. The development shall take a **MIX OF USES** within the development, which is also known as **HORIZONTALLY MIXED USE** approach versus a strict adherence to traditional mixed-use definitions to require vertically mixed-use buildings. The mix of land use districts and land use types within the development as a whole shall guide success of mixed use, not strictly mix of uses within a building, block, or individual district. These types of mixes although not required, are encouraged. The 'mix of uses' approach shall not preclude flexible first floor and vertically mixed use buildings.
3. Our vision includes significant areas guided for a variety of **RETAIL OFFERINGS**. **HOUSING DENSITY** is important to that vision.
   The emphasis of the master plan concepts is to **GUIDE LAND USE**, and is **NOT SPECIFIC SITE PLAN REVIEW**. Future developers shall have the creative freedom to propose other concepts that are generally in line with **OVERALL VISION**.

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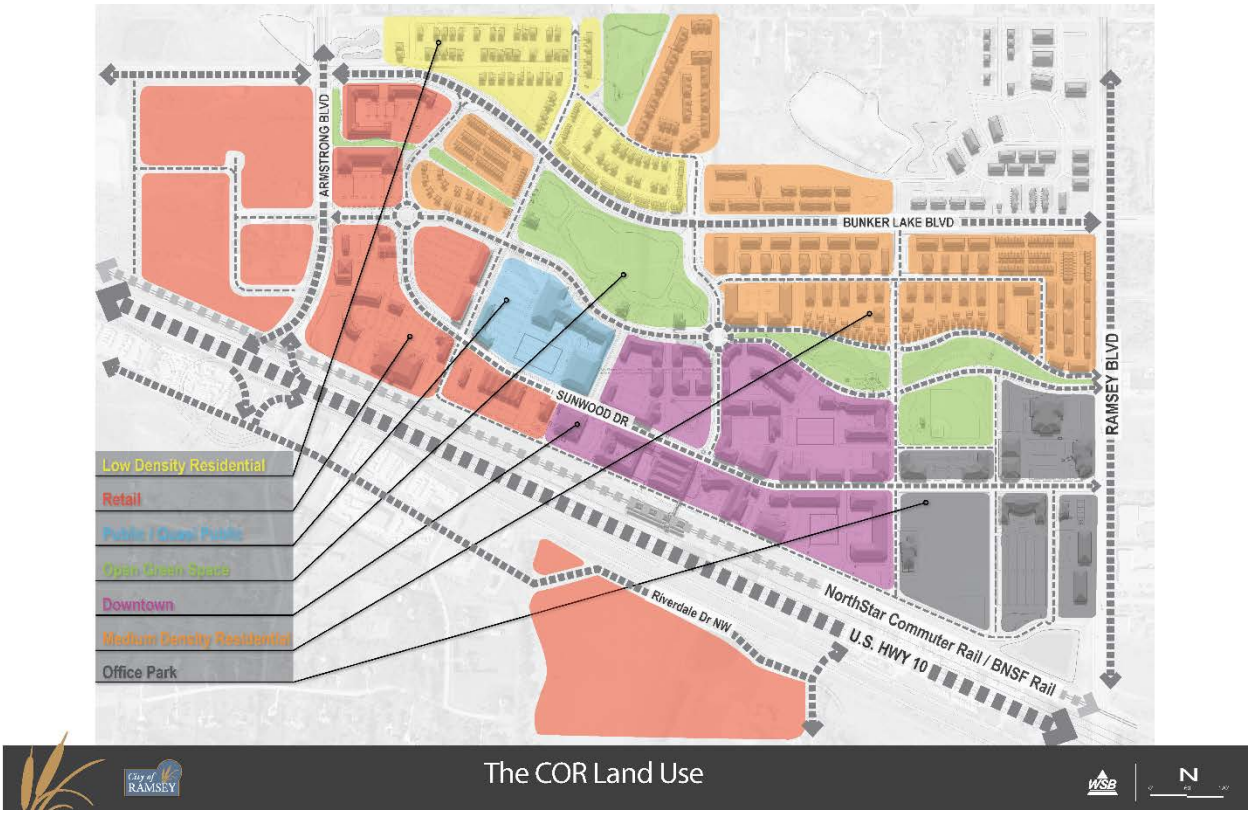

Land Use District (Sub-District) Descriptions and Requirements

The COR is divided into five (5) distinct land use districts that ensure a mix of uses and guides quality private and public development. These districts are considered sub-districts and can be amended easier than traditional zoning districts. The overall land use mix shall be provided. Amending sub-districts shall be approved by resolution of the City Council after recommendation by the Planning Commission, but shall not require a Public Hearing. Amending sub-district boundaries shall not require a Comprehensive Plan Amendment so long as the over land use balance is preserved.

1. Downtown District (COR-1)
2. Retail District (COR-2)
3. Office District (COR-3)
4. Residential District (COR-4)
5. Parks and Open Space District (COR-5)

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The Downtown District (COR-1)

Downtown District Description. The Downtown District shall be a high-density district with a mix of uses. Vertically mixed use buildings are not required, but are encouraged. The Downtown District shall be predominantly high-density residential to support existing transit and City growth-management goals, but is not required. Shared parking districts are an integral part of the success of this district. Urban design shall also emphasize build-to lines and pedestrian interaction. The district shall have the most robust architectural design standards amongst all City land use districts.

This district is the focal point of the development. This quarter-mile radius is key to land use supportive of transit and other City land use goals. The City of Ramsey and its funding partners (Anoka County, CTIB-Counties Transit Improvement Board, and Metropolitan Council) invested nearly $14 Million Dollars on the Northstar Commuter Rail – Ramsey Station, relying on The COR Development Plan. This district is described as predominantly high-density residential, with a number of commercial uses along Sunwood Drive. There should be a **MIX OF USES** within this district.

Planning Commission Recommendation: The City should focus on original visions to better manage parking and maximize land use of individual parcels. This includes reverting back to a **FLOOR AREA RATIO (FAR) OF 0.75** and retaining a strict adherence to **MAXIMUM PARKING** standards and shared **PARKING DISTRICT** requirements. Minimum density shall be fifteen (15) units per acre with no maximum density required.

4/25/17 City Council Work Session Comment. Concern was raised over reverting back to the 0.75 FAR, thus requiring vertical shared parking in the downtown district. Consensus was generally to study cost/benefit further, with acknowledgment of the need for flexibility.

5/25/17 EDA Comment. Open to discussion and reviewing further parking districts and parking ramps. However, the City should not force or require shared parking. Shared parking and parking ramps should be encouraged and strived for, but not required of private development. The City should not revert back to the 0.75 FAR.

The Retail District (COR-2)

Retail District Description. The Retail District shall be focused on providing retail offerings to support the community and beyond. This district shall focus on smaller, unique shops, while allowing larger format retailers along Highway 10 where visibility and access is best.

Places to eat, shop, and be entertained were a key component of the original development. While other land uses have succeeded in continued growth, retail goals have struggled to keep pace. The City has continued to evaluate our retail marketing strategy, and amendments to this plan represent a broader effort to advance these goals.

Citywide, the community has over 150 acres of undeveloped or redevelopment areas guided for future retail growth. In comparison, the Riverdale shopping center in Coon Rapids is approximately 200 acres. Coupled with proximity to Elk River and physical barriers such as the Mississippi River and Rum River, it is not likely that the City will be successful in developing this amount of retail within this 20 year planning period, if at all. Additionally, the market for larger retail users is quickly changing with adapting technologies. The City's market experts have encouraged the City to re-evaluate its retail strategies.

EMPHASIS: The City continues to plan for a significant amount of retail growth within The COR and throughout the community. The recommendations below are not intended to de-emphasize our retail goals, yet strengthen said retail goals and focus on more appropriate areas for future growth.

Planning Commission Recommendation:

The northwest quadrant of the development (bordered by Armstrong Boulevard, Bunker Lake Boulevard, Zeolite Street, and Sunwood Drive) should be amended to strengthen the **LAKE ITASCA GREENWAY**, create **SMALLER DESTINATION RETAIL USERS**. Half of this quadrant should be re-guided for **an APPROPRIATE RESIDENTIAL USE**, with **DENSITY** appropriate for the type of overall land use plan for The COR.

This is the area of **MOST SIGNIFICANT CHANGE** recommended by the Planning Commission. The Planning Commission collaborated on developing multiple land use scenarios. The overall approach was to divide the northwest quadrant into four (4) smaller sub-quadrants divided by future public roadways and greenways and allocating half the quadrants to smaller, destination retailers and the other half to residential uses. Based on feedback and reconciling multiple angles of consensus, the land use map below represents the primary recommended land use map.

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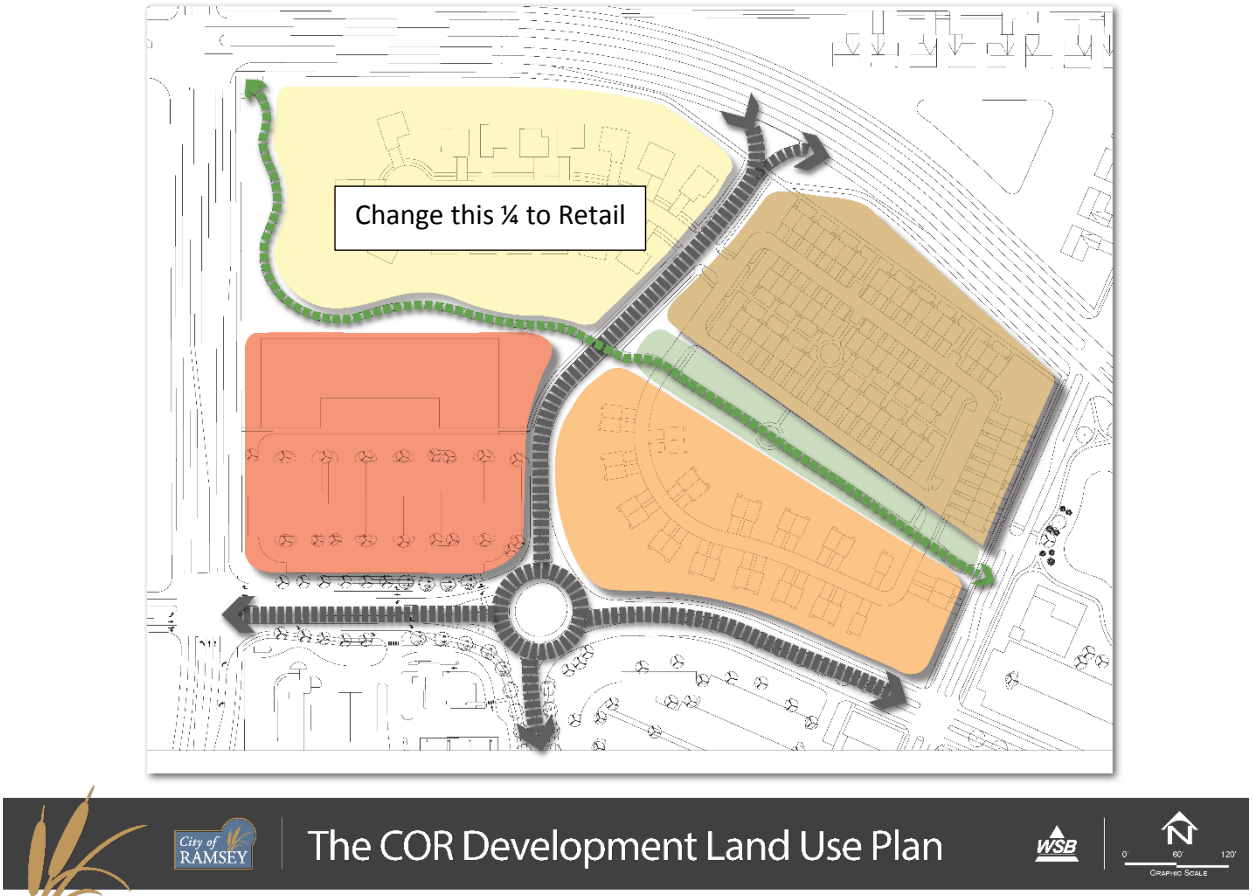
Primary NW Quadrant Land Use Map – Vertical Split (this will be the model of the actual land use map [focus on polygons per land use, less focus on detailed site planning])



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NW Quadrant Acceptable Alternatives

The alternatives listed below would require a future plan amendment, but are afforded certain policy feedback in advance. These can be viewed as 'pre-screened' alternatives.

NW Quadrant Horizontal Split

Continued on next page.

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NW Quadrant All Retail

The Office District (COR-3)

This district represented the area of highest consensus amongst the Planning Commission.

Planning Commission Recommendation: **NO AMENDMENTS** to this district are recommended. However, the City should look at strategies to encourage parking districts within this land use district as well.

Note. During the January 24, 2017 Joint Work Session between the City Council and Planning Commission, it was noted that an office user may be possible in the northeast quadrant currently guided for retail use. Staff's recommendation, while a potentially positive amendment, would be to consider

this possibility under a separate amendment, as the overall plan currently has a good balance of office planned, and a more comprehensive look would be needed for such an amendment.

The Residential District (COR-4)

The Residential District is further divided into three (3) categories. The descriptions below include recommended adjustments to density ranges.

- 'Low' Density (COR-4a). This is predominantly detached single-family located north of Bunker Lake Boulevard. The minimum density shall be four (4) units per acre and densities up to fifteen (15) units per acre shall be allowed.
- Medium Density (COR-4b). These predominantly include townhomes, both attached and detached. Minimum density shall be eight (8) units per acre with a maximum density of fifteen (15) units per acre. Additional density may be allowed via Conditional Use Permit.
- High Density (COR-4c). These areas are focused immediately north of The Draw Park and Amphitheater and provide a unique opportunity for interaction and transition. The emphasis on mix of uses is muted compared to the Downtown District. The minimum density of this district shall by fifteen (15) units per acre with no cap of maximum density.

