

City of Ramsey
Agenda
Public Works Committee
Tuesday December 13, 2011

5:15 pm
Lake Itasca Room, 7550 Sunwood Drive NW

- 1. Call to Order**
- 2. Citizen Input**
- 3. Approve Agenda**
- 4. Approve Minutes**
 1. Approve Public Works Committee Meeting Minutes dated November 15, 2011
- 5. Committee Business**
 1. Discuss Septic System Repair Policy
 2. Consider Requirements for Information That Must be Included on Certificates of Survey.
 3. Update on the Feasibility Study to Realign Sunwood Drive NW at Armstrong Boulevard
- 6. Committee/Staff Input**
- 7. Adjournment**

Public Works Committee

4. 1.

Meeting Date: 12/13/2011

By: MaryJo Warner, Engineering/Public Works

Title:

Approve Public Works Committee Meeting Minutes dated November 15, 2011

Background:

The Public Works Committee held its regular meeting on November 15, 2011

Notification:

Observations:

Funding Source:

n/a

Staff Recommendation:

Committee Action:

Approve attached meeting minutes dated November 15, 2011

Attachments

Minutes 11.15.11

Form Review

Inbox	Reviewed By	Date
Brian Olson	Brian Olson	12/06/2011 02:11 PM
Kurt Ulrich	Kurt Ulrich	12/08/2011 03:18 PM
Form Started By: MaryJo Warner		Started On: 12/05/2011 02:55 PM
Final Approval Date: 12/08/2011		

**PUBLIC WORKS COMMITTEE
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA**

The Public Works Committee conducted a regular meeting on Tuesday, November 15, 2011 at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Chairperson Colin McGlone
 Councilmember Randy Backous
 Councilmember David Elvig

Also Present: City Administrator Kurtis G. Ulrich
 Deputy City Administrator Heidi Nelson
 Public Works Director Brian Olson
 City Engineer Tim Himmer
 Street Supervisor Grant Reimer
 Finance Officer Diana Lund
 Senior Planner Tim Gladhill
 Development Manager Darren Lazan
 Mayor Bob Ramsey
 Councilmember Sarah Strommen
 Councilmember Jason Tossey
 Councilmember Jeff Wise

CALL TO ORDER

Chairperson McGlone called the regular meeting of the Public Works Committee to order at 5:31 p.m.

CITIZEN INPUT

There was none.

APPROVE AGENDA

Motion by Councilmember Elvig, seconded by Councilmember Backous, to approve the agenda, as presented.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Elvig and Backous.
Voting No: None.

APPROVE MINUTES

Motion by Councilmember Backous, seconded by Councilmember Elvig, to approve the minutes from the October 18, 2011, Public Works Meeting.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Backous and Elvig.
Voting No: None.

COMMITTEE BUSINESS

Case #1: Discuss Trail Easement Acquisition on the Hansen Tree Farm

City Engineer Himmer reviewed the staff report and asked if the Public Works Committee was interested in obtaining an easement at this time or would rather wait until funding is available to construct the trail.

Councilmember Elvig asked if the easement would be purchased or leased.

City Engineer Himmer advised there has been no discussion on a cost of the easement. The discussion with Mr. Hansen has indicated they would be willing to dedicate the easement if for a specific term. Mr. Hansen is not looking for compensation for the easement.

Councilmember Backous stated he has no problem taking care of the easement at this time if there is no cost and to hold a future discussion relating to when the trail would be constructed. He indicated that at this time, until other things are taken care of, he is not interested in expanding this trail.

Chairperson McGlone asked when the City would have funds to construct this trail and if there is grant funding.

Public Works Director Olson advised this segment of trail is not in the CIP for programming in the next five years but if directed by the Council to prioritize this trail, it will be scheduled. He noted trails are funded from development fees and estimated it may be five years before this segment is constructed; however, it is a great segment that would provide connection to the neighborhood to the north, The COR, and park.

Chairperson McGlone stated he had no objection to recommending approval to the Council.

City Engineer Himmer asked Mr. Hansen if they would be willing to dedicate an easement even if it is known the trail will not be constructed for a period of time.

Mark Hansen, Hansen Tree Farms, answered in the affirmative.

City Engineer Himmer suggested a 20-year easement, renewable for a 5-year period.

Motion by Councilmember Elvig, seconded by Councilmember Backous, to recommend that the City Council enter into an agreement to secure an easement with the Hansen Farm for a 20-year term, renewable for a 5-year period after the initial term, and subject to legal review.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Elvig and Backous.
Voting No: None.

Councilmember Elvig thanked Mr. Hansen, noting this will be a good segment of trail.

City Engineer Himmer advised that Mr. Hansen had mentioned he may also consider an extension along Alpine Drive.

Case #2: Consider Proposal from Metro Area Repeater Association to Install Skywarn Facilities on Water Tower #2

City Engineer Himmer reviewed the staff report.

Councilmember Backous stated he had no problem when this request was initially presented subject to the Metro Area Repeater Association (MARA) covering the costs for the inspection. He did not object to paying for electricity, since it will be minimal, and noted staff should be present when MARA accesses the tower.

Councilmember Elvig stated he feels the same way unless the City has the opportunity to rent space on the tower. He suggested the agreement include language that this equipment would be removed if the City had the opportunity to generate revenue.

Chairperson McGlone stated he shares the concern expressed by Councilmember Elvig about giving up a revenue producing company, and wants to assure liability is covered.

Public Works Director Olson stated the agreement can indicate that in the event a cellular carrier needs this space, MARA equipment would be removed. He noted that White Bear Lake requires for 24-hour notice to gain access, which is important.

City Engineer Himmer advised of the three other groups that provide this type of service.

Public Works Director Olson asked what would stop the next group from making the same request and expecting the same approval.

Chairperson McGlone agreed that is a concern.

City Engineer Himmer noted the Skywarn website indicates the frequency is 147 MHz but this request is at 146.85 and 146.25 MHz, not within the Skywarn frequency.

Dan Card, representing MARA, explained that Skywarn uses a repeater system in the metro area, depending on the location of the storm. Some systems are just countywide but their system covers the whole metro area, not just Anoka County, and provides information to all spotters in the metro area.

Public Works Director Olson asked if they have contacted Anoka County who has all the 800 MHz towers in Anoka County, including one at the old Ramsey City Hall location.

Mr. Card explained it is difficult to get on any 800 MHz system sites. They have had discussion with the City of Anoka previously and were offered some sites but not where MARA needed to be located. He noted Ramsey's site is good for their area of desired coverage.

Joel Jameson, 5910 146th Avenue NW, representing MARA, said he approached Ramsey because he is a resident.

City Administrator Ulrich asked about MARA's relationship with other organizations and if there is a cooperative or competitive relationship.

Mr. Card stated they are familiar with the groups mentioned by City Engineer Himmer and have a cooperative relationship with those groups on projects. He indicated he did not know if other groups would approach the City with the same request.

City Engineer Himmer stated it sounds like MARA is metro-wide and other groups are more regional.

Mr. Card stated that is correct.

Councilmember Backous stated he is not concerned if another request is received and likes the idea of having the agreement indicate that if a paying customer comes along, MARA's equipment would be removed.

Mr. Card stated that will not be a problem but clarified that equipment for cellular companies mount on the side of the towers and MARA equipment mounts on top of the tower.

Chairperson McGlone asked about insurance and liability.

Paul Emeott, 3960 Scheuneman Road, White Bear Lake, advised MARA has a \$1 million blanket liability policy and Ramsey can be named as additional insured.

Public Works Director Olson stated staff will add the requirement for a 24-hour notice and that MARA equipment will be removed should there be a paying user.

Councilmember Elvig agreed and suggested the language indicate the MARA equipment will also be moved due to space needs or conflict of radio waves.

Mr. Card offered to provide their agreement with the City of Minnetonka, which could provide a template.

Motion by Councilmember Elvig, seconded by Councilmember Backous, to recommend the City Council direct staff to formalize an agreement with MARA including 24-hour notice for tower access, additionally insured on \$1 million liability policy, removal of equipment at their cost should another lease be received or signals conflict, and payment of electric costs.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Elvig and Backous.
Voting No: None.

Case #3: Consider Policy on Turf Establishment Related to City Improvement Projects

City Engineer Himmer reviewed the staff report.

Chairperson McGlone stated his support to require sod since it has roots to quickly establish turf and address erosion. He felt requiring sod would result in fewer headaches in the long run and the City can assure the contractor is meeting specifications.

Councilmember Backous stated he was thrilled with this proposal, which will be more costly up front but save staff time and residents will be happy with it.

City Engineer Himmer explained that ditches are to promote infiltration so staff suggests not using costly soil.

Councilmember Elvig asked whether the requirement of 4 inches of topsoil is overkill. He stated in his yard he put down one-half inch of topsoil and his yard is now more green than others in the neighborhood. Councilmember Elvig suggested talking with contractors about salvage dirt and the need to pick out rocks. He stated he understands the need to address erosion but was concerned that property owners would not take care of sod. To keep it affordable, he suggested the seed be sown, not broadcast, and watered every 2-3 days to assure it will grow.

City Engineer Himmer stated sod is a good means of erosion control and this specification, whether seed or sod, requires the contractor to water it for 30 days. In 30 days, sod will be established but it takes longer for seed to be established. City Engineer Himmer stated staff talked about the impact of salt and sand during the winter months and whether it was the contractor's or homeowner's responsibility to cut out and replace that sod. He noted that sod gets rid of the concern with rocks.

Councilmember Elvig asked what is the cost between sod and seed.

Public Works Director Olson estimated the cost on Ute Street was \$300-\$500 per address. He noted the specifications for that project tried to make it as affordable as possible to get the project done. Residents were offered \$200 to salvage top soil. The area was seeded and steeper areas were hydro seeded. Public Works Director Olson noted a picture can be taken at the end of the project to show turf has been established. With regard to sod damaged by road salt, he asked why the contractor should not be required to replace it since a 12-month warranty is required.

City Engineer Himmer reviewed the cost of sod and seed, noting both require topsoil.

Councilmember Elvig asked whether 4 inches of top soil would be required for sod.

City Engineer Himmer stated that is the standard and he has seen no other communities require less.

Councilmember Elvig stated people are excited about getting the dirt roads paved and the City is trying to get it done as affordable as possible.

Chairperson McGlone asked how many miles are left.

Public Works Director Olson responded just under three miles.

Chairperson McGlone noted if it is just three miles, it may not be a big issue to a lot of people. He believed sod would solve a lot of problems and agreed a picture can be taken when the project is done to show whether turf has been established. Chairperson McGlone stated he can understand why the contractor would not want to be responsible to replace salt damaged sod because the contractor did not cause it.

City Engineer Himmer commented on the importance of communication with residents to provide adequate notification of the project and to care for the sod when it goes in because it is an investment in their property.

Public Works Director Olson requested input on the specification for areas with ditches, noting that 65% sand can be allowed but the whole point is to absorb water and decrease the amount of irrigation that is necessary.

City Engineer Himmer explained that 10-17% sand is allowed in borrow and 25-60% sand is allowed in premium.

Councilmember Backous stated he understands the spirit of the topsoil requirement is to better retain water and not have to irrigate but the City should be required to do whatever it requires of others.

Public Works Director Olson noted the boulevard would have to sodded but not the front and back yards.

Chairperson McGlone stated the City may not want sod for the ditch areas.

Public Works Director Olson noted the ditches can be people's front yards and if that's the case, it may be more complicated to use two soil types.

City Engineer Himmer explained that with Chameleon Street, there were ditch sections and some residents mow it.

Councilmember Backous stated he did not support having a separate standard for the City.

Councilmember Wise stated he believed a specification for 4 inches of topsoil is overkill and the Council wants to make Ramsey more affordable for development.

Chairperson McGlone stated it is also problematic if some residents are required to pay for sod and the City does not do the same. However, he did not know how to decipher when the City can choose.

Public Works Director Olson noted if the ditch had an adjacent field, it would be sodded but never maintained. He stated staff is trying to use its best judgment when restoring projects but the expectation is different so clarification is being requested.

Chairperson McGlone asked whether there is a way to take photos prior to the project so the City can decide whether it is as good or better.

City Engineer Himmer stated that can be done but raised a scenario where one property owner has a manicured lawn and irrigation system and another property owner does not maintain their yard. He asked whether it was fair for both property owners not to get the same.

Councilmember Elvig suggested an option not be given but if it is a field, staff can use common sense.

City Engineer Himmer noted at the last Public Works meeting an option was discussed that the property owner be presented with what the City will do for turf restoration and if the property owner wants something more, the City will reduce their cost by that amount.

Chairperson McGlone stated some residents have said they'd prefer to do it themselves.

City Engineer Himmer explained the problem is that residents don't follow through, resulting in erosion problems and sediment going into the storm sewers, incurring more costs for the City.

Motion by Councilmember Elvig, seconded by Chairperson McGlone, to recommend that the City Council adopt a Turf Establishment Policy, as presented, requiring the import of 4 inches of premium top soil, sod, and 30-days of watering.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Elvig and Backous. Voting No: None.

Public Works Committee consensus was reached to schedule discussion of the depth of top soil requirement for a future Public Works Committee meeting.

Case #4: Discuss Turf Restoration Concerns on City Improvement Project #08-34; the Bituminous Paving of 151st and 152nd Avenues, and Fluorine Street

City Engineer Himmer reviewed the staff report.

Chairperson McGlone noted this project involved resident complaints about the amount of rock in the topsoil.

Public Works Director Olson stated over 600 assessments were levied during that project and all in this project were not contested.

Councilmember Backous supported staff's recommendation to view the project in the spring to determine whether additional corrective actions are necessary.

Mayor Ramsey agreed inspection needs to wait until spring but he believed something needed to be done.

City Engineer Himmer commented on the need for property owners to take ownership and water the lawn, noting it is clear some did not.

Councilmember Elvig stated the problem is that the same quality of dirt was not used on all the properties. He felt whatever is done, it should include new top soil, where necessary. He suggested 2 inches of top soil be brought in so it is consistent and then water it for a period of time.