Planning Commission Recommendation: The remaining undeveloped area immediately north of The Draw currently owned by K Hovnanian Homes shall be re-guided to High Density Residential. The Planning Commission recognizes the success of high density residential abutting The Draw on the south side (Parkview East) and sees this as an opportunity for consistent design when coupled with the future Aeon Apartment Development (north side).

Parks and Public Spaces (COR-5)

This district is governed by The COR Parks + Public Spaces Plan, and is included by reference as an integral part of The COR Interim Development Plan. Neither document shall be interpreted as a wholly separate document, and neither document shall be adopted or otherwise amended unless coinciding with each other. An amendment to one plan shall be considered an amendment to the other. This document has been adopted as a 'working draft' by consensus of the City Council. The intent is to adopt as a formal plan as part of the overall COR Development Plan Amendment.

Continued on next page.

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Implementation Plan

The Interim Development Plan represents Phase I of a three (3) phase project.

1. Interim Development Plan (this step)
2. System Plans (roads, utilities, parking structures, infrastructure, etc.).
3. Development Pro-Forma (funding and financing options.

Continued on next page.

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Major Planning COR Planning Efforts

EFFORT #1
COR Re-Visioning

PURPOSE
Update/ amend the vision for The COR.

1. Update COR Master Plan (map that shows vision, how the COR will look, how buildings will be oriented, where infrastructure should be located, etc.)

2. Update zoning district map (underlying land use regulations that will ensure the master plan will be implemented at the time individual projects come forward for review by the City)

3. Direction on outstanding major policy items:

   -Is vertically mixed use development a requirement?
   -appropriate size and location of retail uses?
   -Is there flexibility in location of zoning district borders?
   -Define basic vision and policy for community center.
   -Define basic vision and policy for parking ramps.

RESPONSIBLE BOARD
Planning Commission will draft a recommendation for Council consideration.

TIMING
Anticipated to have draft completed by April 2017. Once a draft is completed, it should be checked against COR System Plans and COR Pro-Forma. May need to be adjusted.

EFFORT #2
COR System Plans

PURPOSE
The City purchased The COR with two goals in mind (a) recover previous public investments, and (b) ensure the vision of The COR is implemented.

As a result, the City of Ramsey has taken the role of master developer for The COR. With the role, various assumed responsibilities are assigned to the City. Developers, businesses, and residents expect the city to have concept plans/ policies in place for the following items:

1. Storm water plan (regional)
2. Road plan (public roads)
3. Sign plan (development signs, way finding sigs, etc.)
4. Park & Trails plans
5. Community Center plan/ policy
6. Parking Ramp(s) plan/ policy
7. Cut/fill basic plan

There are many benefits to having this preliminary information ready—please see system plan dashboard for details. These plans are intended to be preliminary/ concept level only—for the sake of planning and budgeting.

RESPONSIBLE BOARD
Likely, all boards will be involved with this process. However, for the sake of efficiencies, the EDA will lead this effort. Findings will be presented to the Planning Commission and City Council.

TIMING
Upon completion of 1st draft of COR re-vision, staff would like to order this work for completion (i.e. begin May 2017). This work will take 6-9 months. Once draft is completed, it should be checked against COR Master Plan and COR Pro-Forma. May need to be adjusted.

EFFORT #3
COR Pro-Forma

PURPOSE

1. Update COR pro-forma based on updated vision and system plans. COR pro-forma will display the city's financial performance forecast/ project cash-flow over time (expenditures/ obligations versus revenues/ available funding).

2. Update COR TIF plan/ TIF analysis previously completed by Ehlers. This plan plays a major role in the "funding" side of the COR pro-forma. Because actual TIF revenues are based on actual completed projects, it would be helpful to update periodically. NOTE: TIF can only be used for projects completed before 2021.

3. Update COR land proceeds policy. Staff would like to (a) clearly identify what previous expenditures the City wishes to repay itself, (b) consider using land proceeds only for non TIF eligible costs, and (c) update the City's land sale proceeds forecasts.

RESPONSIBLE BOARD
EDA will draft a recommendation for Council consideration.

TIMING
Upon completion of COR re-vision and COR system plans, staff will complete this work (i.e. begin late 2017). This work will take 1-2 months. Once draft is completed, it should be checked against COR Master Plan and COR system plans. May need to be adjusted

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The group then formulated a broad work plan to accomplish the many steps to complete an overall plan amendment and update.

The COR Development Plan Update Plan of Action													
	2017												
	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
	January	February	March	April	May	June	July	August	September	October	November	December	
Task 1: Land Use Plan Update (Planning Commission)													
Draft Vision Statement													
Draft Land Use/District Map													
Draft District Descriptions													
Draft Development and Design Standards													
Draft Development Plan Update (Zoning Code)													
Adopt Final Version of Development Plan													
Task 2: System Plan/Infrastructure Study (EDA)													
Stormwater Plan													
Road Plan													
Sign Plan													
Parks and Recreation Plan													
Community Center Plan or Policy Statement													
Parking Ramp/District Plan or Policy Statement													
Cut/Fill Plan (Grading)													
Task 3: Project Pro Forma (EDA)													
Pro-Forma													
Tax Increment Financing (TIF) Plan													
COR Land Sale Proceeds Policy													

Public Engagement

A key component of any policy decision is collaboration amongst its residents. These processes are part of natural and organic community conversations around key policy topics. The City will couple this policy discussion with ongoing workshops and community events as part of its overall Comprehensive Plan Update. For more information on this effort, please visit www.cityoframsey.com/ramsey2040.

4/25/17 City Council Work Session Note: All Boards and Commissions should review this document before the City Council considers formal adoption. The City Council should review the final document and approve before distributing to the public and stakeholders/landowners.

Mobile Comprehensive Plan Tour

The City is planning a Mobile Comprehensive Plan Tour for policy makers that will include local examples of plans and policies being discussed in the Comprehensive Plan Update. The tour is planned to include examples discussed in this Interim Development Plan as well.

Market Analysis

The Planning Commission recommends completion of a market analysis to confirm the policy directives of this document as it relates to the planned retail area. The Planning Commission continues to stress the importance of attracting retail uses to the Development, but want to ensure that there is not too much areas guided for retail growth beyond what the community can sustain.

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Community Center

The Planning Commission desires to continue to plan for a Community Center in The COR. The Planning Commission feels that this type of use would benefit the community and be a draw for other users within the development. This analysis will be completed as a separate planning process.

Architectural Standards

A key component of the policy discussion for The COR has been architectural design standards. The Planning Commission believes several recent projects fell short of community expectations. While originally intended to be part of Phase I of The COR Development Plan Update, the Planning Commission continues to refine these recommendations and will continue throughout Phase II and Phase III to bring a quality recommendation forward with a full Plan Amendment.

The standards below are not an exhaustive list of current design requirements, yet a focus on key topics that have been raised for future discussion. Upon final amendment, the City will prepare a side-by-side comparison of all existing and proposed design requirements. The final version of this Interim Development Plan will also include drawings/illustrations to illustrate the narrative being discussed.

The COR should continue to focus on four-sided architecture visible from the public realm. Quality signage on all four sides of the building should be allowed. The community should be able to park on public streets and reasonably access the building.

Planning Commission Recommendation:

In the interim, the Planning Commission shall serve as an ad-hoc architectural review committee. Projects shall complete an architectural review prior to official Site Plan Review. The Planning Commission reserves the right to establish an ad-hoc sub-committee to serve as this Architectural Review Committee. The Planning Commission recommends that the City supplement the Development Review Team with the services of a licensed architect to help develop updated design standards and review development proposals. This will add value to the process, hopefully streamline review, and is in line with other professional services the City employs in development review. The cost of these services are the responsibility of the Developer.

Additional Discussion Points:

* The intent of design requirements is to maintain a consistent development look and acknowledge the

pride and planning that went into the vision of this development. The tradeoff of a more densely developed areas was an acknowledgement of the need to 'step up' architectural design.

* All single-family homes in The COR shall include/not include a porch that protrudes from the front of the home, even with the garage, and not a recessed entry in the middle of the home.

* Over the next several months, the Planning Commission will better define front porches and if any additional design requirements or restrictions (i.e. split entry homes) are warranted. .

* Buildings in the Downtown District shall include a minimum of 50% brick. Vinyl siding shall not be allowed. Fiber cement panels shall be allowed as a complimentary material.

* Buildings in the Residential District shall have a minimum of 35% brick or stone on the front façade. Vinyl siding is allowed.

Private Open Space and Stormwater Design

The Planning Commission has expressed a concern over a perceived lack of private open space in medium density development as well as depth and steep slopes of stormwater ponds within the development due to the higher density nature. This concern has not yet been resolved, but will continue to be discussed during Phases II and III of the Plan Amendment. The City shall take into account sidewalks, greenways, and other private and innovative improvements (such as wonerfs).

Site Selection Process

The City is in a unique situation as Property Owner and Regulatory Authority. This presents opportunity, but also requires special attention to remain accountable to the public. In order to balance this approach without creating burdensome processes, the following steps shall be followed when considering a Purchase Agreement with the City in The COR.

Any perspective buyer of City-Owned Property in The COR shall first meet with City Staff to discuss appropriate sites. This is known as the Site Selection Process. The City and Buyer shall review multiple sites before selecting a preferred location. Depending on the complexity of the project, the City reserves the right to take this Site Selection Process to the Planning Commission, EDA, and City Council before reviewing a specific site.

The Buyer shall provide a site concept to be reviewed by the Planning Commission, EDA, and City Council before approving a Purchase Agreement. When a single-user proposes to purchase a portion of an undeveloped block or area, a series of 'site concepts' shall be developed before reviewing with any City board or commission. These site concepts shall demonstrate at least one reasonable concept for the remaining portion of the site that fits the vision and requirements of that area/district.

The Buyer must still complete the official Site Plan Review (and Subdivision) process after the Purchase Agreement Phase.

History of Policy Discussion

This Interim Development Plan is the result of a Planning Commission initiative dating back to 2015. The City has invested a significant amount of time, energy, and resources in order to ensure a **MARKET RELEVANT PLAN** that balances **COMMUNITY VISION**.

Joint Work Sessions

The City Council and Planning Commission have met on multiple occasions to frame the policy question, discuss strategies, and identify solutions.

- March 26, 2015 = Joint Work Session
- July 12, 2016 = Joint Work Session
- January 24, 2017 = Joint Work Session

Surveys

In 2016, the City surveyed its Board and Commission Members on key topics related to The COR Development Plan.

The key directive coming out of review of these results on July 12, 2016 was to create a forum for policy makers to ask questions and receive direct feedback from developers and market experts, rather than completing another market study.

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Market Panel Event

On October 27, 2016, the City hosted several market experts to respond to a wide range of policy topics raised by community policy makers. The output from this event served as an important foundation for land use recommendations developed by the Planning Commission.

Planning Commission Work Sessions

The information gleaned from the steps above were utilized to begin important policy discussions about the future of The COR. Following review of the Market Panel Event, the City Council authorized the Planning Commission to begin formulating land use recommendations for The COR. The Planning Commission met Work Sessions dedicated to The COR on multiple occasions.

- January 5, 2017 (to prepare for the January 24, 2017 Joint Work Session with the City Council)
  - Develop a Vision Statement
- February 2, 2017
  - Refine the Vision Statement
  - Collaborate on a Future Land Use Map
- March 2, 2017
  - Refine the Vision Statement
  - Refine the Future Land Use Map and Alternative Future Land Use Maps
- April 18, 2017
  - Refine the Vision Statement
  - Refine the Future Land Use Map and Alternative Future Land Use Maps
- April 25, 2017
  - Draft document reviewed by City Council and Planning Commission in Joint Session.
  - Authorization to review with internal advisory boards and commissions.
- May 25, 2017
  - Draft document reviewed by EDA. Feedback/comments added to document.
- June 1, 2017
  - EDA comments reviewed by Planning Commission.

The Interim Development Plan is anticipated to be adopted in 2017.

The Waterfront

Armstrong Boulevard

Bunker Lake Boulevard

Ramsey Parkway

The Draw

Affinity Development

Municipal Plaza

Highway 10

Ramsey City Hall

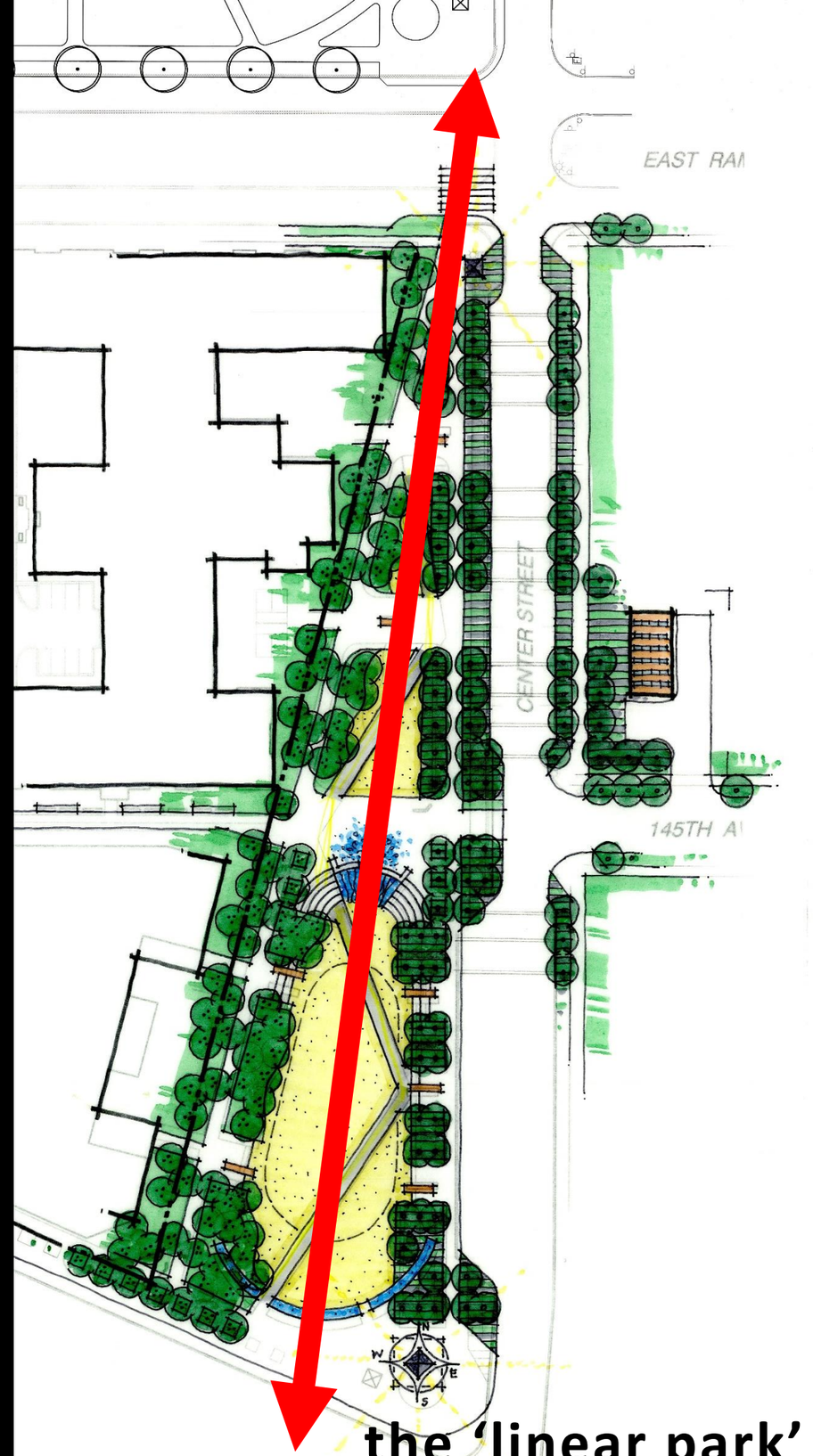
Sunwood Drive

Pump House 3
context map

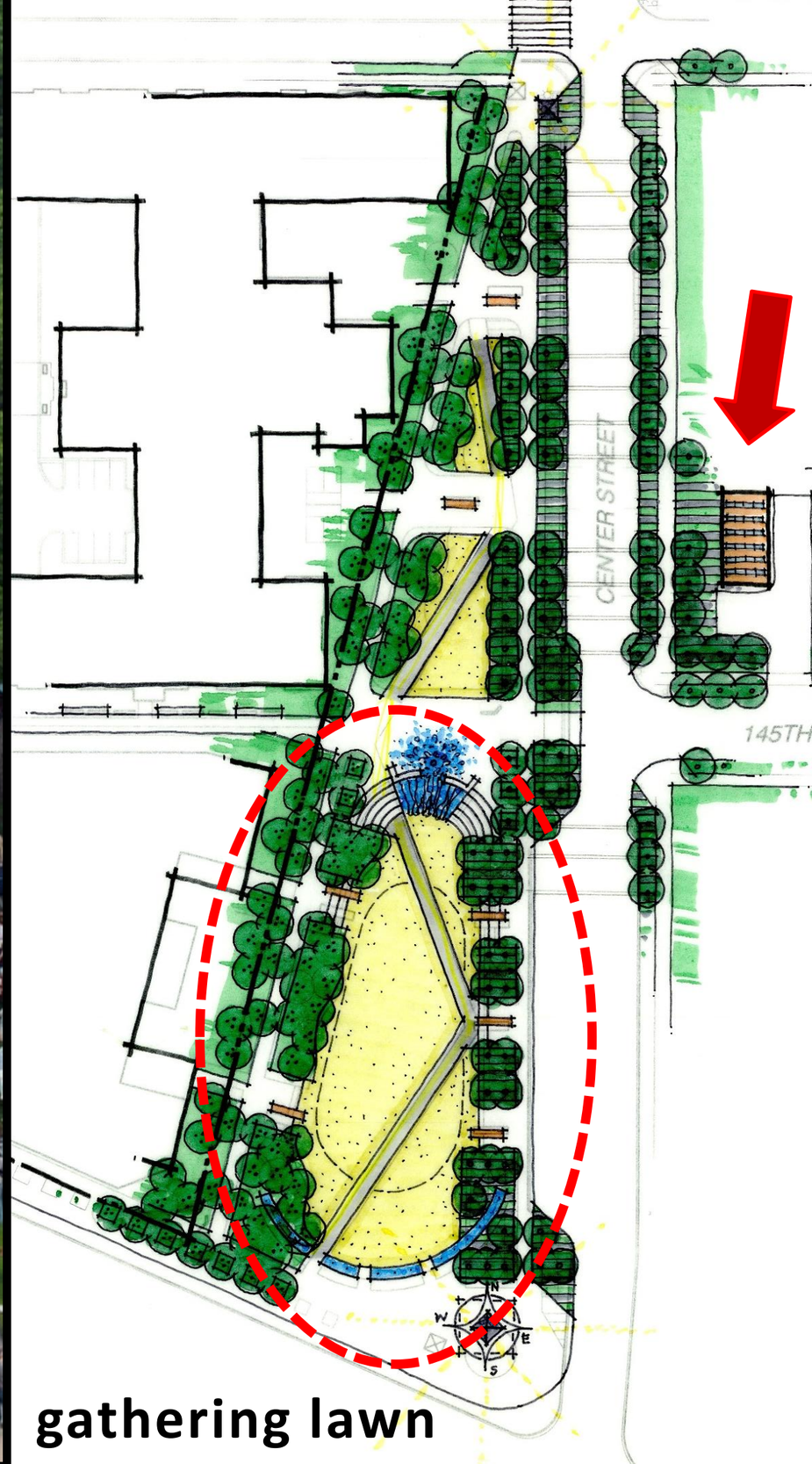
RAMSEY COR – PARK SYSTEM COMPONENTS

Municipal Plaza

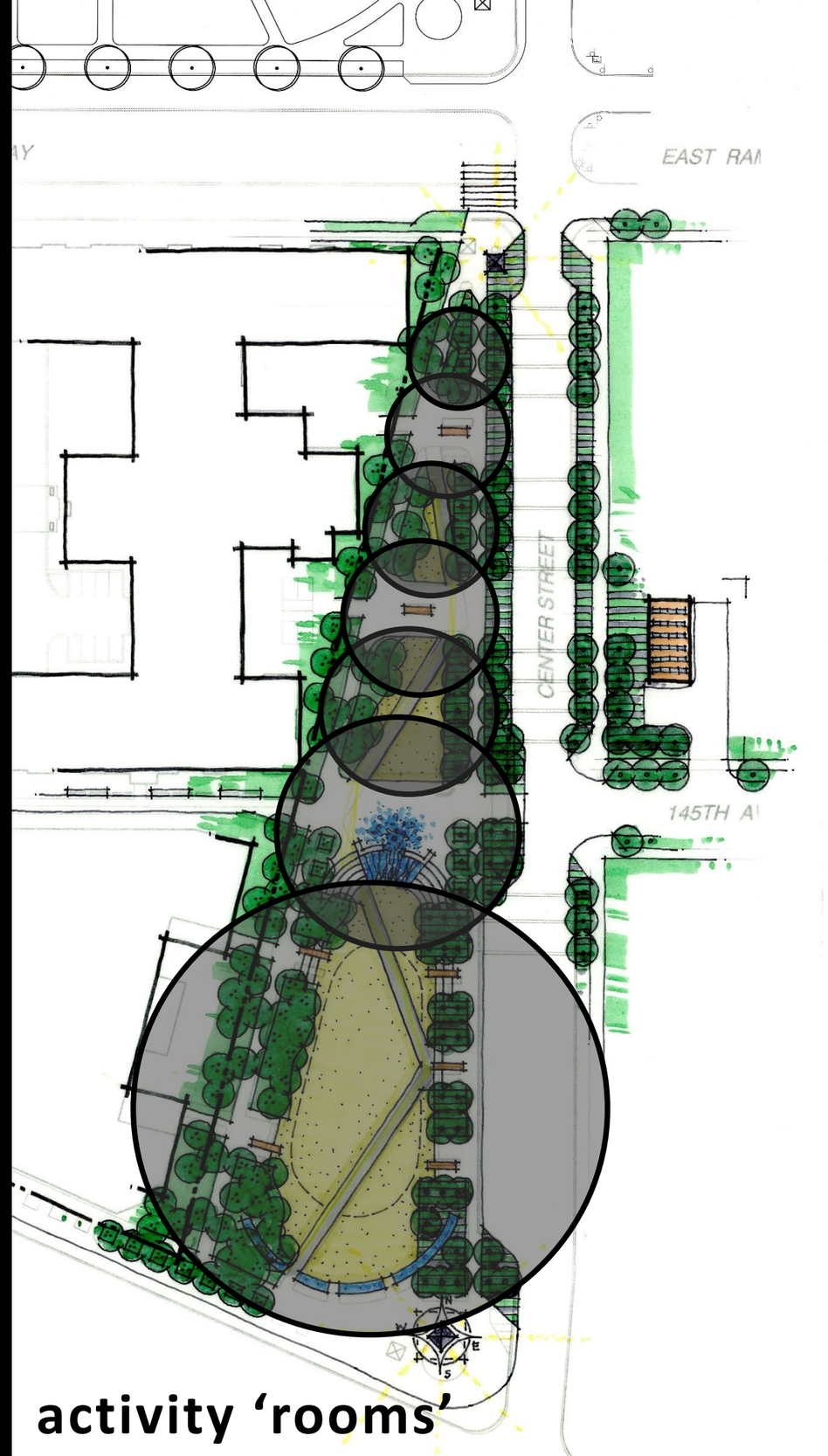
(previous design study) Pump house 3



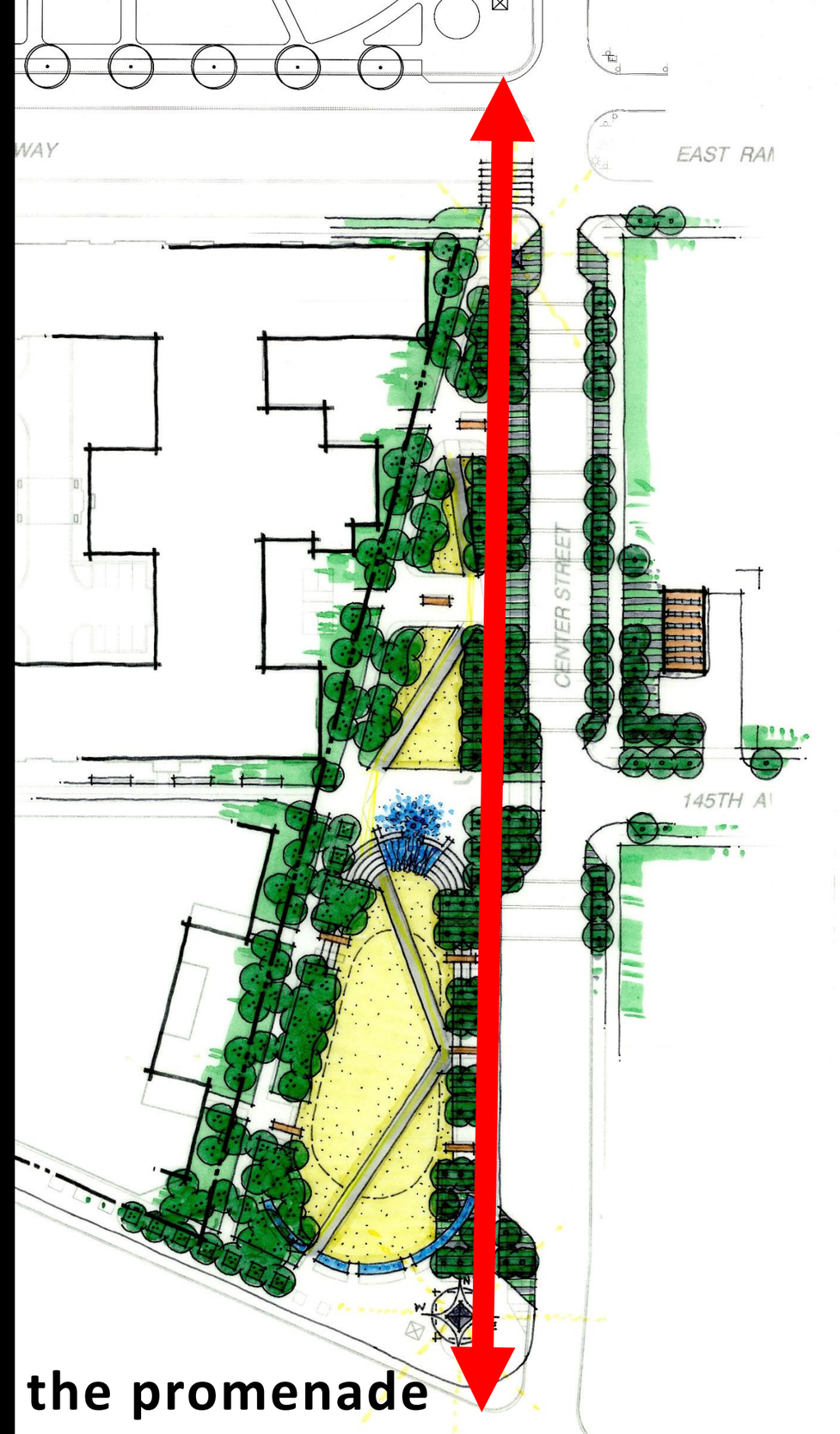
the ‘linear park’



gathering lawn



activity ‘rooms’