City Engineer Himmer clarified that the City supplied the dirt, which was screened, so the last 2 inches of dirt was the same for all. The City subcut down 2 inches to get out rock but some residents may have done more watering.

Public Works Director Olson stated the dirt was screened with a one inch in diameter screen.

Mayor Ramsey noted some rocks were huge, the size of a baseball.

Public Works Director Olson explained that size of rock would have come from the soil below.

Mayor Ramsey stated if not for the rocks, the City would not have this problem.

Chairperson McGlone noted if the original soil had been screened and the area sodded, there would be no problem.

City Engineer Himmer stated that was his struggle with this project. During July and August their lawn was brown, but this swath of turf was green. He agreed some property owners put in effort to make it work and the City can't be responsible to water for three months.

Public Works Director Olson asked if the Committee is saying to put in 2 inches of top soil with seed.

Councilmember Elvig retracted his suggestion to put down 2 inches, explaining he did not know the City had already brought in 2 inches of top soil.

Councilmember Backous suggested residents be sent a letter advising them the City will inspect the project in the spring.

City Engineer Himmer asked if rocks are the main issue. The Committee agreed that is the main issue.

Public Works Director Olson asked if it would resolve the problem if the rocks are picked out so the grass can grow. The Committee agreed that would resolve the problem.

City Administrator Ulrich asked if a post-project survey should be conducted during the winter months to determine the residents with an issue.

Councilmember Backous noted that could change by the spring so he supported sending a letter telling residents it would be inspected in the spring.

Councilmember Elvig suggested the letter also indicate that the Public Works Committee has been reviewing the issue and, at a minimum, will remove the rock, assess the type of turf coverage, and take remedy action depending its discovery in the spring.

City Engineer Himmer asked if the letter should include discussion of taking ownership.

Councilmember Elvig agreed it should be explained the City will do this one thing and after that property owners need to take over.

Public Works Committee consensus was reached to direct staff to write a letter for Public Works Committee review indicating the property will be inspected in the spring to determine whether additional corrective actions are necessary and, at a minimum, the rocks will be removed. After that, the property owners are expected to take over responsibility.

Case #5: Approve Final Draft of RFP and Contract with Contracted Sweeping Services

Street Supervisor Riemer reviewed the staff report.

Chairperson McGlone asked if it includes the contractor taking away swept materials from Public Works.

Street Supervisor Riemer explained that would be an alternate bid and the contractor would dump road debris on the City's site. Or, the contractor can bid to truck away the road debris without dumping.

Motion by Councilmember Backous, seconded by Councilmember Elvig, to recommend that the City Council approve the Response for Proposal for 2012 spring sweeping subject to legal review.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Backous and Elvig. Voting No: None.

Case #6: Discuss Potential Reconstruction of Garnet Street, North of 167th Avenue

City Engineer Himmer reviewed the staff report and asked whether Garnet Street, between 167th Avenue and the Brookfield subdivision, should be used as a kick-off project using the Public Improvement Revolving (PIR) Fund as seed money.

Councilmember Backous stated he would say the same thing if facing a road assessment, for the City to continue to maintain the roads until a franchise fee is in place to make cost more palatable.

City Engineer Himmer explained the City can consider deferred assessments for lots with enough foot frontage that the lot can be subdivided. In that case, the lot with the principal structure can be charged a typical assessment and the rest deferred until development occurs. In that case, the remaining assessment would be paid at the time the lots are sold.

Chairperson McGlone asked whether this area has large acre lots.

City Engineer Himmer answered in the affirmative.

Public Works Director Olson commented on projects that also include utilities and curb and gutter. He asked whether the Public Works Committee thinks this is an important enough project to put forward. If so, staff will design the project over the winter months for construction next year.

Councilmember Elvig noted when the property to the north was done, it was assumed the property to the south would likely sell out and give initiative to put in roads and utilities. At that time, Mr. Peterson had talked with property owners and got 10 out of 12 in agreement. However, now they want the road only patched and it is the worse road in Ramsey. Councilmember Elvig stated he does not see a way that development will come to initiate this project for many years so something needs to be done to replace that road. He asked whether the City should put in a new road as cost effective as possible knowing that some day utilities will go in. Or, should the City reconstruct the road with utility infrastructure, paying for the utilities from the Utility Fund, and charging property owners for a normal assessment.

Public Works Director Olson stated the City could move forward with a plan that included water and sewer in the roadway, providing future hookups and services to the property line paid by the Enterprise Funds, and getting reimbursed when people connect.

Chairperson McGlone asked whether property owners would not have to bear part of the cost.

Public Works Director Olson stated if the property is assessed 100%, owners will counter petition. He noted the storm sewer improvement would not be assessed but the sanitary sewer and water could be deferred with payment upon connection.

City Engineer Himmer stated the City did the same thing on 167th Avenue where utilities were installed and lateral charges paid upon connection.

Councilmember Elvig stated this is a prime area for future growth and utility funds are strong so the City could do that. He supported installing road with curb and gutter to standards, including utilities and to split the cost on road construction.

Chairperson McGlone suggested putting more emphasis on the fact that this road was at reconstruction condition five years ago so it should be moved ahead over anything else.

Councilmember Elvig stated this road project was previously held off because, in reasonable views, the growth was going to happen.

Chairperson McGlone noted 12 owners could divide their property once sewer and water are installed and may decide to sell off a lot to pay for the assessment/connection.

Councilmember Elvig agreed the project would create the opportunity for growth.

Public Works Director Olson noted this is identical to the situation five years ago with 151st Avenue and Fluorine Street. The City would have put in sewer and water and assessed for one-half the cost of the road and curb and gutter. However, the residents indicated they did not want to subdivide their property and would counter petition the project. He agreed that Garnet Street is past due and is expensive to maintain.

Councilmember Elvig stated another condition at that time was residents thought they would be required to connect to sewer and water so it became contentious. He suggested staff talk with the Garnet Street property owners to assure them that is not the case and eliminate the fear factor.

Chairperson McGlone stated he would have no objection to the full project including curbs and gutters. He noted the City cannot force anyone to connect but some may want to subdivide. This is part of the road reconstruction initiative. He asked about sidewalks to connect 167th Avenue.

Councilmember Elvig agreed this neighborhood requires sidewalks, which would be a huge benefit.

City Engineer Himmer reviewed a sketch depicting 40 lots, noting there is no guarantee that would happen, but it would bring assessments down to the \$3,000 to \$4,000 range.

Public Works Director Olson asked for input on assessments. He noted that if proposing a project with assessments, the first thing the neighborhood will ask is what if the City goes to a zero assessment the next year. Public Works Director Olson stated he has already heard that comment from property owners with recent sealcoating or overlay assessments but he believed those projects were differentiable. He noted this project would involve a full reconstruct but was constructed in 1988, not 40 years ago. He explained this project involves a clay area so a sand base was put in but not constructed to the subbase requirement. He raised the alternative of charging 25% or 50%, holding a public hearing, and agreeing that if the street reconstruction initiative is approved with 100% paid from a franchise fee, they would be reimbursed.

Chairperson McGlone stated that will be discussed in the reconstruction policy.

Public Works Director Olson stated that is correct but the last time discussed, there were three options and some leaned towards 100% assessment and some towards all franchise fees. He asked how the Committee felt about repayment, noting the City needed to determine the maximum amount to be assessed.

Councilmember Backous asked how is that different from Chameleon Street.

Public Works Director Olson explained it was 50% assessed because it was a gravel road and done through a program initiated by the Council, similar to sealcoating and overlaying projects.

Councilmember Backous stated he has those are same thoughts about the road reconstruction policy.

Councilmember Elvig stated he wonders if the City should come up with a flat fee assessment per PIN regardless of project cost.

Chairperson McGlone indicated he would rather the project go through, the City foot the cost to put in the utilities and curb and gutter, and when someone wants to develop their property the City will be paid back. He stated this project has been held off and if constructed he supported also fixing the clay issues.

Councilmember Elvig questioned if the policy is a 50/50% split or 100% for reconstruct.

City Engineer Himmer explained other cities use the rationale that every residential property puts the same number of cars on the road so the same cost is applied to all for a road project. Commercial and industrial properties are assessed by the front footage.

Public Works Director Olson ask what those cities use to supplement the cost of the project not paid by the property owner, noting in a rural setting it would not cover the costs. The current policy is 100% assessment because the City has no funding.

Councilmember Backous stated this discussion is getting ahead of the topic and the transition issues that can be addressed later.

Councilmember Elvig supported a reasonable policy that fits into a transition of the City's greater program.

Councilmember Backous supported making a decision and dealing with transition issues later.

Chairperson McGlone pointed out that everyone agrees they don't want a road that will fail like the last road so the clay issue should be fixed. He supported doing the improvements and assessing for the road portion including sidewalk and curb and gutter. The City can recoup the utility infrastructure costs in the future.

Councilmember Elvig noted some costs can be deferred if the property owner has the ability to sell a lot.

Public Works Director Olson noted it has already been discussed to defer the utility costs until connection and the City usually assesses 50% on the roads.

Chairperson McGlone stated support for a 50% assessment.

Councilmember Backous agreed.

Councilmember Elvig stated in this case residents already have a bituminous road in front of them, though well over due for reconstruction, so it is not like a rebuild from a dirt street.

Chairperson McGlone pointed out that 10 of the 12 property owners had previously signed to get the road so he thinks they are on board for a better road and will understand the benefit of subdividing.

Councilmember Backous agreed with the logic of doing a 50/50 split on the costs, noting it would then cost \$6,200/property.

City Engineer Himmer noted this mill and overlay does not contemplate removal of underlying soils.

Councilmember Elvig stated support for the City to cover the cost of soil corrections since the road was not built correctly.

City Engineer Himmer stated staff will meet with these residents to review this scenario and find out if it is palatable. Staff will also prepare a funding recommendation, noting the Enterprise Fund may cover part of it.

Motion by Chairperson McGlone seconded by Councilmember Backous, to recommend that the City Council approve a Garnet Street roadway project of the same width as streets to the north including concrete curb and gutter, full utilities, and a sidewalk on the east side, a 50%/50% cost split, assessment on the street portion only, and subgrade correction to be paid by City.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Backous and Elvig. Voting No: None.

Case #7: Consider Authorization to Initiate Updates to the City's Comprehensive Sanitary Sewer and Water System Studies

City Engineer Himmer reviewed the staff report.

Councilmember Elvig commented on the size of this task.

City Engineer Himmer estimated a cost of \$25,000 and timeline of 8 weeks.

Public Works Director Olson stated that timeframe would not include policy discussion on content. He requested input on whether the assumptions made in 2004 were or were not reasonable. Public Works Director Olson indicated it would be beneficial to use the consultant who updated the Comprehensive Plan.

Councilmember Elvig felt there was no option but to go through the process and asked whether the water issue was going to be a regional issue. He noted it is not currently being discussed by the Metropolitan Council.

Public Works Director Olson stated the assumptions in the comprehensive sewer plan are the City's to make. He noted that regional participation would impact user rates and fees.

Chairperson McGlone asked about the City's current population and future projections.

Senior Planner Gladhill stated the 2030 projected population is 43,000 with 16,000 households.

Public Works Director Olson advised that Ramsey is nowhere near the population estimates contained in the comprehensive sewer plan. He noted that improvements were to be completed in advance, such as the water tower was to be done in 2005/2006 but did not occur until 2008. Public Works Director Olson suggested those discussions be revisited.

City Engineer Himmer stated the comprehensive plan water study, when prepared in 2009, projected a population of 26,000. The service area is about 50% of the City. In 2014, the area population is estimated at 33,000 and in 2020 it is estimated at 41,000.

Chairperson McGlone stated the population relates back to fees so it is a good idea to go through the exercise.

City Engineer Himmer agreed, noting if the population is lower the fees have to increase.

Public Works Director Olson felt it was realistic to think there is some regional benefit.

City Administrator Ulrich contended it is not just an assumption but a self-fulfilling prophecy that the City plan a regional system as being the most economical and the funding mechanisms will fall into place.

Motion by Councilmember Elvig, seconded by Chairperson McGlone, to recommend that the City Council use a consultant and direct staff to prepare a scope of service and obtain quotes to undertake a comprehensive sanitary sewer and water system study for future consideration by the Public Works Committee and to discuss assumptions so the consultant is provided with clear direction.

Motion carried. Voting Yes: Chairperson McGlone and Councilmembers Elvig and Backous.
Voting No: None.

COMMITTEE INPUT

1. Discuss Need for December Public Works Committee Meeting

The Committee discussed whether to hold a meeting in December and consensus was reached to schedule it on December 13, 2011.

Public Works Director Olson reported staff was notified last week that Mn/DOT will shut down Highway 10 at Ramsey Boulevard on November 20, 2011, 6-8 a.m., to remove a signal pole and replace a transformer.

ADJOURNMENT

Motion by Councilmember Elvig, seconded by Councilmember Backous, to adjourn the Public Works Meeting.

Motion carried.

The regular meeting of the Public Works Committee adjourned at 7:37 p.m.

Respectfully submitted,

Brian Olson
Public Works Director

Drafted by Carla Wirth
TimeSaver Off Site Secretarial, Inc.

Public Works Committee

5. 1.

Meeting Date: 12/13/2011

By: Tim Himmer, Engineering/Public Works

Title:

Discuss Septic System Repair Policy

Background:

Attached to this case is a copy of a policy adopted by the City in 1992, which relates to the repair of failed septic systems. As is explained in the preamble to the policy its purpose is to insure public health and safety. Over the years the policy has rarely been used to provide funding for the repair of failed septic systems. Implementation of the policy has only been in cases where the property owner refuses to address the failure, or where funding for the repair could not be obtained elsewhere. On August 19, 2009 the Public Works Committee discussed the septic system repair policy in conjunction with a resident request for assistance. The recommendation of the Committee at that time was to reaffirm the policy, but they also directed staff to research other alternatives for financing such repairs. The intent of the Committee was to leave the City policy in place, which involves special assessment of the repair, but only as a last resort.