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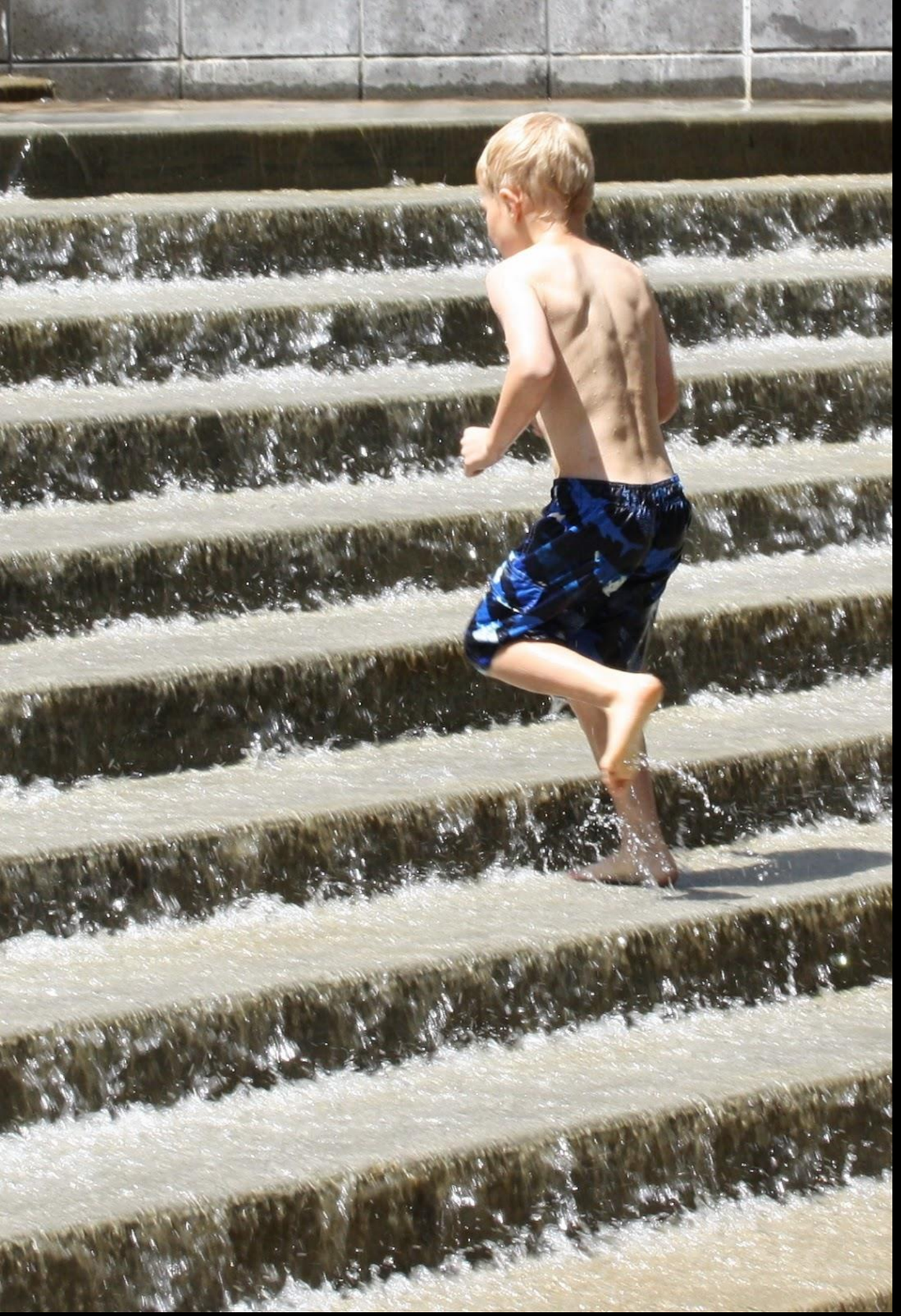

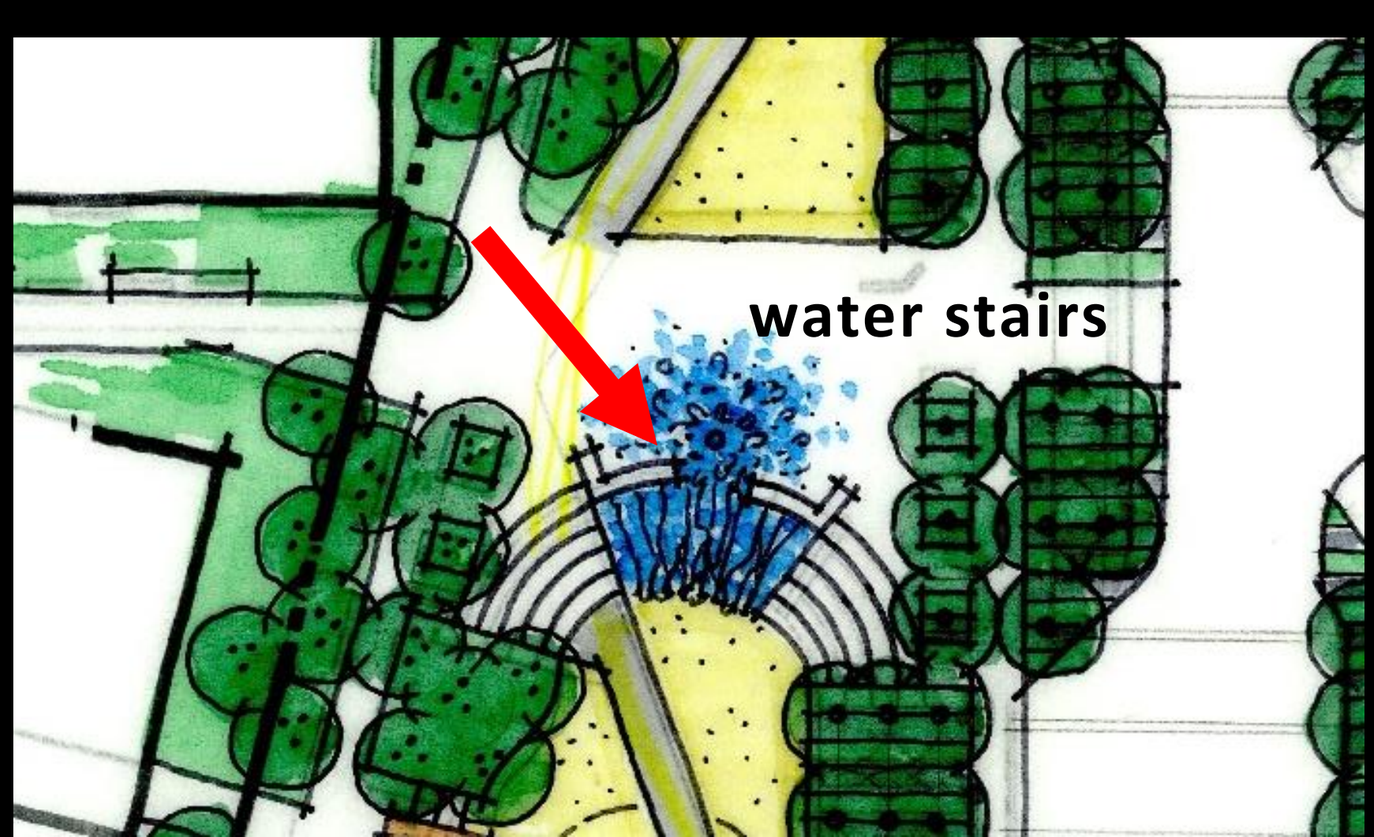
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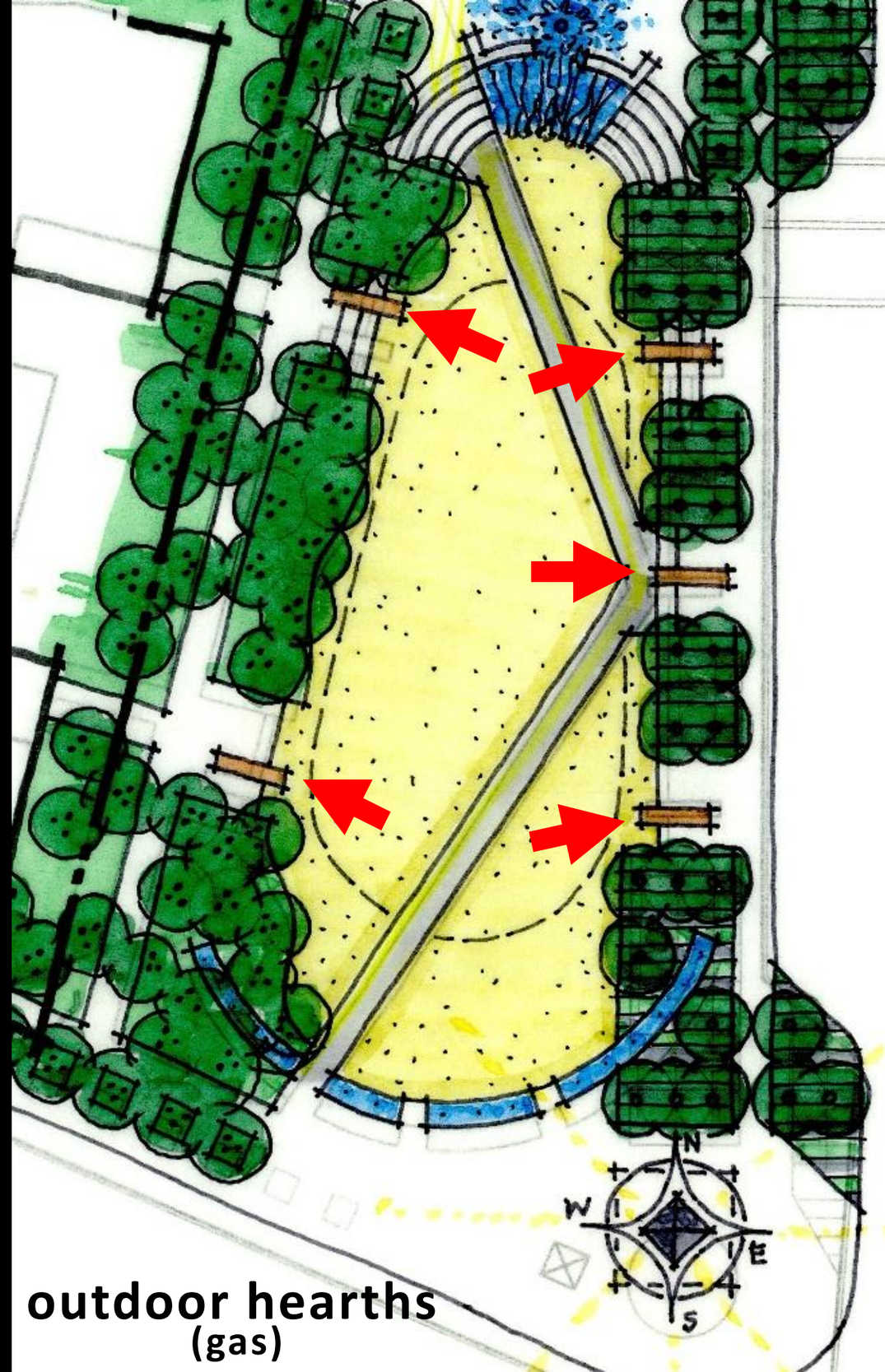
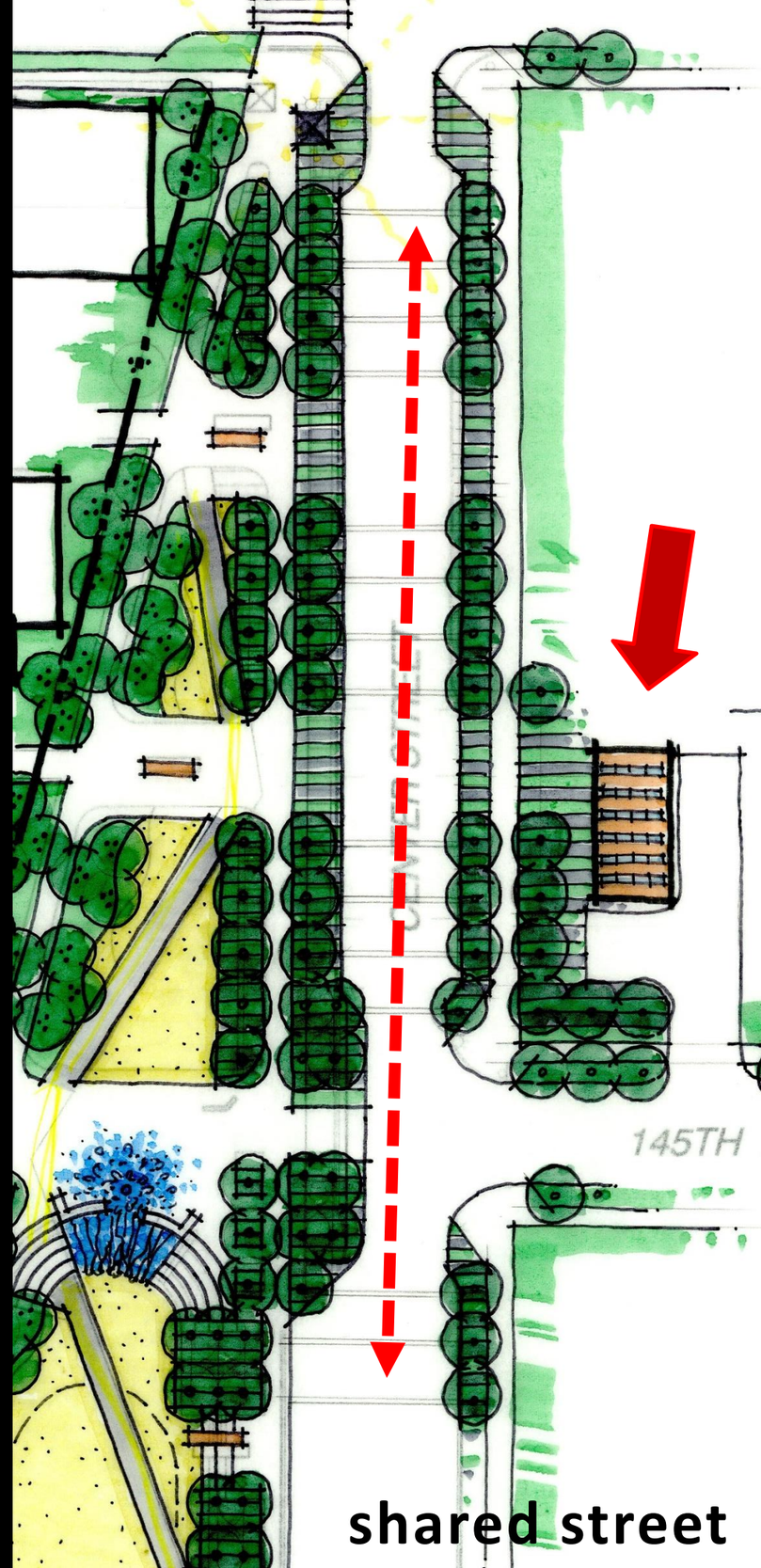
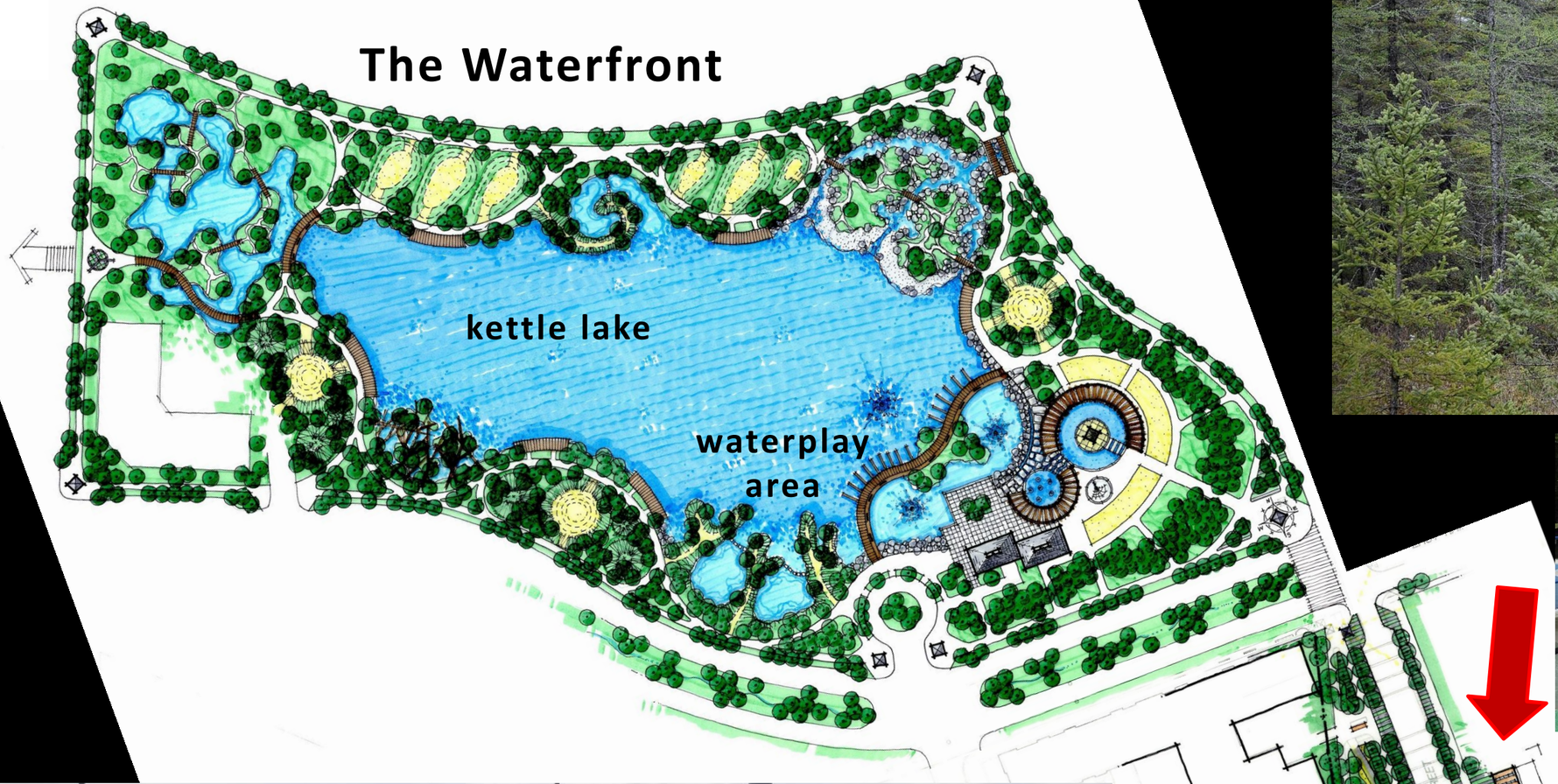
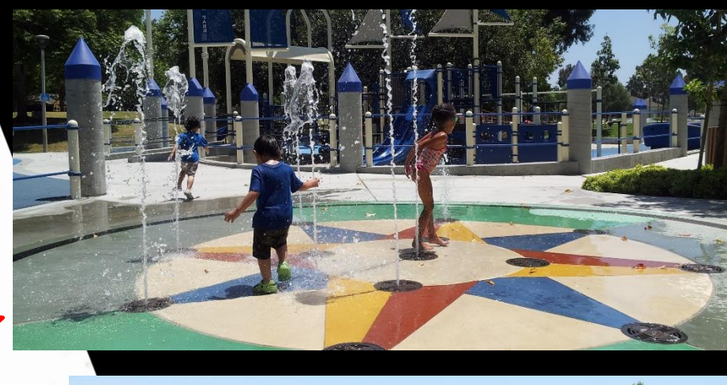
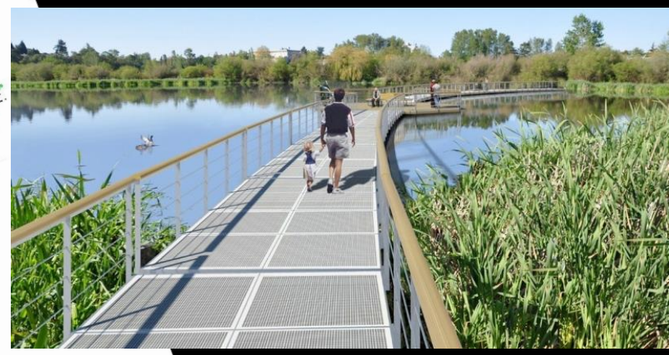