Staff has been approached twice in the last two years regarding use of this policy to fund failing septic systems. In late 2009 the City did exercise use of this policy to repair a failing residential septic system, at which time the policy was reaffirmed by the Council. Last month the Council again agreed to use this policy to address another failing residential septic system, and staff continues to work through this matter with the property owner. During this most recent request the Council thought they may want to consider some language revisions to the policy, since it may be more likely to be utilized in the current economic times.

Notification:

Observations:

Staff researched several alternative funding options that may be available through various assistance programs within Anoka County and the state of Minnesota. The Anoka County Community Action Program (ACCAP) has emergency assistance monies available for housing related issues, with eligibility requirements based upon family income guidelines. In 2010 ACCAP disbanded and forwarded all requests for financial housing assistance to the Greater Metropolitan Housing Corporation (GMHC) Housing Resource Center, which administers community block grant funds through a contract with Anoka County. The eligibility requirements include; home value, age of the unit, residence time within the unit, and family household income. GMHC currently has a two year waiting period for this program.

The Minnesota Housing Finance Agency is a state agency that works with local communities to distribute funds to residents that meet their eligibility requirements. They can issue interest free loans to those that meet their criteria, and place a lien on their property for repayment. If the resident were to remain in the home for a period of ten years the loan would be forgiven. Unfortunately, since ACCAP was in existence at the time this entity was going out for contracts with local carriers, Anoka County was not included in the pool and therefore funding within Anoka County is not available at this time. The program is currently working to remedy this situation, but it will take some time to resolve. During the investigation staff also learned of a couple of other potential assistance options, which include a "Rebuilding Together Loan" with the County, and "Fix Up Fund Loan" with the state.

During the most recent City Council meeting on November 22, 2011 to discuss use of this policy, a few items were mentioned by the Council as potential revisions to further reinforce the City's septic system repair policy. Items for consideration include:

- Should there be a minimum/maximum income requirement? What is the appropriate supporting

documentation that must be submitted to determine need (this could include the applicant's income status, and their due diligence in securing alternative funding options)?

- Should there be different application of the policy depending on the severity of the failure (degrees of failure)?
- Should there be some language included in the standard agreement/assessment waiver that requires prompt repayment of the assessment should the applicant receive alternative funding? This could potentially require the applicant to continue seeking alternative funding even after the improvement is complete.

Funding Source:

Staff time will be used to incorporate any requested revisions to update this policy. Funding for implementation under this program comes from the sanitary sewer enterprise utility fund, and is paid back with a special assessment against the property.

Staff Recommendation:

Staff is looking for input from the City Council on whether they would like to revise the current policy.

Committee Action:

Based upon discussion.

Attachments

Septic System Repair Policy

Form Review

Inbox	Reviewed By	Date
Brian Olson	Brian Olson	12/06/2011 03:16 PM
Kurt Ulrich	Kurt Ulrich	12/08/2011 03:00 PM
Form Started By: Tim Himmer		Started On: 12/05/2011 12:30 PM
	Final Approval Date: 12/08/2011	

SEPTIC SYSTEM REPAIR

Preamble:

Inadequate treatment of sanitary sewage represents a significant health hazard. Within the City of Ramsey, there are thousands of on-site septic systems, all of which have finite service lives. Many of these systems are beyond or are approaching their expected service life of 15 to 20 years. It is inevitable that septic system failures will occur and that the City will receive complaints regarding these failures. It is therefore imperative that the City have a policy to deal with these failures which will avoid or limit any potential public health hazard.

Investigation of Complaints:

All complaints alleging the failure of a septic system will be investigated by the City's Building Official or other staff knowledgeable in this area. The individual performing the inspection shall conduct an on-site visit and shall identify the purpose of the visit to the occupant of the property if the resident is home at the time of the visit. If the Inspector is refused access to the property for the purpose of inspection, the Inspector shall inform the resident that the City Attorney will be employed to gain legal access for the purpose of conducting the inspection. Any costs associated with the City Attorney's efforts will be considered project costs if the system is determined to be in failure.

Notice of Failure:

If the results of the investigation cause the Inspector to determine that the system has failed, the Inspector shall issue notice to the property owner stating that the system has failed and providing the conditions observed for that conclusion. The Inspector shall require the system to be repaired or replaced within a specific period of time, generally no more than thirty (30) days. The Building Official may extend this period for reasonable cause, primarily reason relating to construction, providing that the property owner provides evidence of regular pumping of the septic tank which shall be no less frequent than biweekly.

Failure to Comply With Repair or Replacement Order:

If the property owner fails to comply with the order of the Building Official, the Building Official will notify the property owner in writing of the noncompliance and advise the property owner that the City will obtain two quotations for the repair work for licensed septic system installations and will authorize the work to be performed. The City will further ask the home owner to grant right of entry onto the property within ten (10) days of the date of this notice. If a right of entry is not forthcoming within the designated period, the Building Official shall refer the need for access to the property to the City Attorney.

The home owner shall be advised that all construction costs associated with the City repair and legal fees plus an administrative and overhead fee of 25% will be charged to the cost of the repair. Upon completion of the project, an itemized bill for the work will be sent to the property owner. If the bill is not paid in full within thirty (30) days, interest will accrue at a rate set under City policy and the entire project cost will be special assessed against the subject property.

Public Works Committee

5. 2.

Meeting Date: 12/13/2011

By: Tim Himmer, Engineering/Public Works

Title:

Consider Requirements for Information That Must be Included on Certificates of Survey.

Background:

From time to time, the City has found itself in costly difficulties caused by the improper placement of buildings and structures. Currently, the City requires only a Certificate of Survey for a property prior to issuance of a building permit. This Certificate of Survey shows how the structure is intended to be built on the lot, but there is no guarantee that the builder ends up constructing it according to that survey. City staff has always had a list of criteria for inclusion on a Certificate of Survey, but I don't believe it has ever been formalized by the City Council. Staff would like to introduce the attached Certificate of Survey requirements for Council consideration, which proposes the level of detail that must be included on all Certificates of Survey submitted for a building permit.

The outcome of the required information on the Certificate of Survey is intended to accomplish the following:

1. The required setback information may reduce the need for variances due to improper placement of structures.
2. Having all the relevant information in one location would streamline the review process and establish a "starting point" for all future use of the property; making it easier to review future expansions, assessor structure requests, etc.
3. The probability of installing a structure at an incorrect elevation would be eliminated, thereby lessening future drainage and flooding concerns.
4. Inclusion of all easements would eliminate the possibility of a structure being placed within a City or private easement.
5. Floodway and setbacks from the Rum River and Mississippi River are constantly a point of concern and are at times difficult to ascertain because of incomplete or insufficient amounts of information. These problems would be eliminated.
6. The City of Ramsey has a significant portion of lands that are designated as floodplain, floodway, or floodway fringe. These areas, for flood insurance purposes, require a response from the City as to the applicability of such insurances. Short of the City surveying the property at no cost to the applicant we are in a dubious position of either not designating a structure in a floodway (and potentially being liable therefore), or designating it in a floodway and potentially costing the homeowner unnecessary insurance. This should be the builder/property owner's responsibility to provide this information, and to establish an accurate location of the structure(s) in relation to these critical elevations.

By not requiring this information of the applicant, City staff must spend significant amounts of time compiling all these items from various sources in an attempt to pull them all together for any land use applications and/or permits. All this ultimately leads to additional resources (and costs) for investigations and potential future corrective actions, while providing no stability and level of integrity of construction projects which could be a liability to prospective new owners.

Staff does understand that these requirements for the Certificate of Survey may lead to more up-front costs for the builder/property owner (estimated between \$250 - \$500), and that it may be difficult to enact during this difficult economic time. We believe, however, that it will lead to an enhanced understanding and relationship between builders so they are able to work seamlessly alongside each other within a development. It will also ensure that the public will be served now and in the future with reduced costs due to reduced conflicts, and additional staff time being used to correct problems that may be encountered due to poor site grading in the beginning. The additional requirements are considered a cost of doing business, are appropriate, and are in line with other communities in the metro area are currently doing.

Certificate of Survey Requirements

An original copy of the Certificate of Survey from a MN licensed surveyor is required for all new structures, including expansions of existing buildings. The Building Official may, for accessory structures or minor additions (decks, porches, attached garages), waive the Certificate of Survey submittal requirements in favor of an approved site plan indicating the location of existing and proposed structures in relation to lot lines.

A. The certificate of survey shall reference and be based on an approved grading plan and shall include at a minimum the following information:

1. Legal description of the property and address
2. Scale, north arrow, and property boundaries
3. Location, by dimension, of all existing structures and utilities on the lot, and the nearest corners of existing structures on adjoining lots
4. Location, by dimension, of all proposed structures. Identify type of the proposed building, such as rambler, lookout, walkout, etc. Show proposed driveway & significant structural features such as garage, deck, retaining walls, and entryways including patio doors, walkouts, & low basement windows.
 - All entryways shall be a minimum of 18” above the centerline of the street in front of the entry, and 24” above the 100 year flood elevation in locations where flood elevations have been established.
5. Location of all watercourses, lakes, streams, wetlands, ponds, etc. The normal water level, ordinary high water elevation, & 100 year flood plain elevation shall be identified, along with existing water elevation at the time of the survey.
6. Indicate proposed direction of surface water drainage by arrows
 - Show drainage courses across the lot & their effect on adjacent properties. Include the effects of downstream drainage courses on the lot in question when such swales convey runoff from multiple lots - these major swales shall have a minimum grade of 2%.
 - There shall be no grades flatter than 1%.
 - **When grades are less than 2% a certificate of grading, from a registered land surveyor stating that they have surveyed the lot and determined that it contains no grades flatter than 1% & that it conforms to the approved grading plan, will be required prior to issuance of a certificate of occupancy.**
 - If runoff is directed to any area other than the fronting street, final disposal of storm water shall be shown.
 - There shall be a minimum 6” slope away from the structure within the first 10’
7. Elevations must be shown at the following locations:
 - Existing and proposed finished grade at each lot corner
 - Existing and proposed finished grade at all major corners of structures; both on the lot & on adjoining lots
 - Street centerline & gutterline at each side lot line extended, and at the center of the driveway extended
 - Proposed garage floor
 - Proposed basement/lowest floor

- Proposed top of foundation (front and rear)
 - All entryways; including walkouts & low basement windows (lowest opening)
 - Existing and proposed along each side lot at the proposed front building line
 - Emergency overflow locations & spot elevations along common drainage swales, based on the approved grading plan
 - Spot elevations a distance of 100' beyond the property limits to identify off-site drainage considerations
8. Location and description of all easements and right-of-way
 9. Location of curb & gutter or edge of traveled roadway; including top of curb or edge of bituminous elevations at the extension of side lot lines, the mid-point of the lot, and the existing or proposed driveway location
 10. Note the percent driveway grade
 11. On-site sewage treatment system location and potable well location, if applicable
 12. Locations of proposed silt fence and existing developer installed erosion control measures on the lot.
 - An erosion control escrow must be posted prior to issuance of a permit, the amount of which is listed in the annual rates and fees adopted by the City Council. This requirement may be waived for single family residences and townhomes up to a 12 unit building if the subdivision has a Stage 1 surety on file with the City & the developer provides written authorization covering erosion control under their Stage 1 surety. A copy of the authorization must be filed with the permit.
 - 13. An as-built certificate of survey (elevation certification) is required following the installation of the footings and foundation to confirm conformance with proposed structure elevations and setbacks.**
 14. Additional information as requested by the City Engineer

Please note! Surveys that do not include the above information or are not in compliance with the approved grading plan may be rejected and sent back for revision. If significant differences exist from the approved grading plan, a new grading plan may be required.

- B. Survey benchmarks shall be identified on certificate of survey – Benchmark must be referenced from the nearest hydrant to proposed structure.
- C. Field hubs shall be placed on site by a licensed surveyor to show top of foundation elevation and setbacks.

Review of Certificate of Survey

The Planning Division will review the Certificate of Survey to ensure compliance with required information to be provided, and development, subdivision, and zoning requirements. The proposed lot grading will be reviewed by our City's Engineering Department to verify compliance with the approved development grading plan and City grading standards.

Public Works Committee

5. 3.

Meeting Date: 12/13/2011

By: Tim Himmer, Engineering/Public Works

Title:

Update on the Feasibility Study to Realign Sunwood Drive NW at Armstrong Boulevard

Background:

In the summer of 2011, both the HRA and the City Council approved contracts with separate consultants to investigate the potential realignment of Sunwood Drive near Armstrong Boulevard. Landform was hired by the HRA in June to work on the portion of the project internal to the COR, and update the necessary AUAR components for the project. The scope of services to complete their work did not include any items outside of the development area and within Anoka County right-of-way along Armstrong Boulevard. WSB and Associates was hired by the City Council in July to perform all portions of the project located within Anoka County right-of-way, as they are the consultant that is working on the TH 10/Armstrong interchange and the recently completed Bunker/Armstrong signalization project. This two pronged approach is intended to maximize efficiencies with all previous work completed to date, both internal and external to the COR.

The project includes the realignment of Sunwood Drive, between approximately Zeolite Street and Armstrong Boulevard (see attached preliminary design). The intent is to work north to south on Armstrong Boulevard and complete another section of the roadway in its final location; to set the stage for the ultimate interchange over the railroad tracks and TH 10. It will also create additional developable land for retail space near the new intersection, and create a signalized full access to the COR from Armstrong Boulevard.

Notification:

Observations:

Currently the traffic and land use components of the COR AUAR are in need of an update to reflect the current conceptual design approved by the HRA. These two components are also necessary to properly assess and design the proposed Sunwood Drive realignment, as the uses and anticipated traffic have significantly changed since the original AUAR was drafted. This work has been split between items located within the developable property owned by the HRA (Landform), and County right-of-way (WSB).

There are a couple of items contained in these draft feasibility studies that differ from items contained in the preliminary design for the Armstrong/TH 10 interchange project, and those will be identified and discussed in a separate case at work session later this evening.