outdoor hearths
(gas)


145TH
shared street







Municipal Plaza

Regular Planning Commission **7. 2.**

Meeting Date: 01/07/2021

By: Bruce Westby, Engineering/Public Works

Information

Title:

Consider Water Treatment Plant Site Selection Recommendation

Purpose/Background:

Purpose:

The purpose of this case is to consider providing a Water Treatment Plant (WTP) site selection recommendation to the City Council.

Background:

The City of Ramsey has eight water supply wells with concentrations of manganese ranging from 0.02 milligrams per liter (mg/L) to 0.37 mg/L. The Minnesota Department of Health (MDH) has established a Health Based Value (HBV) for manganese of 0.100 mg/L. Four of Ramsey's eight water supply wells exceed the MDH HBV for manganese. MDH has recommended to the City that they develop plans to address the manganese.

In addition to the potential health concerns with manganese, Ramsey's drinking water also exceeds the Secondary Standards for iron and manganese. Water with concentrations of iron and manganese above the Secondary Standard causes aesthetic problems including red and black staining of plumbing fixtures and laundry and taste complaints.

The most cost effective method for removing manganese and iron from drinking water is chemical oxidation followed by sand filtration. These processes require construction of a water treatment plant. Based upon an analysis of Ramsey's 2040 water demand, the capacity of the water treatment plant should be 10 million gallons per day (MGD).

The City of Ramsey currently utilizes groundwater from the Tunnel City-Wonewoc (TCW) aquifer as its exclusive source of drinking water. An evaluation of the TCW aquifer was conducted which determined that the TCW should be able to continue to produce potable water in sufficient quantities to meet present and foreseeable future demands. The Water Treatment Plant is therefore proposed to be a 10 MGD groundwater treatment plant, with planned future expansion to 20 MGD, which generally requires a minimum site area of 3.5 acres.

The following four potential water treatment plant sites were identified and evaluated.

- Fire Station Site - 3.2 acres undeveloped private property immediately south of Fire Station #1.
- Public Works Site - 3.5 acres City-owned undeveloped property immediately north of the new Public Works facility, which is currently under construction.
- Water Shop Site - 3.5 acres City-owned property immediately west of Jasper Street where the current Public Works Utilities Shop is located.
- Vacant City Property Site - 4.1 acres City-owned undeveloped property immediately east of Ramsey Boulevard and north of the BNSF rail line.

The locations of the four potential WTP sites are shown in relation to each other in attached ***Figure 1***. Each site is shown in more detail in attached ***Figures 4 – 7***.

The draft preliminary estimated project cost for constructing the WTP as proposed within the Feasibility Report is $31,890,000. Project costs include the capital cost plus contingency, administration, and engineering costs.

Below is a table showing additional preliminary estimated project costs needed to prepare each of the four potential

WTP sites in advance of constructing the proposed WTP on each site, which includes such costs as extending raw and finished watermain lines to the site, acquiring property, and constructing garages. Also tabulated are notable pros and cons associated with each site.

Potential WTP Site	Added Estimated Project Cost	Pros	Cons
Fire Station Site	$3,253,000	• Shared access and parking with Fire Station #1	• Private property acquisition required • Near residential parcels • Requires trip to site • Requires garage
Public Works Site	$3,058,000	• City owns property • Shared access and parking with PW facility • Shared security facilities • Shared generator • Garage not required	• City has received multiple inquiries to purchase this site for private development • Last large "City owned" parcel zoned for industrial development • City paid for Shovel Ready certification for private development and marketing of this site
Water Shop Site	$3,583,000	• City owns property • Garage not required • Could be considered for replacement of redevelopment/economic development	• Requires trip to site • Requires demo of existing building
Vacant City Property Site	$4,738,000	• City owns property	• Requires trip to site • Requires garage • Property impacted by Ramsey Gateway Highway 10 Improvements

In all scenarios, the properties remain or become tax exempt. There would be some degree of opportunity cost by not facilitating private development either as industrial or residential. The current Public Works parcels provide opportunities for economic development. For historical perspective, the former Bury and Carlson Site (now the listed as the Public Works Site above) was originally purchased exclusively for Public Works purposes. Several years ago, prior to the Bunker Lake Industrial Park and now Pearson South industrial area, there was an exercise to look at approximately 10 acres of the Public Works Site for economic development purposes. A lot has changed since that time in terms of new economic development opportunities as well as the current manganese level concern. From an operations and cost savings standpoint, the Public Works Site presents the best option for the Water Treatment Plant and is more in line with the original intent of the purchase. There will be remnant land available on this site after construction (3.5 acres) as well as the opportunity to redevelop the Water Shop Site and Vacant City Site (collectively). The urgent need for economic development opportunities is not the same when the Public Works Site was originally explored for economic development purposes. The economic development opportunities lost can be made whole while still benefiting Public Works Operations at a lower cost (reduced by $500,000).

Notification:

Observations/Alternatives:

Alternative #1 – Motion recommending City Council approval of the _____ site for the proposed Water Treatment Plant.

Alternative #2 – Motion of other.

Funding Source:

Recommendation:

Based on the tabulated information above, as well as other operational benefits and cost savings that would be realized over time, Engineering and Public Works Staff recommend locating the proposed WTP on the Public Works Site.

It is important to note that the City has been primarily running only two to four of its municipal wells to supply water to the City since mid-2019. Since these wells are constantly in operation they are not able to be taken off-line for routine maintenance. Staff therefore recommends proceeding with the proposed WTP construction in as timely a manner as possible to ensure that the City is able to continue providing water in compliance with the MDH HBV for manganese. If the City elects to proceed with construction of the WTP, it could be operational by spring of 2023.