One final item for discussion on both projects is turf establishment. The Sunwood realignment is proposing the required topsoil and sod within the City's right-of-way, but is requesting the use of seed (with the required topsoil) in the County right-of-way. It is being proposed this way because portions of the Armstrong work will only be temporary until the interchange is constructed, and the boulevard areas can be captured during development review to ensure site landscaping accounts for these areas when develop occurs. What isn't resolved through development can be incorporated into the interchange design, and include the City requirement for topsoil and seed (unless directed otherwise by the Council).

Funding Source:

Funding is still to be determined, and will be brought back to the City Council in January of 2012.

Staff Recommendation:

This case is strictly for informational purposes at this time. Staff and the consultants will bring additional information forward in the near future when the funding portion has been determined.

Committee Action:

No action is requested at this time. Staff invites feedback from the City Council on the preliminary design, and all other project components.

Attachments

[WSB Feasibility study](#)

[Landform Feasibility study](#)

[Location Map](#)

[Sunwood Preliminary Layout](#)

[Armstrong Preliminary Layout](#)

Form Review

Inbox	Reviewed By	Date
Brian Olson	Brian Olson	12/06/2011 03:15 PM
Tim Himmer (Originator)	Tim Himmer	12/06/2011 04:40 PM
Brian Olson	Brian Olson	12/08/2011 03:08 PM
Heidi Nelson	Heidi Nelson	12/08/2011 03:13 PM
Kurt Ulrich	Kurt Ulrich	12/08/2011 03:17 PM
Form Started By: Tim Himmer		Started On: 12/05/2011 02:41 PM
	Final Approval Date: 12/08/2011	

FEASIBILITY REPORT

ARMSTRONG BOULEVARD AND RELOCATED SUNWOOD DRIVE INTERSECTION IMPROVEMENTS CITY OF RAMSEY, MINNESOTA

December 8, 2011

PREPARED BY

**WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416**

CERTIFICATION

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.

Anthony Heppelmann, PE

Date: December 8, 2011

Lic. No.

Quality Assurance/Quality Control

Derek Schmidt, PE

Date: December 8, 2011

Lic. No.

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TITLE SHEET

LETTER OF TRANSMITTAL

CERTIFICATION SHEET

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1. EXECUTIVE SUMMARY

This project has been entitled the Armstrong Boulevard and Relocated Sunwood Drive Intersection improvements. This project was initiated to accommodate the relocation of Sunwood Drive which is required by the recommended plan for the improvement of the intersection of TH 10 and Armstrong Boulevard to a grade separated interchange including a grade separation of Armstrong Boulevard over the BNSF railroad. The project proposes the following improvements:

1.1 Street and Intersection Reconstruction

It is proposed to reconstruct Armstrong Boulevard to a four-lane divided roadway with one left-turn and one right-turn lane in the northbound direction and one left-turn and one right-turn lane in the southbound direction. The total project length on Armstrong Boulevard is approximately 1100 feet. The project would also reconstruct approximately 350 feet of 147th Avenue west of Armstrong Boulevard in order to realign 147th Avenue with the relocated Sunwood Drive. It is proposed that the intersection of relocated Sunwood Drive and Armstrong Boulevard would be signalized. The proposed project is shown in *Figure 2* in *Appendix A* of this report. The improvements are consistent with the long-term interchange layout for the TH 10 and Armstrong Boulevard intersection. The preferred TH 10 and Armstrong Boulevard interchange layout is shown in *Figure 3* in *Appendix A* of this report.

1.2 Storm Sewer Improvements

Storm sewer improvements are proposed to carry the runoff from the reconstructed roadway to an existing storm water pond located on the east side of Armstrong Boulevard north of the relocated Sunwood Drive.

1.3 Trail Construction

An 8-foot trail on the east of Armstrong Boulevard between the relocated Sunwood Drive and Bunker Lake Road is proposed. This trail would tie into trails on Bunker Lake Boulevard and on the west side of Armstrong Boulevard north of Bunker Lake Boulevard. It would also connect to a new trail on relocated Sunwood Drive.

1.4 Sanitary Sewer Adjustments

The project will require the adjustment of three sanitary sewer manholes to accommodate the raised grade on Armstrong Boulevard

1.5 Water Main Extension

It is proposed to extend the 12-inch water main at relocated Sunwood Drive from the east side of Armstrong Boulevard to the west side of Armstrong Boulevard and continue the water main to the end of construction on 147th Avenue.

The total estimated project cost is approximately \$1.725 million dollars. Funding for the project will be determined for the final feasibility study.

It is proposed that the project be constructed in 2012.

2. INTRODUCTION

2.1 Authorization

The City Council of Ramsey, Minnesota at its July 26, 2011, meeting authorized the preparation of a feasibility report for the improvement of the intersection of Armstrong Boulevard and a realigned Sunwood Drive.

2.2 Scope

This feasibility study covers the segment of Armstrong Boulevard from 150 feet south of 146th Avenue NW (existing Sunwood Drive intersection with Armstrong Boulevard) to 450 feet south of Bunker Lake Boulevard. The total length of the project on Armstrong Boulevard is approximately 1100 feet. Also included in the project is approximately 350 feet of 147th Avenue to the west of Armstrong Boulevard. The proposed project consists of widening Armstrong Boulevard to a four-lane divided roadway with right- and left-turn lanes through the intersection with the realigned Sunwood Drive. The proposed project would also realign and widen 147th Avenue to match the realigned Sunwood Drive. The Sunwood Drive realignment is being developed as a separate project. However, the design of the two projects is being coordinated.

2.3 Data Available

In preparing this report, all or portions of the following sources of information were utilized.

- Mapping from the Armstrong Boulevard and Bunker Lake Boulevard Project
- Survey from the Armstrong Boulevard and Bunker Lake Boulevard Project
- Geotechnical Data from the Armstrong Boulevard and Bunker Lake Boulevard Project
- Bunker Lake Boulevard and Armstrong Boulevard Record Drawings
- TH 10 and CSAH 83 Interchange Layout
- Armstrong Boulevard and Bunker Lake Boulevard Storm Water Plans
- Armstrong Boulevard and Bunker Lake Boulevard Sanitary Sewer Plans
- Armstrong Boulevard and Bunker Lake Boulevard Water Main Plans

2.4 Project Location

The project is located at the intersection of 147th Avenue and Armstrong Boulevard in the City of Ramsey, Minnesota. The project location is shown on *Figure 1* in the *Appendix A* of this report.

2.5 Project History

This project was initiated to accommodate the relocation of Sunwood Drive which is required by the recommended plan for the improvement of the intersection of TH 10 and Armstrong Boulevard to a grade separated interchange including a grade separation of Armstrong Boulevard over the BNSF railroad. The City of Ramsey and Anoka County have recognized the need to upgrade Armstrong Boulevard from the intersection with TH 10 to north of Bunker Lake Boulevard in order to serve traffic from future development

of the COR . A preferred plan for this interchange has been identified by the study participants and a layout has been submitted to MnDOT for staff approval. See *Figure 3* in *Appendix A* of this report. A draft Federal Environmental Assessment is also being prepared to allow the use of federal funds for the interchange improvements if they should become available. A complete funding package has not yet been identified for the interchange at TH 10 and Armstrong Boulevard.

The preferred plan for the Armstrong Boulevard and TH 10 Interchange will require the relocation of Sunwood Drive at Armstrong Boulevard because of the future grade difference between the future Armstrong Boulevard and the existing Sunwood Drive. The proposed new location for the intersection of Sunwood Drive and Armstrong Boulevard is across from 147th Avenue at the approximate location of the previously proposed Ramsey Parkway. The relocation of Sunwood Drive is being undertaken as a separate project. The purpose of the Armstrong Boulevard improvements is to construct the intersection of Armstrong Boulevard and relocated Sunwood Drive in its future location and configuration consistent with the preferred interchange design for TH 10 and Armstrong Boulevard.

The intersection of Armstrong Boulevard and Bunker Lake Boulevard was improved to a four-lane divided with right- and left-turn lanes in 2011, consistent with the long-term plans for this area. This project would continue the improvements on Armstrong Boulevard to the south through the intersection with the relocated Sunwood Drive. The vertical and horizontal alignment as well as the through and turn lanes on Armstrong Boulevard will be constructed in their future permanent location and configuration through the Sunwood Drive intersection. That is, the Sunwood and Armstrong Boulevard intersection will be constructed so that additional reconstruction in the intersection is not required when the TH 10 and Armstrong Boulevard interchange is constructed.

3. EXISTING CONDITIONS

3.1 Street

The affected area of Armstrong Boulevard is currently a two-lane rural roadway with drainage ditches on both sides of the roadway. The project includes the southerly transition area on Armstrong Boulevard from the previous project at Armstrong Boulevard and Bunker Lake Boulevard. 147th Avenue is currently a 40-foot city street with curb and gutter.

There is currently no street to the east of Armstrong Boulevard at 147th Avenue where the relocated Sunwood Drive is proposed.

3.2 Trail

There is an existing trail on the east side of Armstrong Boulevard extending from Bunker Lake Boulevard to the north to Alpine Drive. There is also a trail along the north side of Bunker Lake Boulevard east and west of Armstrong Boulevard. There is currently not a trail along Armstrong Boulevard within the project limits.

3.3 Storm Sewer

A storm water pond was constructed on the east side of Armstrong Boulevard south of Bunker Lake Boulevard to handle storm water runoff from Armstrong Boulevard and adjacent parcels. This storm water pond was sized to handle additional storm water runoff from a four lane Armstrong Boulevard between existing Sunwood Drive and Bunker Lake Boulevard.

3.4 Sanitary Sewer

A 24-inch sanitary sewer main was constructed on the west side of Armstrong Boulevard between the existing Sunwood Drive and the Ramsey Fire station as part of the Armstrong Boulevard and Bunker Lake Boulevard intersection reconstruction. See *Figure 4* in *Appendix A*.

3.5 Water Main

There is no water main located in the Armstrong Boulevard right-of-way within the project limits. A 24-inch water main was extended to the south side of Bunker Lake Boulevard on the east side of Armstrong Boulevard as part of the Bunker Lake Boulevard and Armstrong Boulevard project consistent with the Cities Comprehensive Water plan. See *Figure 4* in *Appendix A*.

3.6 Private Utilities

There is gas, telephone, and electric utilities located in the Armstrong Boulevard right-of-way within the project limits. These utilities were all relocated to the east side of Armstrong Boulevard north of 147th Avenue for the Armstrong Boulevard and Bunker Lake Boulevard intersection improvements. See *Figure 5* in *Appendix A*.

3.7 Right-of-way

The existing right-of-way width on Armstrong Boulevard within the project limits is 120 feet south of 147th Avenue and 130 feet north of 147th Avenue.

DRAFT

4. PROPOSED IMPROVEMENTS

4.1 Street

It is proposed to reconstruct Armstrong Boulevard to a four lane divided roadway with one left-turn and one right-turn lane in the northbound direction and one left-turn and one right-turn lane in the southbound direction. See *Figure 2* in *Appendix A*. All lanes would be 12 feet in width with a 1.5 foot curb and gutter on the inside median and a 2-foot curb and gutter on the outside lanes. See *Figure 7* for existing and proposed cross sections. At the north end, the project will match into the recently reconstructed section of Armstrong Boulevard. The improvements are consistent with the long term interchange layout for the TH 10 and Armstrong Boulevard intersection. The project would also reconstruct approximately 350 feet of 147th Avenue west of Armstrong Boulevard in order to realign 147th Avenue with the relocated Sunwood Drive.

4.2 Trail

An eight (8) foot trail will be constructed on the east side of Armstrong Boulevard starting at the relocated Sunwood Drive and extending north to the intersection of Armstrong Boulevard and Bunker Lake Boulevard. See *Figure 2* in *Appendix A*.

4.3 Storm Sewer

Most of the drainage from Armstrong Boulevard and 147th Avenue will be picked up and carried to the recently constructed pond on the east side of Armstrong Boulevard and south of Bunker Lake Boulevard. The proposed Armstrong Boulevard will have curb and gutter on both sides of Armstrong Boulevard to approximately 25 feet south of the intersection with 147th Avenue. South of this point will be temporary construction with a rural section. The storm water runoff from the urban section will be picked up by a line of catch basins just south of the 147th Avenue and Armstrong Boulevard intersection and a second line of catch basins near the tie in point with the Armstrong Boulevard and Bunker Lake Boulevard project (approximately station 40+25). The drainage from the temporary rural section of Armstrong Boulevard south of 147th Avenue will be picked up in ditches and carried to the drainage system at 147th Avenue. Water from 147th Avenue will be picked up at the intersection and by catch basins located at the westerly terminus of the 147th Avenue reconstruction. There is a small section at the southerly terminus of the Armstrong improvements that will drain to the existing pond by Coborn's as it does today. See *Figure 6* in *Appendix A*.

4.4 Sanitary Sewer

The existing sanitary sewer along Armstrong Boulevard will remain in place. Additional fill will be placed over the existing sanitary sewer line on Armstrong Boulevard to accommodate the raised grade needed on Armstrong Boulevard. The in-place sanitary sewer pipe is designed to handle the additional fill from this interim project. However, it is likely that some modification of the sanitary sewer line near 146th Avenue will be required with the future interchange project. The extent of the modifications will depend on whether a right-turn lane to old Sunwood Drive is provided from the interchange. The least costly option would be to relocate the southerly 300 feet of this line to the east side of the road in the future when the interchange is built. There are currently three man

holes to the sanitary sewer line within the project limits that will have to be adjusted to accommodate the change in grade on Armstrong Boulevard.

4.5 Water main

A 12-inch water main crossing of Armstrong Boulevard is proposed at Sunwood Drive and 147th Avenue to provide future water service to the west side of Armstrong Boulevard. This 12-inch water main would be extended to the west end of the proposed construction on 147th Avenue.

4.6 Private Utilities

In general, the private utilities can remain in their existing location. Some minor adjustments may be required to accommodate the storm sewer and water main installations.