Action:

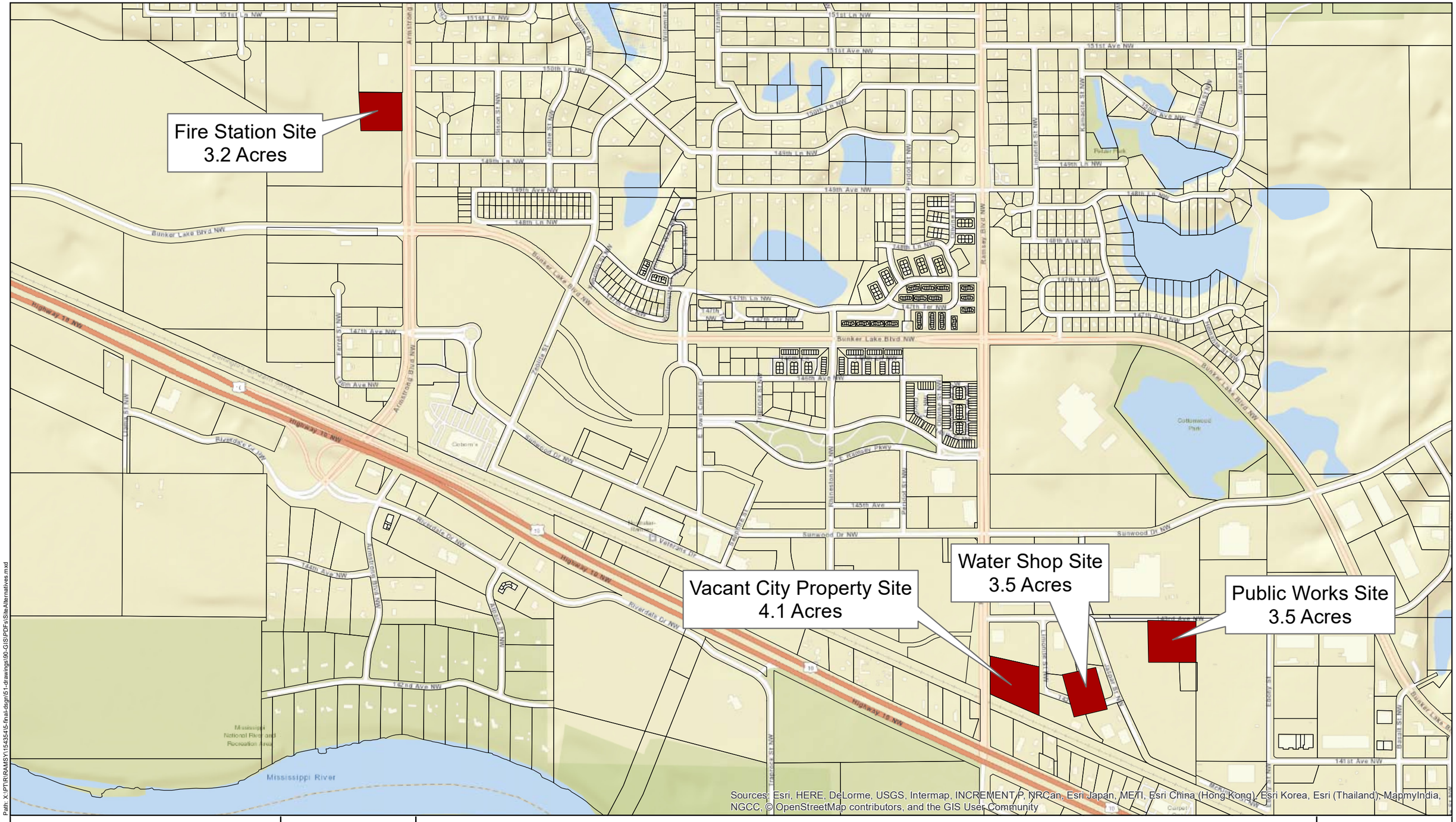
Motion recommending City Council approval of the _____ site for the proposed Water Treatment Plant.

Attachments

Figure 1
Figure 4
Figure 5
Figure 6
Figure 7

Form Review

Inbox	Reviewed By	Date
Tim Gladhill	Tim Gladhill	12/31/2020 10:58 AM
Sean Sullivan	Sean Sullivan	12/31/2020 11:34 AM
Tim Gladhill	Tim Gladhill	12/31/2020 11:57 AM
Kurt Ulrich	Kurt Ulrich	12/31/2020 02:31 PM
Tim Gladhill	Tim Gladhill	12/31/2020 02:40 PM
Form Started By: Bruce Westby		Started On: 12/30/2020 04:20 PM
Final Approval Date: 12/31/2020		



Path: X:\PTI\RAMSY\154354\5-final-dsgn\51-drawings\90-GIS\PDFs\SiteAlternatives.mxd

SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
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TF: (800) 325-2055
www.sehinc.com

Project: XXXXX 000000
Print Date: 12/8/2020

WTP SITE ALTERNATIVES

Ramey, Minnesota

Figure 1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

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WTP Alternatives - Fire Station Site

Ramsey, Minneota

Figure
4

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WTP Alternatives - Public Works Site

Ramsey, Minneota

Figure
5

SEH

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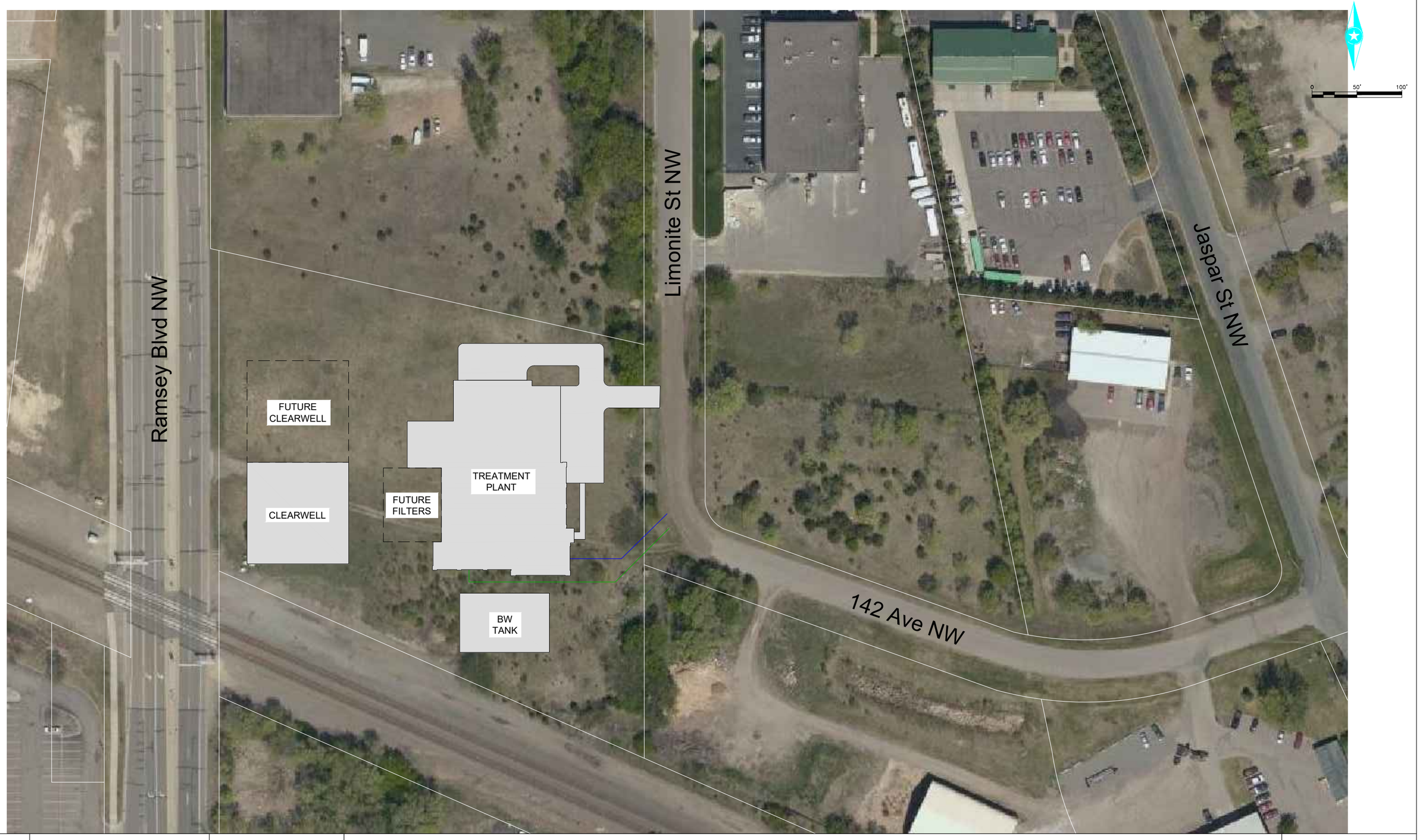
WTP Alternatives - Water Shop Site

Ramsey, Minneota

Figure 6



SEH

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Project: XXXXX 000000
Print Date: 11/30/2020

WTP Alternatives - Vacant City Property Site

Ramsey, Minneota

Figure
7

Regular Planning Commission **8. 1.**

Meeting Date: 01/07/2021

By: Tim Gladhill, Community Development

Information

Title:

Receive Update on Ramsey Gateway Project (US Highway 10/169 Plan)

Purpose/Background:

The purpose of this case is to receive a brief update on the status of the Preliminary Engineering efforts by Anoka County on the Ramsey Gateway Project (Highway 10/169 Plan). This update will focus in history, recent progress and schedule moving forward. Over half of the funding for this $138M project has been secured and is now a reality for a 2023/2024 construction start date.

Notification:

Observations/Alternatives:

Funding Source:

Recommendation:

Action:

For update only - no action requested.

Attachments

Presentation

Form Review

Inbox	Reviewed By	Date
Tim Gladhill (Originator)	Tim Gladhill	12/29/2020 04:16 PM
Form Started By: Tim Gladhill		Started On: 12/09/2020 10:42 AM
Final Approval Date: 12/29/2020		

CITY OF RAMSEY
GATEWAY

The Ramsey Gateway Project - Highway 10

Business & Property Owner Meetings

Thursday December 17, 2020

GREATER MN GATEWAY

Anoka County MINNESOTA

City of RAMSEY

DEPARTMENT OF TRANSPORTATION

BOLTON & MENK
Real People. Real Solutions.

PROJECT PURPOSE & NEED

CITY OF RAMSEY GATEWAY

Project Purpose

- To address capacity and operation issues, improve safety, and maintain the functionality of Highway 10 as an important route in the Statewide Transportation System.
  - 35,500 to 56,000 vpd existing
  - 49,000 to 74,200 vpd forecast
  - 48-53% AM/PM through trips

CITY OF RAMSEY GATEWAY

Project Need

- Capacity and Operations
  - Highway 10 intersections with Ramsey Blvd and Sunfish Lake Blvd are failing today
    - NB railroad queues extend onto Highway 10
    - By 2045, intersection and mainline delays are significant throughout

CITY OF RAMSEY
GATEWAY

Sunfish Lake Blvd will be the first traffic signal encountered for westbound traffic after the Anoka Project is complete in 2024.

Project Need

- Safety
  - High number of crashes
    - 90 crashes per year
    - 60% rear end
    - Ramsey Blvd and Sunfish Lake Blvd crashes above normal range
    - 3 fatal crashes in 10 yrs
  - Numerous access points
    - 73 access points contribute to mobility and safety issues

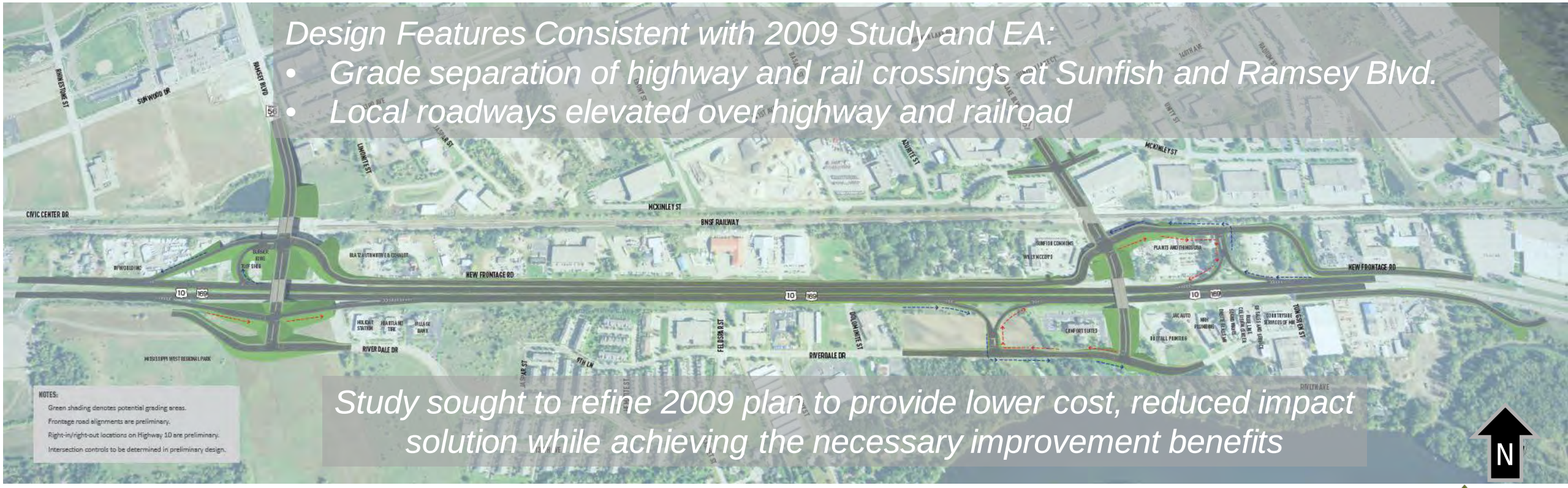
CITY OF RAMSEY GATEWAY

From 2000 to Today

PROJECT HISTORY

CITY OF RAMSEY GATEWAY

2019 Corridor Study Vision



CITY OF RAMSEY
GATEWAY

The Ramsey Gateway Project

will provide grade separations of US Highway 10/169 and the BNSF Railway to address major crash and congestion issues that are greatly impacting the movement of goods and people between the Minneapolis/Saint Paul metro area and greater northern Minnesota.

42% Crash Reduction

Reliable movement of regional railroad and highway freight and commuter traffic

1 + Benefit-cost Ratio

94% Delay Reduction

Efficiently serves 2040 traffic volumes (75,000 vehicles per day)

US Highway 10/169 Importance

- A principal arterial carrying up to 55,000 vehicles per day (2,800 heavy commercial vehicles)
- Significant commuter and freight corridor between Minneapolis – St Paul, northwestern Minnesota, and into North Dakota
- Busiest rail line in MN with 57-81 freight trains and 14 commuter trains per day
- Connection to northern Minnesota lakes and outdoor tourism industry

Project Need

- 125 crashes in the last 3 years (2017-2019), 3 fatal crashes in the last 10 years
- Crash rate 2x the state average
- Traffic backups approaching 1 mile by 2025 and almost 4 miles in 2045
- Fully funded Anoka and Elk River 2023/24 projects will result in Ramsey having the only two remaining at-grade traffic signals on the US Highway 10/169 freeway system from Minneapolis/St Paul to Elk River.

Funding Need

Total Investment Secured $83.9M

10% 20% 30% 40% 50% 60%

Total Investment Needed $138M

Inflated to 2025 dollars

70% 80% 90%

Funding Sources

Competetive Funding Sources

- INFRA Award
- Regional Solicitation
- Minnesota Highway Freight Program

State and Local Contributions

- Anoka County
- City of Ramsey
- MnDOT Preservation Funds
- 2020 State Bonding Bill
- 2017 State Rail Funds
- 2018 State Bonding Bill

Project Schedule

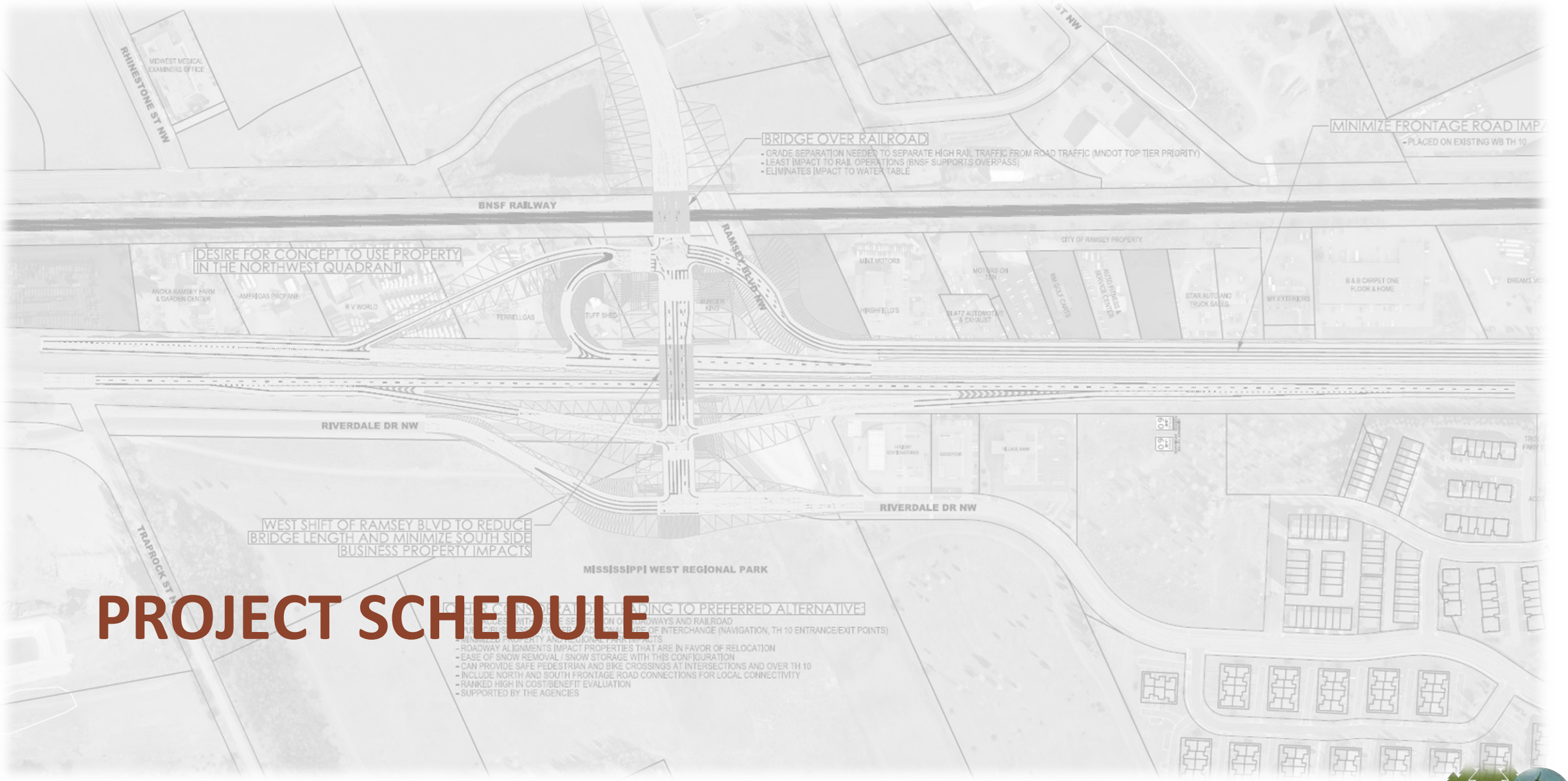
2020	2021	2022	2023	2024
J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J J A S O N D
Preliminary Design		Final Design		
	Environmental Documentation	Right of Way (ROW) Acquisitions		Construction

Highway 10 is a critical multimodal transportation link between Minneapolis/St. Paul and Fargo

Anoka County MINNESOTA Respectful. Innovative. Fiscally Responsible

City of RAMSEY

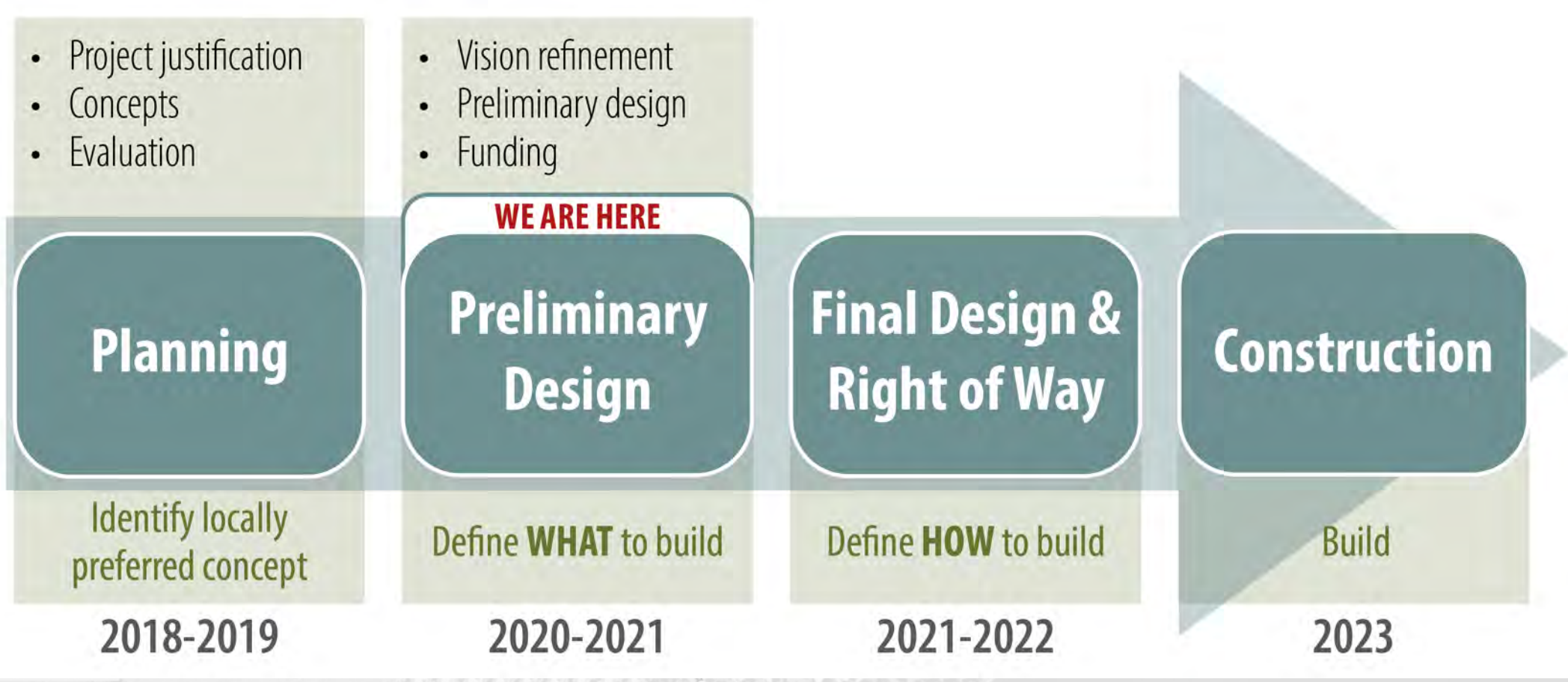
DEPARTMENT OF TRANSPORTATION



PROJECT SCHEDULE

CITY OF RAMSEY GATEWAY

Project Development Process



Anoka Solution 2022-2023 Construction

ANOKA REAL. CLASSIC.

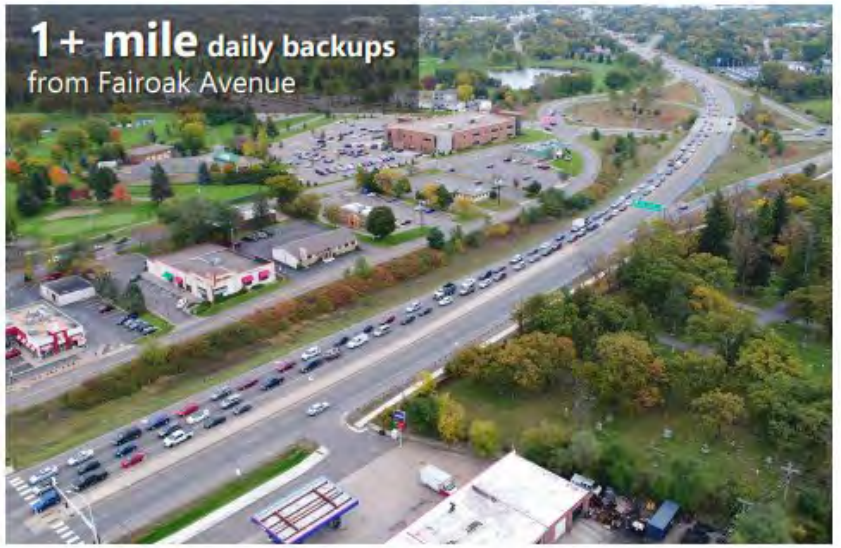
The U.S. Highway 10/169 Project will reduce crashes and improve traffic operations. This will result in improved mobility and reliability for all users of the project corridor.