4.7 Right-of-way

Permanent right-of-way or easement will be required from five different parcels as shown on *Figure 8* in *Appendix A*. The City of Ramsey currently owns the property on the east side of Armstrong Boulevard where right-of-way is needed. The acquisition of the land on the west side of Armstrong Boulevard and south of 147th Avenue is addressed in the feasibility study for the relocated Sunwood Drive. Permanent easements are required from two properties north of 147th Avenue. In addition a temporary easement is required from the parcel adjacent to 147th Avenue to reconstruct the driveway. The estimated cost of these permanent and temporary easements based on the costs from the Bunker Lake Boulevard and Armstrong Boulevard project is \$ssss .

4.8 Permits and Approvals

The following permits and approvals will be needed for this project:

- NPDES Permit
- Lower Rum River WMO Permit
- Anoka County Plan Approval
- State Aid Plan Approval
- Department of Health Permit for Water Main

5. FINANCING

5.1 Opinion of Probable Cost

A detailed breakdown of the Cost Opinion for the proposed project is included in *Appendix B* of this report. The opinion of cost is based on estimated prices and incorporates the construction cost experience for the Armstrong Boulevard and Bunker Lake Boulevard project in 2011. The opinion of probable cost includes a 10% contingency and administrative costs of 21% for engineering, legal, financing, and other administrative costs. The project costs are summarized below.

**Armstrong Boulevard and Sunwood Drive
City of Ramsey, Minnesota
Opinion of Probable Cost**

Street/Intersection Improvements	\$1,460,038
Trail	\$ 14,128
Storm Sewer Improvements	\$ 168,484
Water Main	\$ 107,066
Total Proposed Improvements	\$1,749,715

The above costs do not include the cost of right-of-way acquisition.

5.2 Temporary versus Permanent Construction

All construction from 25 feet south of relocated Sunwood Drive to the north project limits would be permanent construction. This would include all of the trail and storm sewer improvements and most of the street/intersection improvements. The only temporary construction anticipated with this project is the pavement, signing and striping in the transition area south of Sunwood Drive. The additional fill needed south of relocated Sunwood Drive is fill that would be needed for the Interchange project in the future.

5.3 Funding

The funding plan for the project will be provided as part of the final feasibility study.

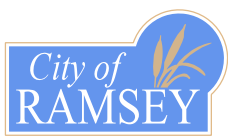
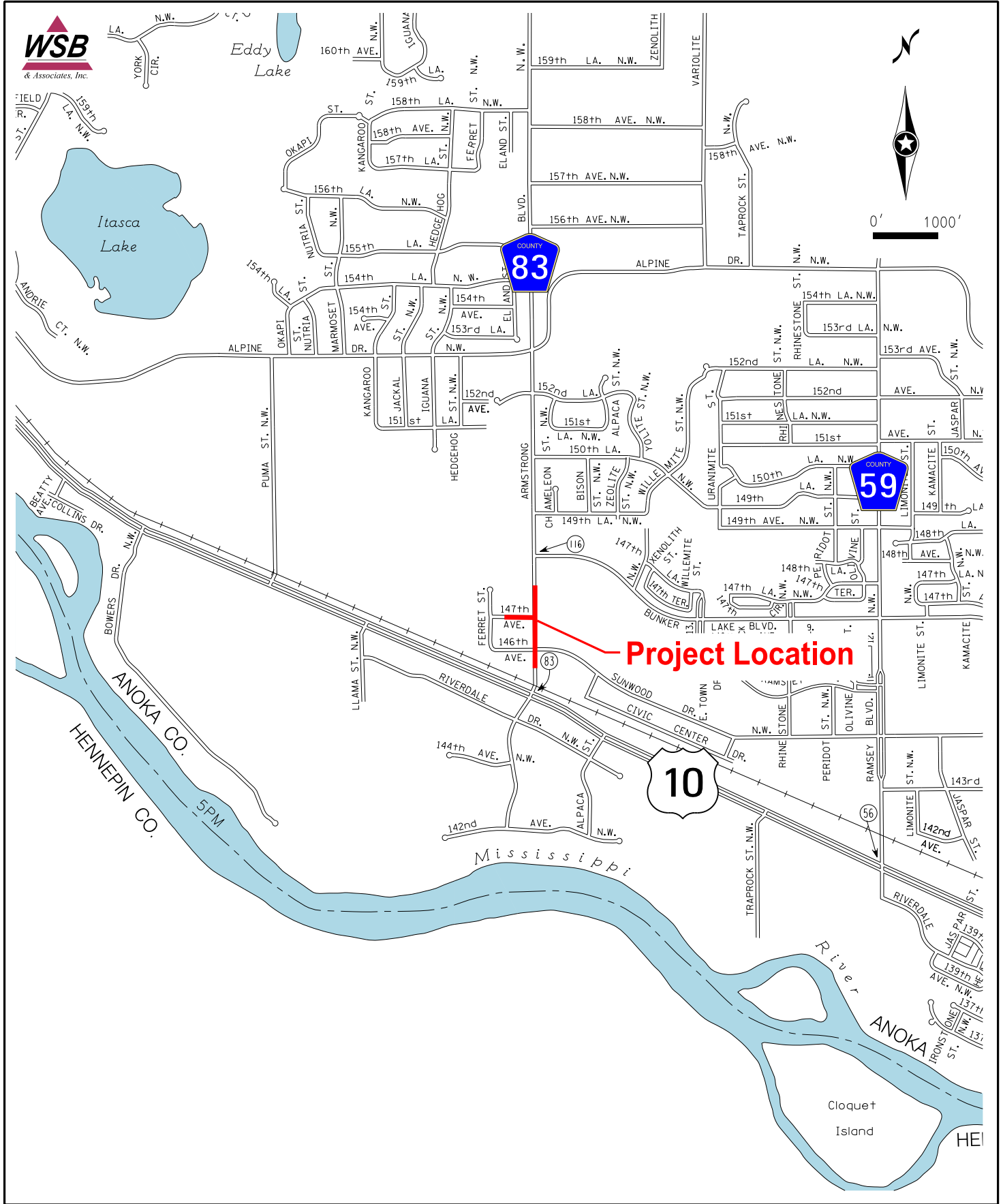
6. PROJECT SCHEDULE

Task	Completion Date
Order Feasibility Study	July 26 th , 2011
Accept Feasibility Study and Order Plans and Specifications	January 10, 2012
Approve Plans, Specifications and Order Advertisement for Bids	April, 2012
Receive Bids	May, 2012
Begin Construction	June, 2012
Substantial Completion	September, 2012
Final Completion	November, 2012

7. FEASIBILITY AND RECOMMENDATION

Based on our analysis and the data presented, the proposed project is feasible as a permanent improvement that will not require reconstruction when the interchange at TH 10 and Armstrong Boulevard is constructed.

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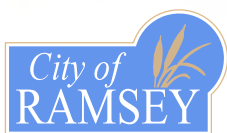
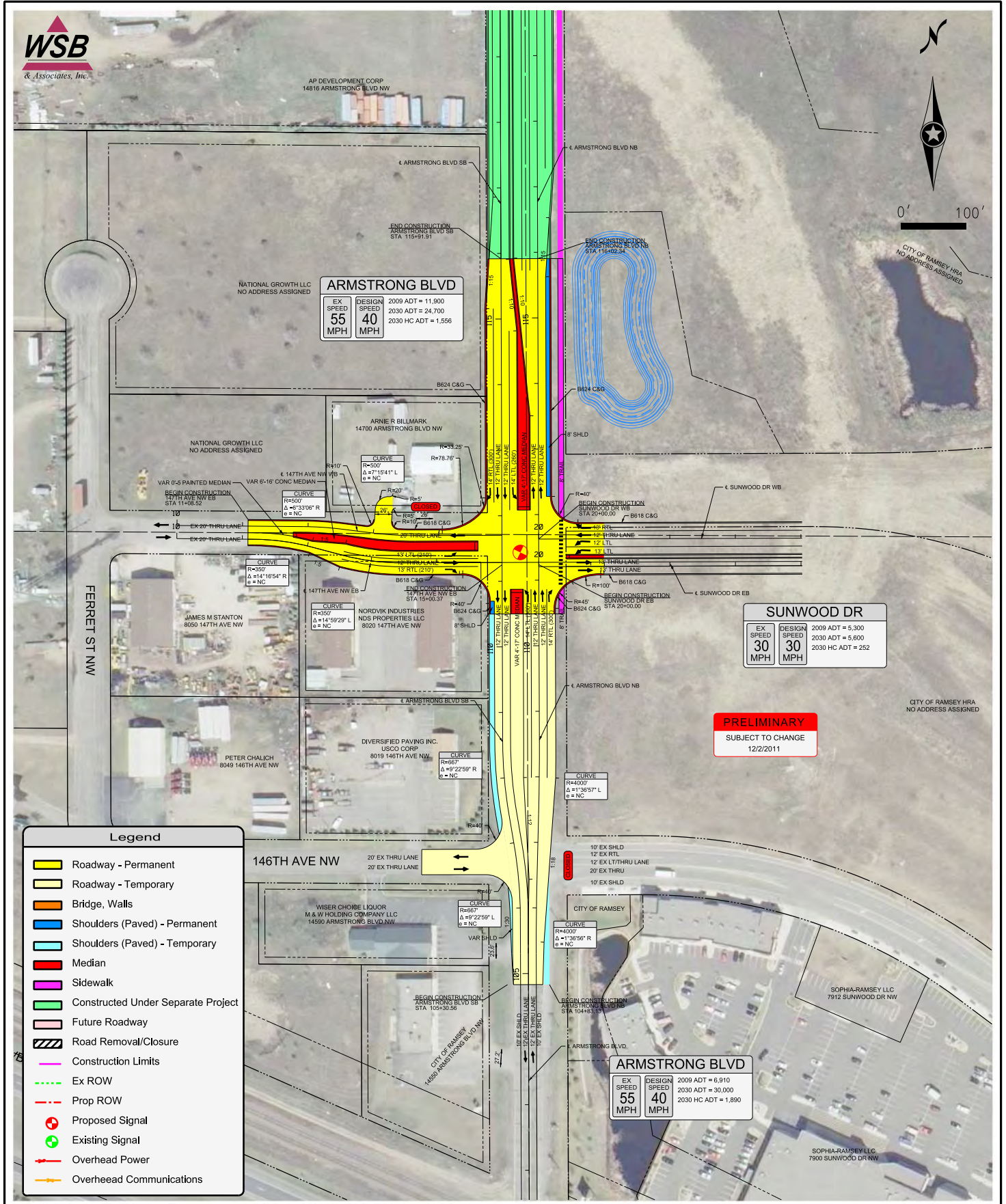


Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Project Location Map

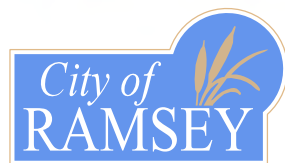
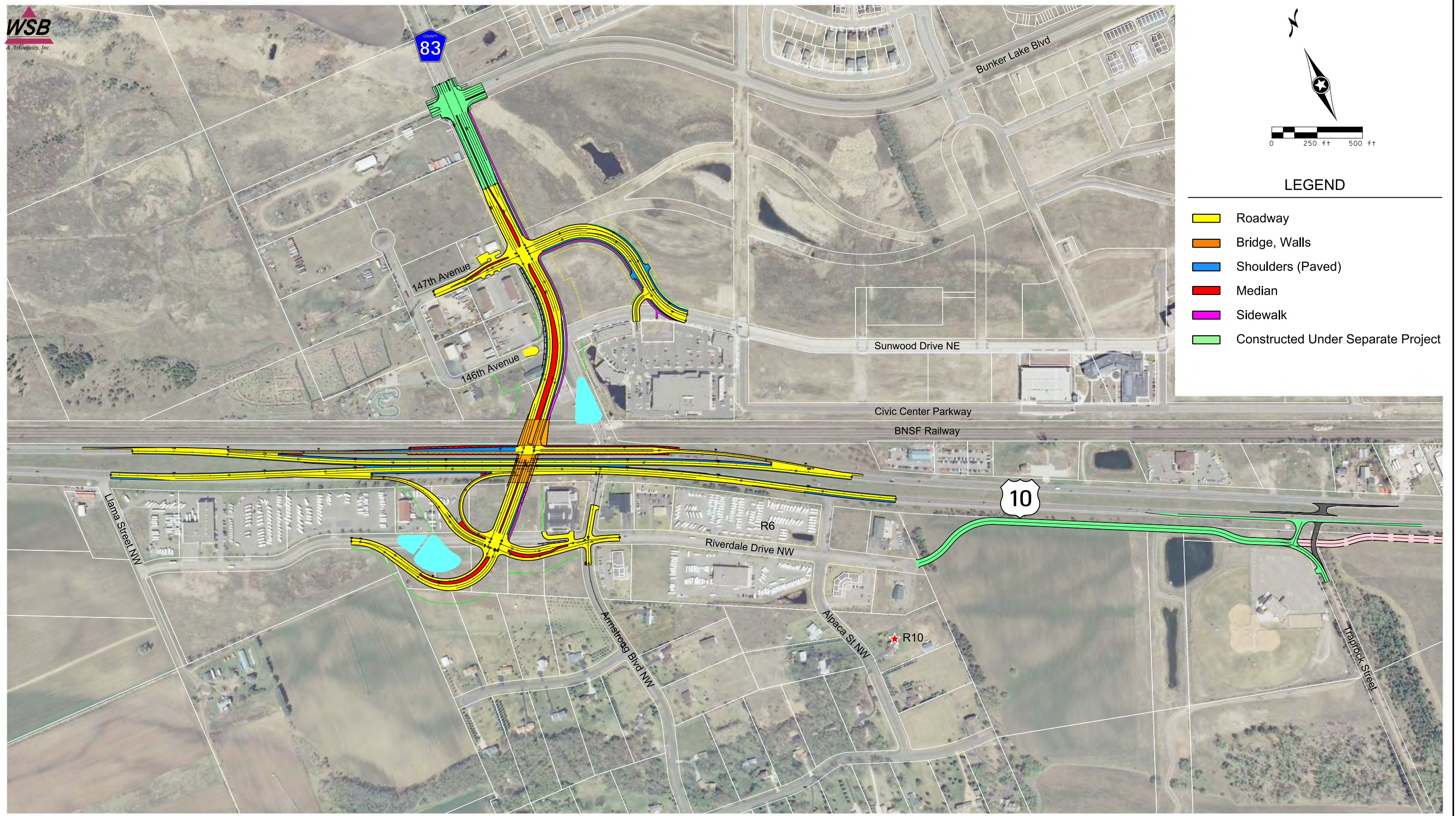
Figure 1



Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

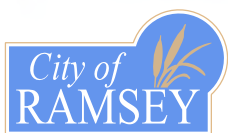
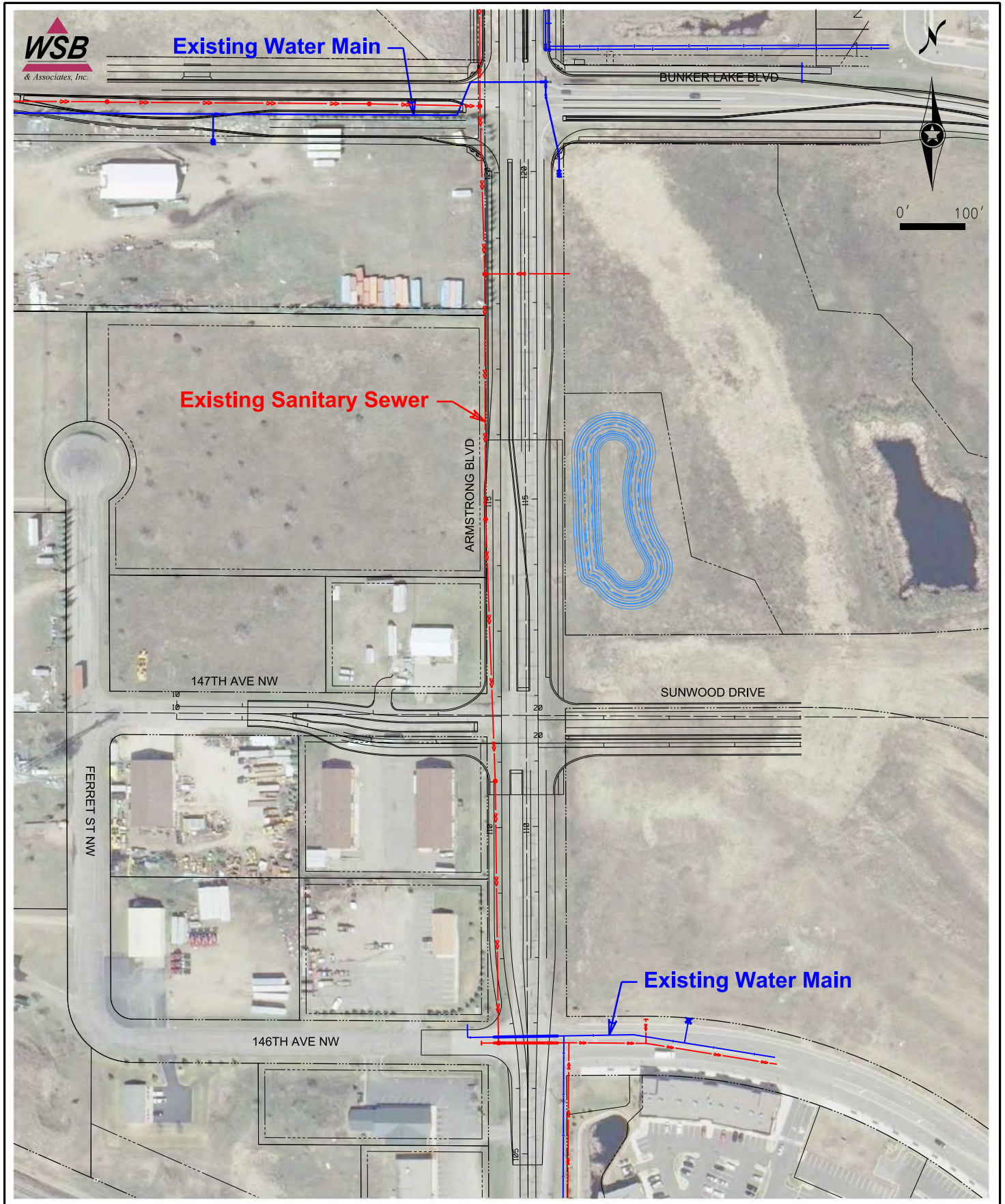
Project Layout
 Figure 2



Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Interchange Layout
Figure 3

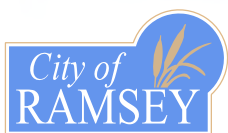
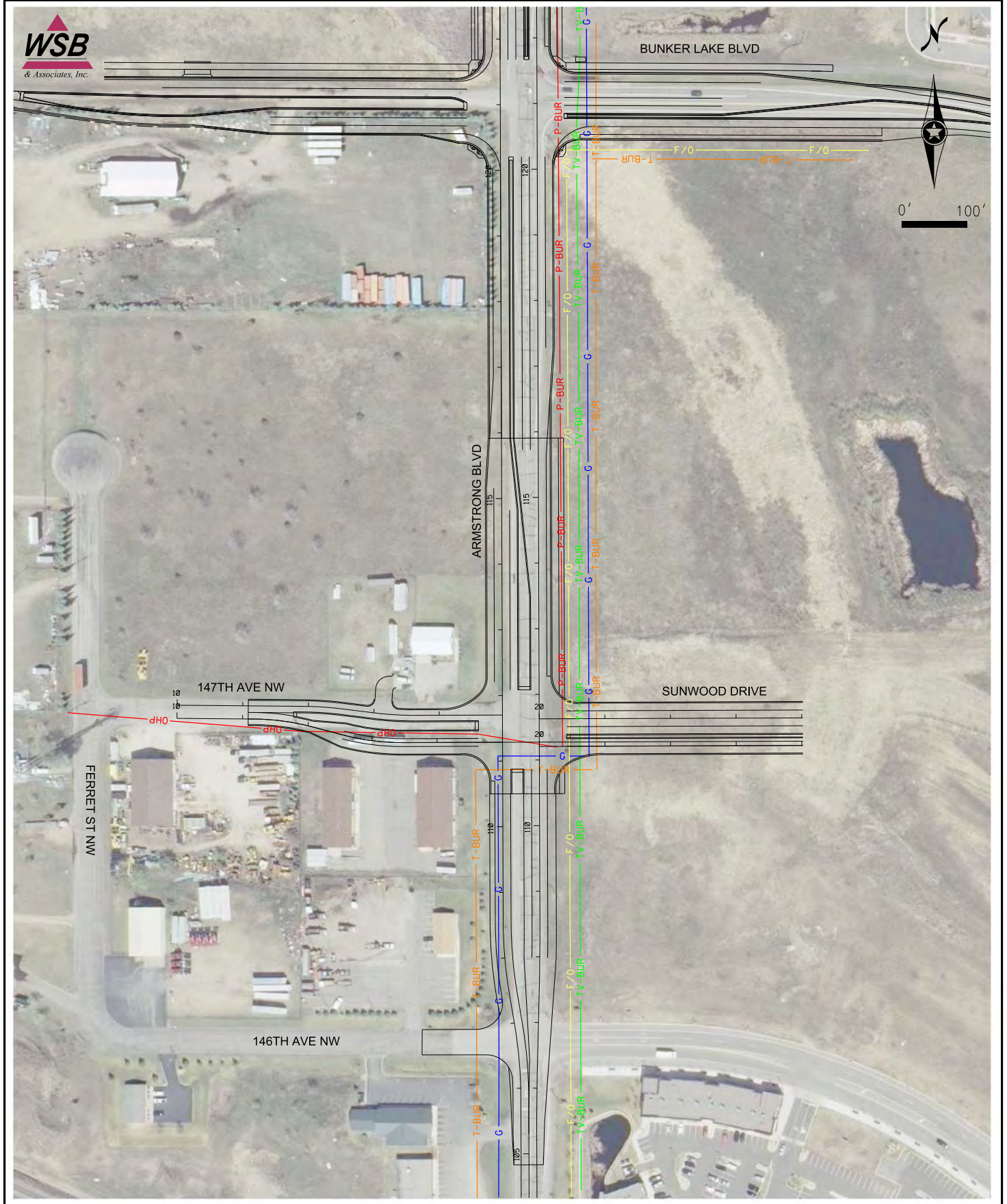


Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Public Utilities

Figure 4

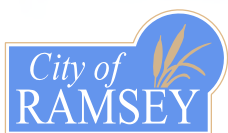
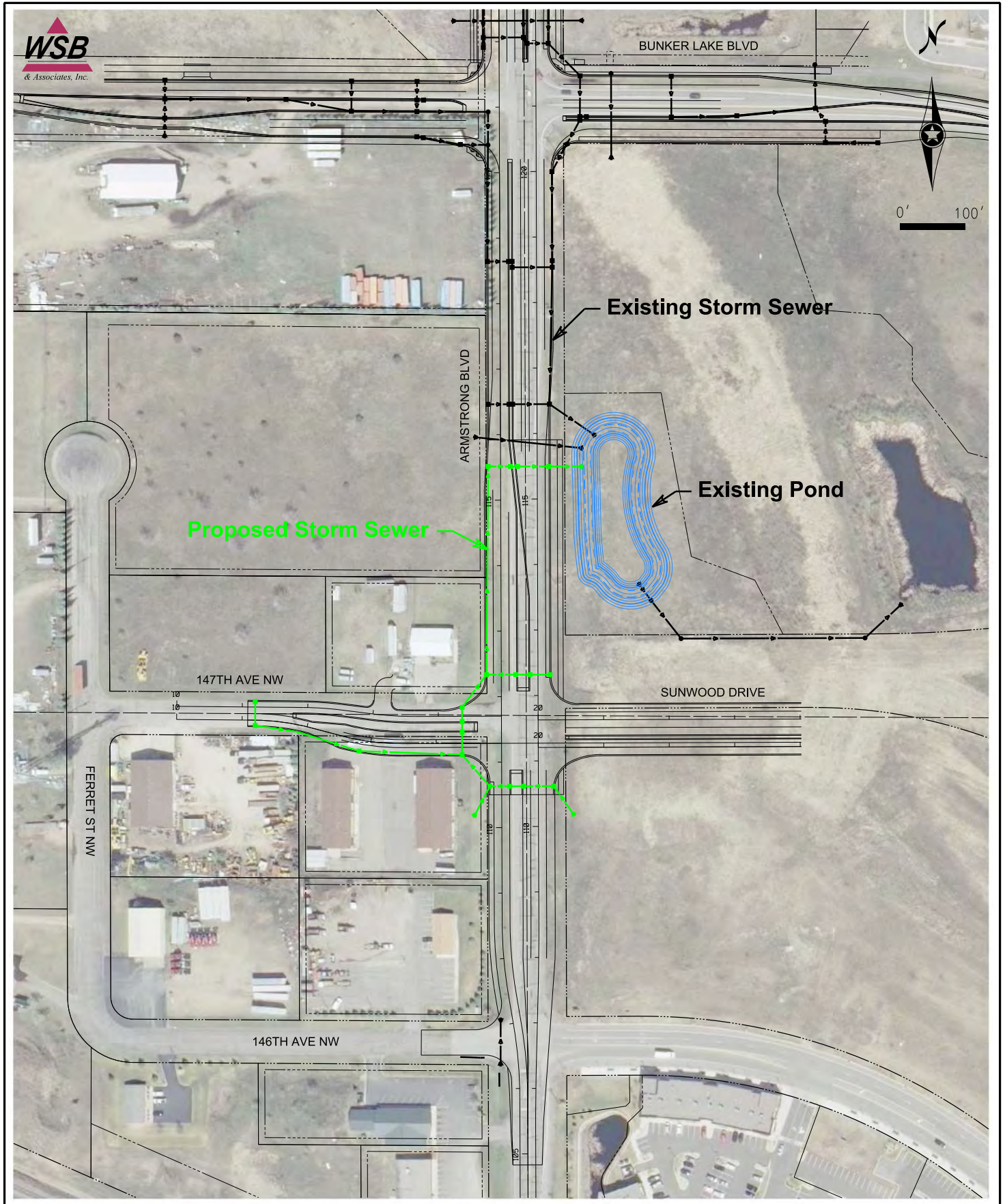


Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Private Utilities

Figure 5

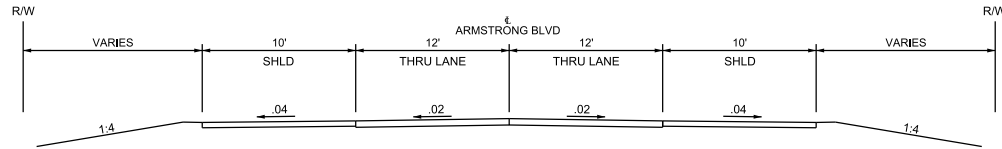


Armstrong Blvd at Sunwood Drive

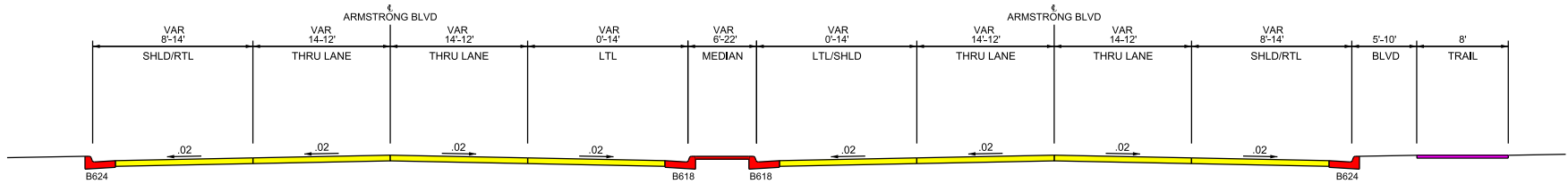
City of Ramsey, Minnesota

Storm Sewer Plan

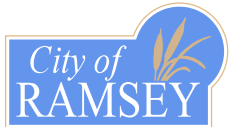
Figure 6

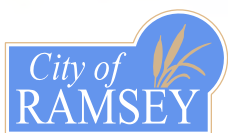
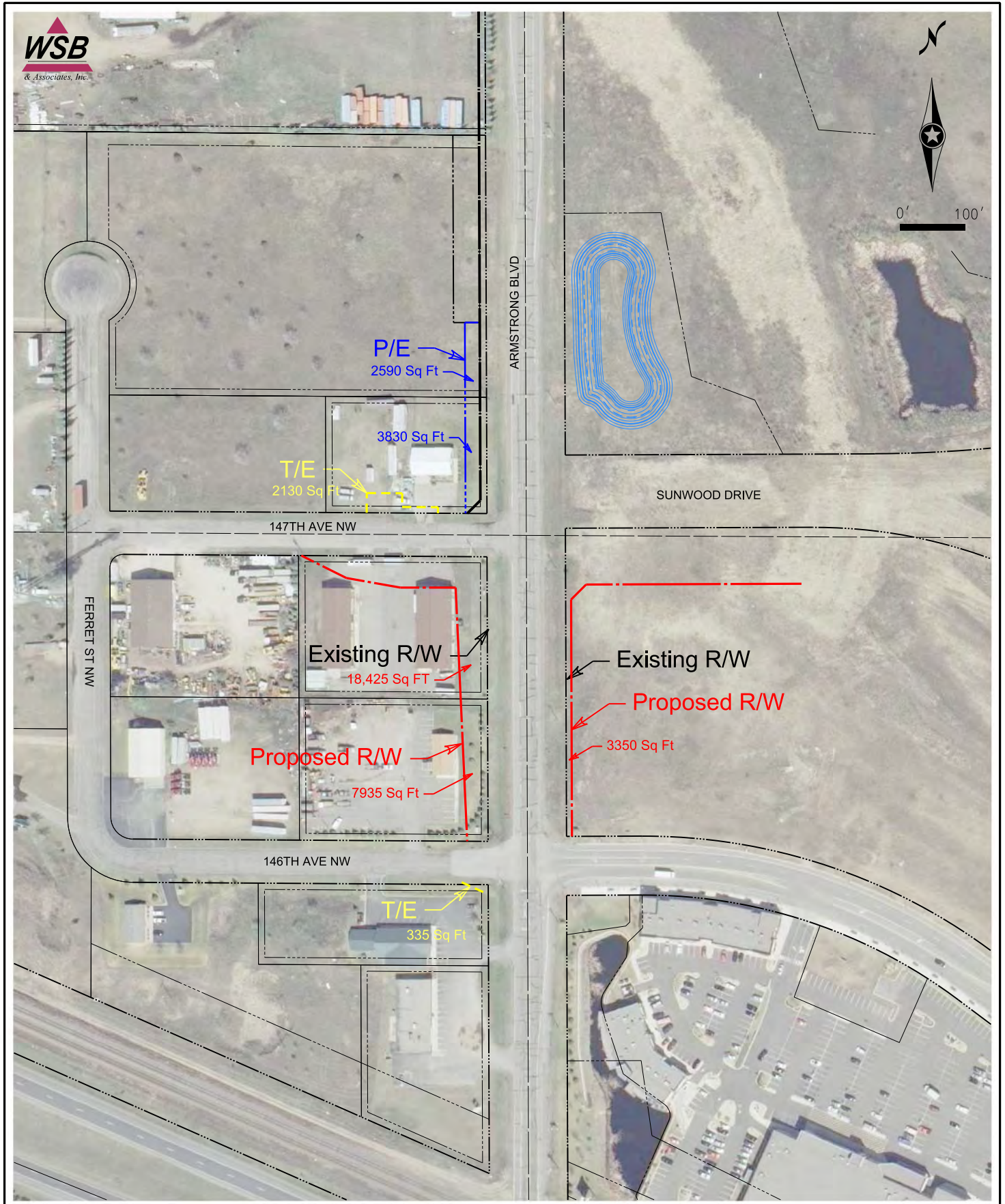


Existing Armstrong Blvd



Proposed Armstrong Blvd





Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Right-of-Way Map

Figure 8

**OPINION OF PROBABLE COST
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
Surface Improvements					
2021.501	MOBILIZATION	LUMP SUM	\$75,000.00	1	\$75,000.00
2031.501	FIELD OFFICE TYPE D-MODIFIED	EACH	\$16,000.00	1	\$16,000.00
2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	\$8.00	200	\$1,600.00
2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	\$3.00	5150	\$15,450.00
2104.509	REMOVE SIGN TYPE C	EACH	\$40.00	16	\$640.00
2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	\$2.75	345	\$948.75
2105.522	SELECT GRANULAR BORROW (CV)	CU YD	\$11.60	5123	\$59,426.80
2105.526	SELECT TOPSOIL BORROW (LV)	CU YD	\$16.00	931	\$14,896.00
2106.607	EXCAVATION - COMMON (P)	CU YD	\$4.50	2612	\$11,754.00
2106.607	EXCAVATION - SUBGRADE (P)	CU YD	\$6.00	5123	\$30,738.00
2106.607	COMMON EMBANKMENT (CV) (P)	CU YD	\$4.50	18080	\$81,360.00
2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	\$120.00	40	\$4,800.00
2130.501	WATER	M GALLONS	\$26.00	100	\$2,600.00
2211.503	AGGREGATE BASE (CV) CLASS 5	CU YD	\$22.00	2907	\$63,954.00
2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C)	TON	\$65.00	2255	\$146,575.00
2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	\$63.00	1510	\$95,130.00
2521.501	4" CONCRETE WALK	SQ FT	\$3.50	8335	\$29,172.50
2531.501	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	\$11.40	645	\$7,353.00
2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	\$14.00	1075	\$15,050.00
2531.618	TRUNCATED DOMES	SQ FT	\$60.00	32	\$1,920.00
2545.509	Lighting	LUMP SUM	\$10,000.00	1	\$10,000.00
2563.601	TRAFFIC CONTROL	LUMP SUM	\$75,000.00	1	\$75,000.00
2564.531	SIGN PANELS TYPE C	SQ FT	\$40.00	156.5	\$6,260.00
2564.537	INSTALL SIGN TYPE SPECIAL	EACH	\$130.00	2	\$260.00
2565.511	TRAFFIC CONTROL SIGNAL SYSTEM A	SIG SYS	\$275,000.00	1	\$275,000.00
2565.601	EMERGENCY VEHICLE PREEMPTION SYS A	LUMP SUM	\$5,200.00	1	\$5,200.00
2565.601	TRAFFIC CONTROL INTERCONNECTION	LUMP SUM	\$12,000.00	1	\$12,000.00
2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	\$2.00	7206.1	\$14,412.20
2575.501	SEEDING	ACRE	\$300.00	1.49	\$447.00
2575.505	SODDING TYPE LAWN	SQ YD	\$2.66	920	\$2,447.20
2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	\$2.00	3581.6	\$7,163.20
2582.501	PAVT MSSG (LT ARROW) POLY PREF-GR IN	EACH	\$450.00	8	\$3,600.00
2582.501	PAVT MSSG (RT ARROW) POLY PREF-GR IN	EACH	\$450.00	7	\$3,150.00
2582.502	4" SOLID LINE WHITE-EPOXY	LIN FT	\$0.35	2745	\$960.75
2582.502	4" BROKEN LINE WHITE-EPOXY	LIN FT	\$0.30	420	\$126.00
2582.502	24" STOP LINE WHITE-EPOXY	LIN FT	\$7.00	195	\$1,365.00
2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	\$0.70	855	\$598.50
2582.503	CROSSWALK MARKING- POLY PREFORM (GR IN)	SQ FT	\$15.00	306	\$4,590.00
Total Street Improvements					\$1,096,947.90
plus 10% Contingencies					\$109,694.79
Total Street Improvement Construction Cost					\$1,206,642.69
plus 21%Admin, Legal Etc					\$253,394.96
Total Street Improvement Cost					\$1,460,037.65

**OPINION OF PROBABLE COST
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
	Trail Improvements				
2521.501	4" CONCRETE WALK	SQ FT	\$3.25	3266	\$10,614.50
	plus 10% Contingencies				\$1,061.45
	Total Trail Improvement Construction Cost				\$11,675.95
	plus 21%Admin, Legal Etc				\$2,451.95
	Total Trail Improvement Cost				\$14,127.90

**OPINION OF PROBABLE COST
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
	Storm Sewer Improvements				
2501.515	24" RC PIPE APRON	EACH	\$625.00	3	\$1,875.00
2501.602	TRASH GUARD FOR 24" PIPE APRON	EACH	\$350.00	3	\$1,050.00
2503.541	15" RC PIPE SEWER DESIGN 3006 CL V	LIN FT	\$27.00	564	\$15,228.00
2503.541	18" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	\$28.00	297	\$8,316.00
2503.541	21" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	\$32.00	188	\$6,016.00
2503.541	24" RC PIPE SEWER DESIGN 3006 CL III	LIN FT	\$38.00	650	\$24,700.00
2506.501	CONST DRAINAGE STRUCTURE DESIGN SD-48	LIN FT	\$325.00	108	\$35,100.00
2506.501	CONST DRAINAGE STRUCTURE DES 48-4020	LIN FT	\$400.00	22	\$8,800.00
2506.516	CASTING ASSEMBLY	EACH	\$900.00	24	\$21,600.00
2506.522	ADJUST FRAME & RING CASTING	EACH	\$275.00	3	\$825.00
2511.515	GEOTEXTILE FILTER TYPE IV	SQ YD	\$3.00	25	\$75.00
2511.607	RANDOM RIPRAP CLASS III SPECIAL	CU YD	\$150.00	20	\$3,000.00
	Total Storm Sewer Improvements				\$126,585.00
	plus 10% Contingencies				\$12,658.50
	Total Storm Sewer Construction Cost				\$139,243.50
	plus 21%Admin, Legal Etc				\$29,241.14
	Total Storm Sewer Improvement Cost				\$168,484.64

**OPINION OF PROBABLE COST
CSAH 83 (ARMSTRONG BLVD) AT SUNWOOD DR**

WSB Project: CSAH 83 at Sunwood Dr

Project Location: Ramsey, MN

WSB Project No: 01973-010

ITEM NUMBER	DESCRIPTION	UNIT	Unit Price	PROJECT TOTAL	
				ESTIMATED QUANTITY	Estimated Cost
	WATER MAIN IMPROVEMENTS				
2504.602	CONNECT TO EXISTING WATER MAIN	EACH	\$850.00	1	\$850.00
2504.602	HYDRANT	EACH	\$3,300.00	2	\$6,600.00
2504.602	ADJUST VALVE BOX-WATER	EACH	\$250.00	4	\$1,000.00
2504.602	6" GATE VALVE AND BOX	EACH	\$1,200.00	2	\$2,400.00
2504.602	12" GATE VALVE AND BOX	EACH	\$2,500.00	2	\$5,000.00
2504.603	6" WATER MAIN-DUCT IRON CL 52	LIN FT	\$45.00	60	\$2,700.00
2504.603	12" WATER MAIN-DUCT IRON RESTRND JT	LIN FT	\$62.00	145	\$8,990.00
2504.603	12" WATER MAIN-DUCT IRON CL 52	LIN FT	\$50.00	550	\$27,500.00
2504.603	24" STEEL CASING PIPE	LIN FT	\$140.00	145	\$20,300.00
2504.608	DUCTILE IRON FITTINGS	POUND	\$3.00	1700	\$5,100.00
	Total Storm Sewer Improvements				\$80,440.00
	plus 10% Contingencies				\$8,044.00
	Total Storm Sewer Construction Cost				\$88,484.00
	plus 21%Admin, Legal Etc				\$18,581.64
	Total Water Main Cost				\$107,065.64

Grand Total

\$1,749,715.83

City of Ramsey



Preliminary Engineering Report

Sunwood Drive

Ramsey, Minnesota

Project Number RAM11008

Preliminary Engineering Report
for
Sunwood Drive
Ramsey, Minnesota

City Council Meeting Date: December 13, 2011

Project Number: RAM11008

Mayor: Bob Ramsey

Council Members: Randy Backous
David Elvig
Colin McGlone
Sarah Strommen
Jason Tossey
Jeff Wise

Administrator: Kurt Ulrich

Public Works Director: Brian Olson

City Engineer: Tim Himmer

I hereby certify that this report was prepared by me or under my direct supervision and that I am duly Licensed Professional Engineer under the laws of the State of Minnesota.

Robert G. Schunicht, P.E.