Existing Issues

- 60,600 vehicles per day
- Principal Arterial moves regional freight; 3,300 heavy commercial vehicles
- 1+ mile back-ups during peak hour
- 21 mph avg. peak hour speed (60 mph posted)
- 1,128 crashes (2 fatal) from 2006-2015
- Crash Rate 1.5x state average
- Segmented local network forces local highway trips

Investment Results

- **75% delay reduction**
- **57% crash reduction**
- 4.0 benefit-cost ratio
- Accomodate 90,000 vehicles/day
- Local trips on local network
- Safe and reliable movement of goods and services

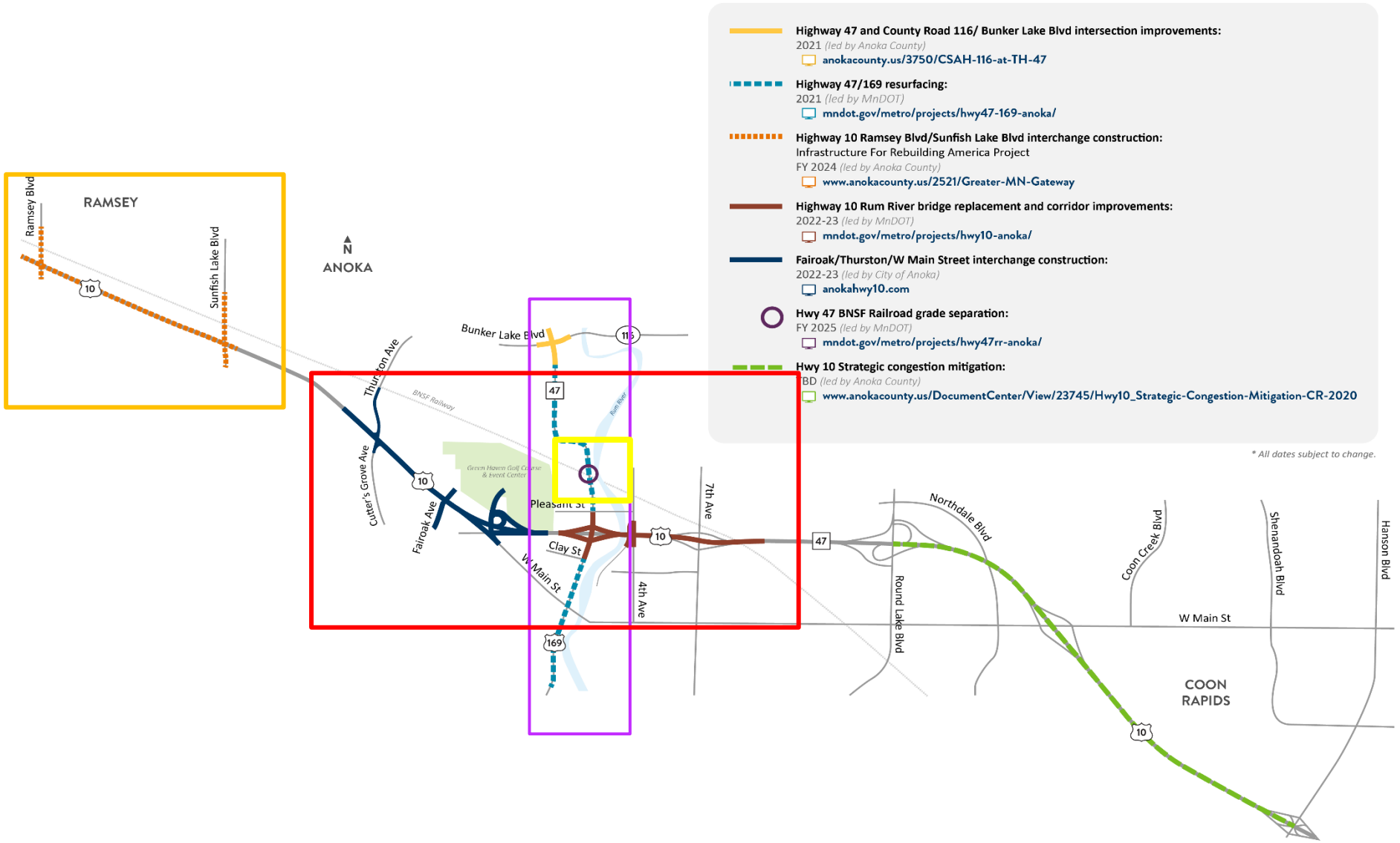


The City of Anoka continues to work closely with MnDOT, Metropolitan Council, Anoka County, and other partners to plan, design, and implement fiscally-responsible safety and operation improvements to benefit all U.S. Highway 10/169 corridor users.

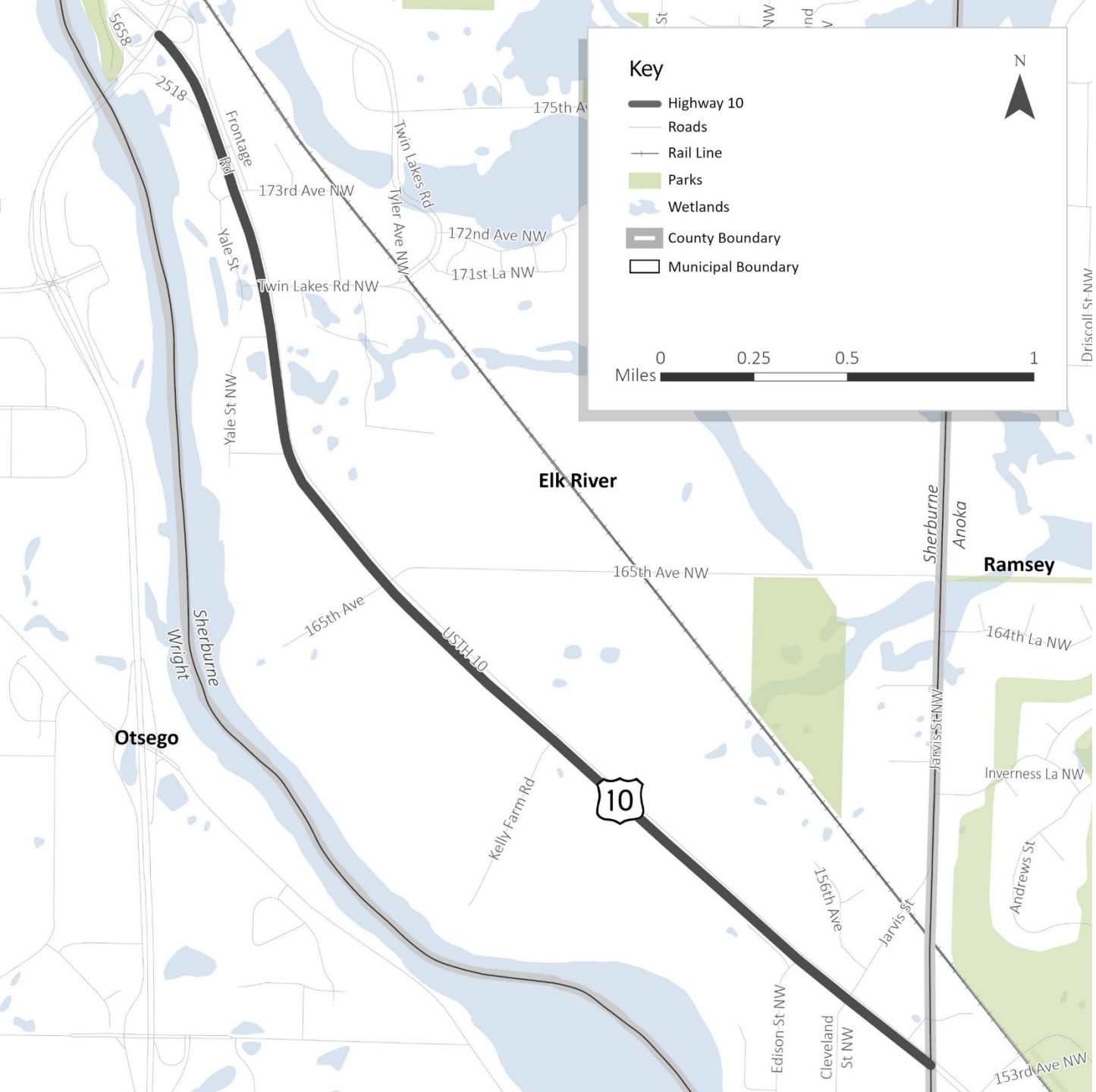
All funding is committed!

Total Investment $80M

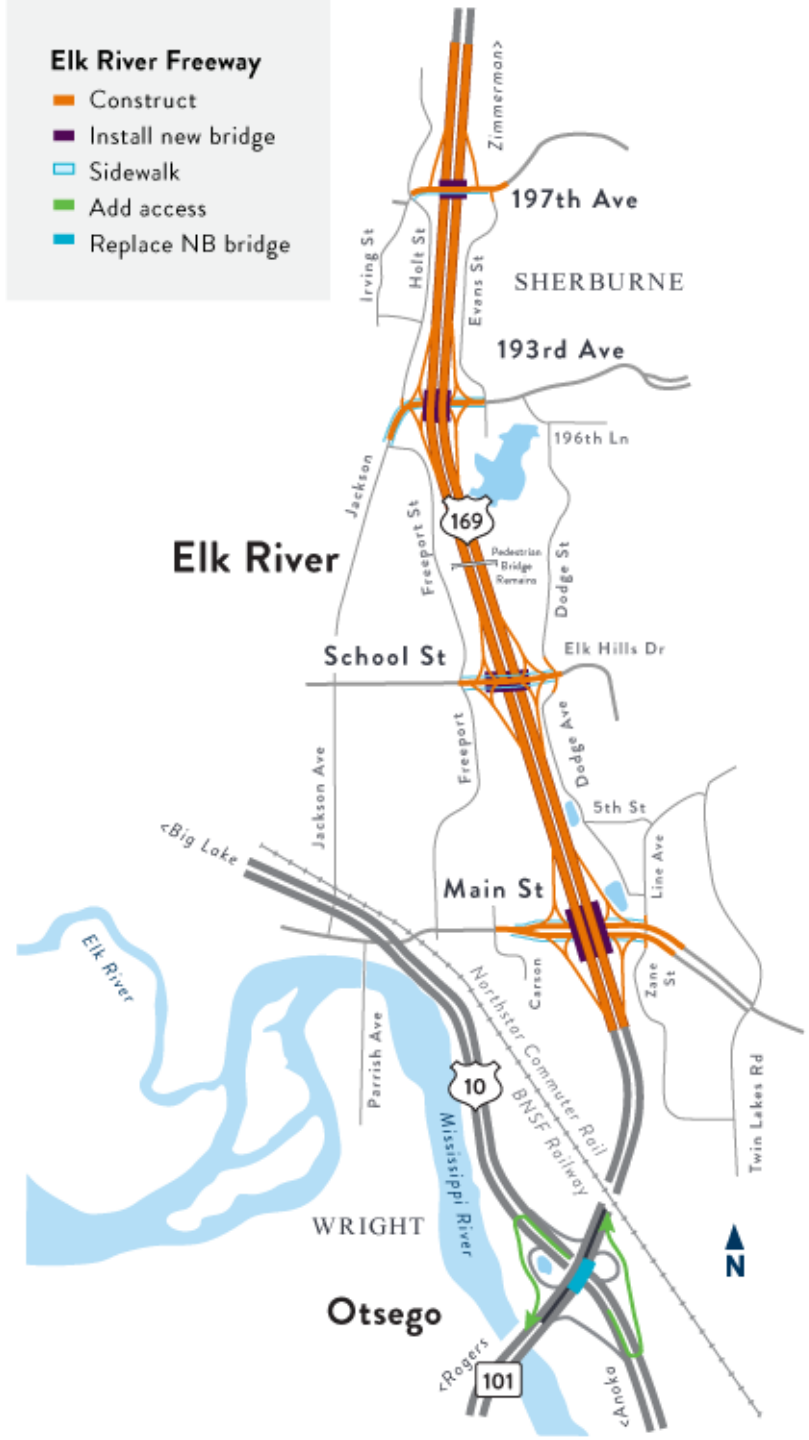
AnokaHwy10.com



US 10 Projects Overview

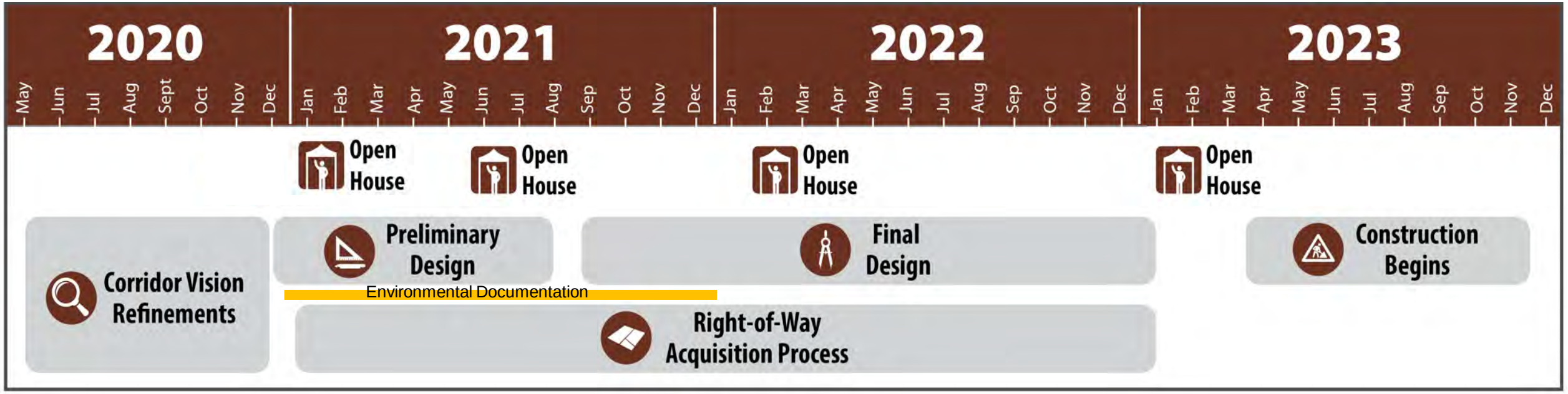


HIGHWAY 10 CORRIDOR STUDY


Elk River Freeway
Construct
Install new bridge
Sidewalk
Add access
Replace NB bridge
Zimmerman
197th Ave
SHERBURNE
193rd Ave
196th Ln
Irving St
Holt St
Evans St
Jackson
Freeport St
169
Pedestrian Bridge Remains
Dodge St
Elk River
School St
Elk Hills Dr
Jackson Ave
Freeport
Dodge Ave
5th St
Big Lake
Main St
Line Ave
Elk River
Carson
Zane St
Northstar Commuter Rail
BNSF Railway
Parrish Ave
10
Mississippi River
Twin Lakes Rd
WRIGHT
N
Otsego
Rogers
101
Anoka

169
REDEFINE

Project Schedule



NEXT STEPS?

CITY OF RAMSEY
GATEWAY

Next Steps

- **Today?**
  - Do you want to talk one on one with project team member?
  - Unmute and speak up!!!
- **After Today?**
  - Follow up one on one discussion? Call or email Ashley Hudson at **701-566-2349** or **Ashley.Hudson@bolton-menk.com.**
  - Public (virtual) Open House anticipated for February 2021
  - Right-of-Way Staff anticipated to be reaching out by February 2021

CITY OF RAMSEY GATEWAY

QUESTIONS

CITY OF RAMSEY
GATEWAY