Date: December 6, 2011 Reg. No. 12105



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Introduction

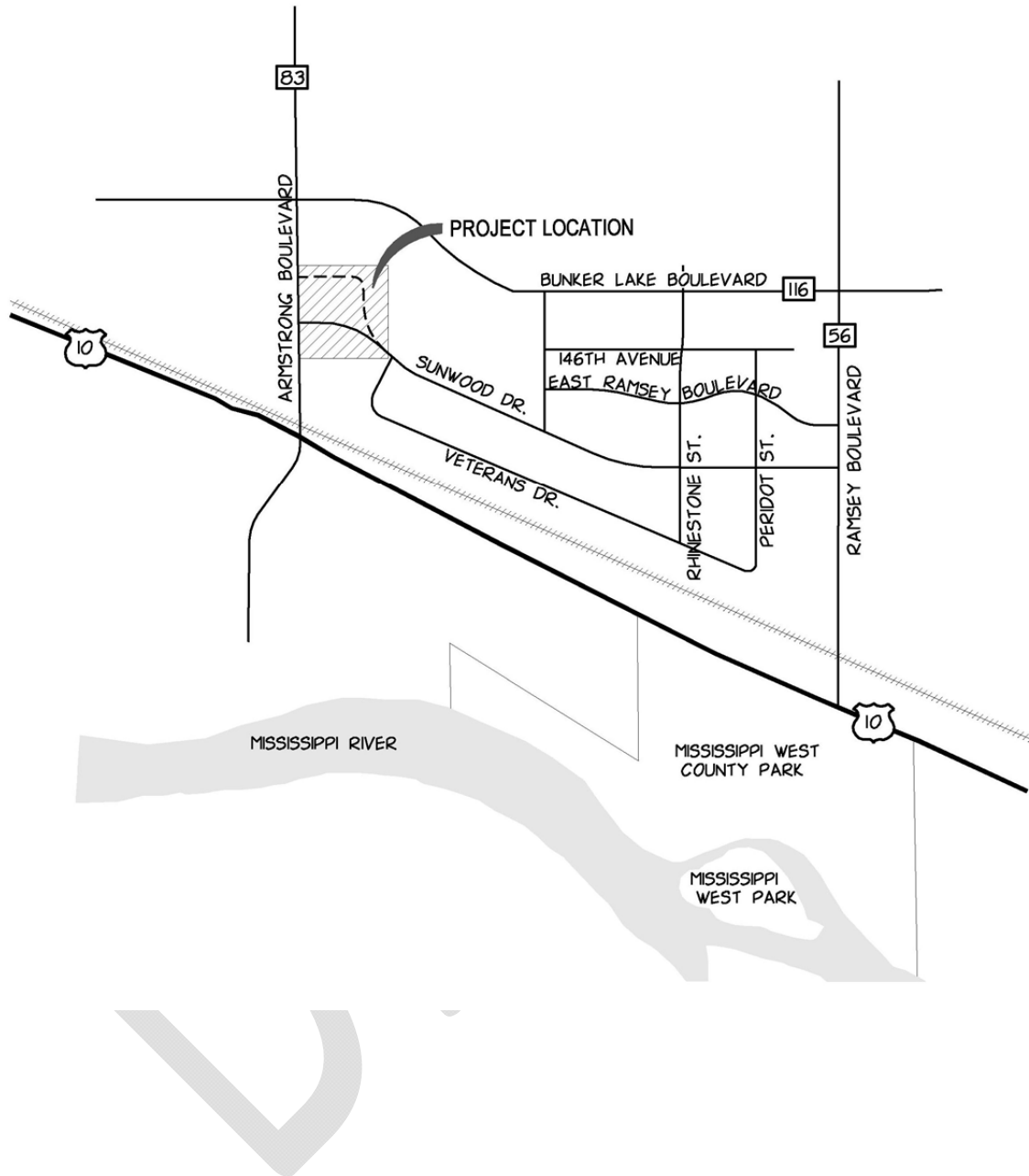
Landform has completed a feasibility study and prepared this Preliminary Engineering Report for the realignment of the western portion of Sunwood Drive.

Sunwood Drive is a collector street than runs in an east/west direction through the southern portion of The COR connecting Ramsey Boulevard to Armstrong Boulevard. The new TH10/Armstrong Interchange creates a substantial grade differential at the current location of the Armstrong/Sunwood intersection. Because of this grade differential, it is necessary to realign Sunwood Drive to a connection point further north along Armstrong Boulevard. Figure 1 shows the location of Sunwood Drive and the needed realignment. Sunwood Drive is also shown on Development Plan 5.03 for The COR, which is reproduced on page 3 (Figure 2). The location of the new Armstrong/Sunwood intersection was determined based on the new Armstrong Boulevard grades, spacing between the intersections on Armstrong Boulevard and maximizing the development potential of the western portion of The COR.

The feasibility study also included an update of traffic generation in The COR based on Development Plan 5.03 and an operational analysis of a roundabout at the intersection of realigned Sunwood Drive and Ramsey Parkway. These studies are presented in the Appendices and summaries are presented in the following section of this Preliminary Engineering Report.

This report coordinates with the work being done by WSB & Associates, Inc. on the new intersection of Armstrong Boulevard and Sunwood Drive. That intersection project is advance construction of a portion of the 10/83 project.

Figure 1: Project Location Map



Design Considerations

Traffic and Roundabout Analysis

Revising of The COR resulted in some of the residential land in the western portion of The COR being converted to commercial/retail in order to provide a better balance of land uses and to align the development with the current marketplace. Some additional changes were made in the remainder of the undeveloped areas, including the creation of Lake Ramsey. These changes are reflected in Development Plan 5.03.

As part of this feasibility study, traffic generation forecasts were prepared based on Development Plan 5.03. In addition, this analysis provided traffic forecasts necessary for the design of the realignment of Sunwood Drive. The COR Traffic Generation Report, prepared by Spack Consulting, is presented in Appendix A. The report indicates Development Plan 5.03 will result in a 12.8% increase in traffic at build-out of The COR. A summary of the forecasts is presented in Table 1.

Figure 2: Development Plan 5.03





Table 1: Traffic Forecast Summary

Traffic Forecast Summary (Build-out/2030)	
Item	Amount (vehicles/day)
COR Daily Traffic	57,700
COR AM Peak	3,700
COR PM Peak	5,600
North/South Sunwood	9,300
East/West Sunwood	16,500-18,900

The Traffic Generation Report will also be used in the update of The COR’s Alternative Urban Areawide Review (AUAR). The report supports the conclusion that the traffic generated by The COR Development Plan 5.03 does not represent a significant change in the AUAR Mitigation Plan and that a comprehensive update of the original RTC Traffic Study is not necessary.

The focal point of the western portion of The COR is the intersection of Sunwood Drive and Ramsey Parkway. This intersection is main entrance from Armstrong Boulevard and distributes the majority of traffic entering The COR from the west. The location of this intersection was established to maximize the development potential of the adjacent area.

Two options were investigated for this intersection. These included a signalized intersection and a roundabout. The results of the investigation are presented in Appendix B in a report by Ourston Roundabout Engineering titled *Operation Analysis-Ramsey Parkway and Sunwood Drive*. The report concludes that a roundabout will function best at this intersection. A roundabout is recommended for the following reasons:

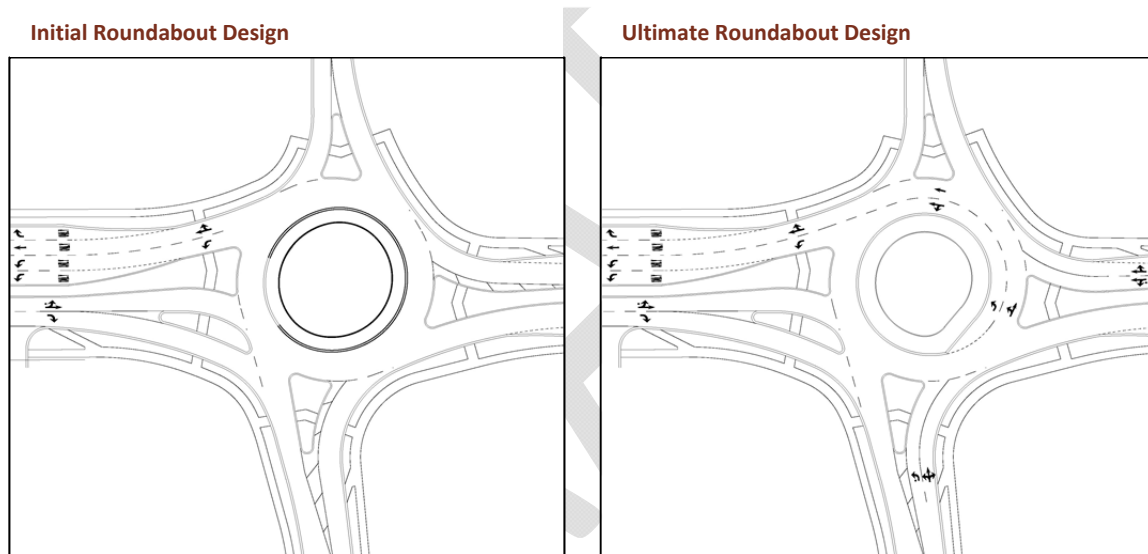
- Better operational performance with lower overall delays
- Improved coordination with the signal on Armstrong Boulevard
- Improved safety through eliminating potential conflict points
- Safer for pedestrians due to reduction in vehicle speeds
- Enhanced aesthetics and opportunity for The COR monumentation provided by the center island
- Environmental benefits provided by the lower traffic delays
- Elimination of traffic signal operation costs

The recommended roundabout design is presented in Figure 3. The design accommodates the build-out traffic forecasts presented in Table 1. The recommended initial roundabout is essentially a single lane facility with two added features to increase capacity and improve coordination with the signal on Armstrong Boulevard. The roundabout features a partial right turn lane, with a yield to traffic in the roundabout, to facilitate traffic turning right onto southbound Sunwood Drive. It also widens for traffic

exiting to the west on Sunwood Drive to facilitate movement into the left turn lanes which is the critical movement through the Armstrong/Sunwood intersection. The roundabout is designed to accommodate 18-wheel truck traffic (WB65).

The roundabout was also analyzed to determine its capacity to handle traffic volumes that exceed the projected build-out forecasts. The proposed enhanced single lane roundabout can handle traffic volumes that are 43% greater than the build-out forecasts. The proposed roundabout can also be easily modified to a full two lane roundabout that would be able to accommodate volumes 63% greater than the build-out forecasts. Figure 2 also shows the improvements that would be needed to construct the full two lane roundabout if The COR generates traffic in excess of current projections.

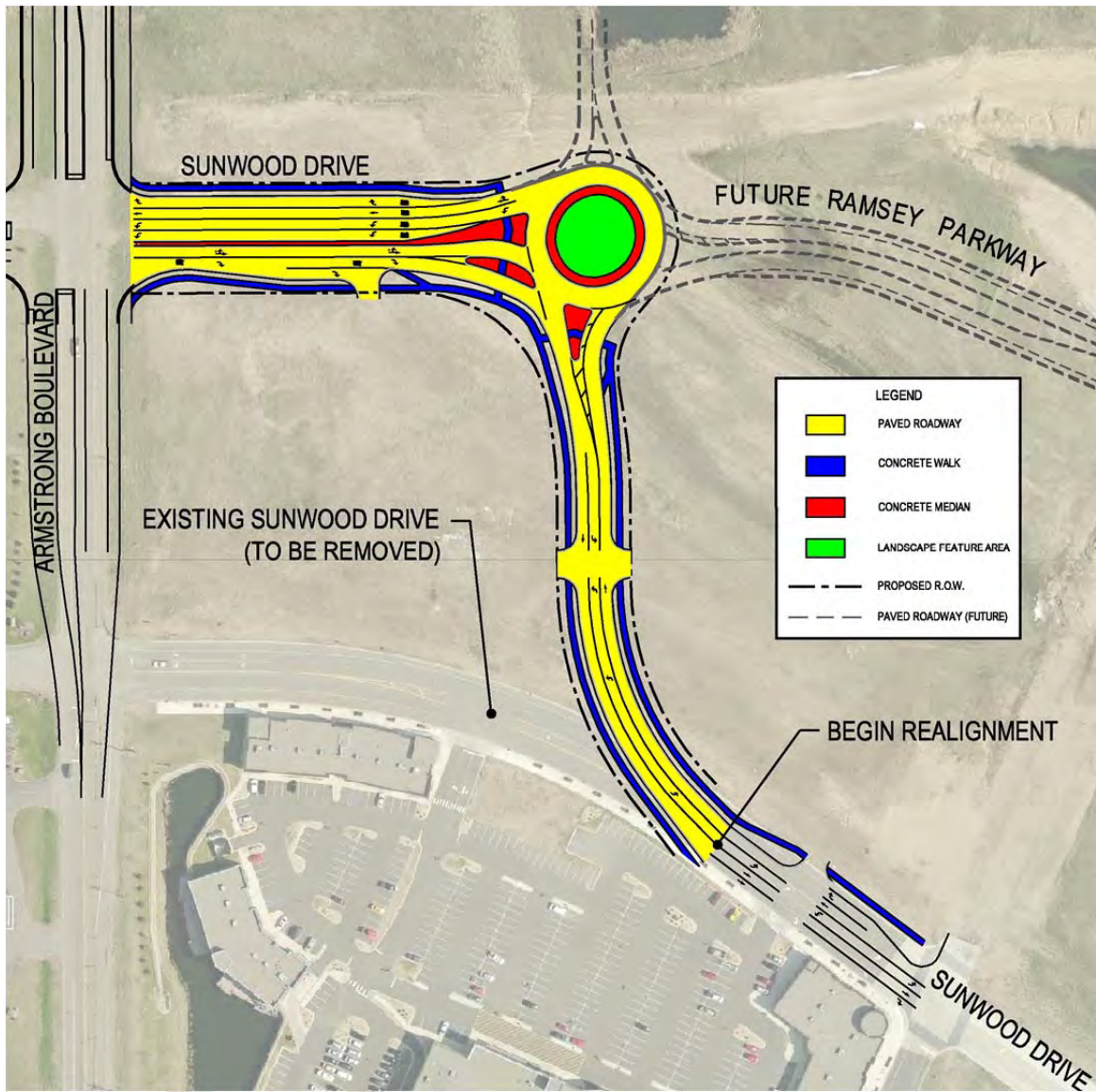
Figure 3: Initial and Ultimate Roundabout Design (Ourston Roundabout Engineering)



Sunwood Drive

Sunwood Drive is a Municipal State Aid (MSA) collector street. It runs in an east/west direction through the southern portion of The COR connecting Ramsey Boulevard to Armstrong Boulevard. The current Armstrong/Sunwood intersection needs to be closed because of the grade differential that will be created by the TH10/Armstrong Interchange. The new location for the Armstrong/Sunwood intersection is further north along Armstrong Boulevard near the point where the extension of Ramsey Parkway was originally planned to intersect. The new Armstrong/Sunwood intersection improves the traffic flow on Armstrong Boulevard and into The COR by consolidating traffic at a single, better located intersection than originally proposed in the RTC plans. The proposed realignment of Sunwood Drive is presented in Figure 4.

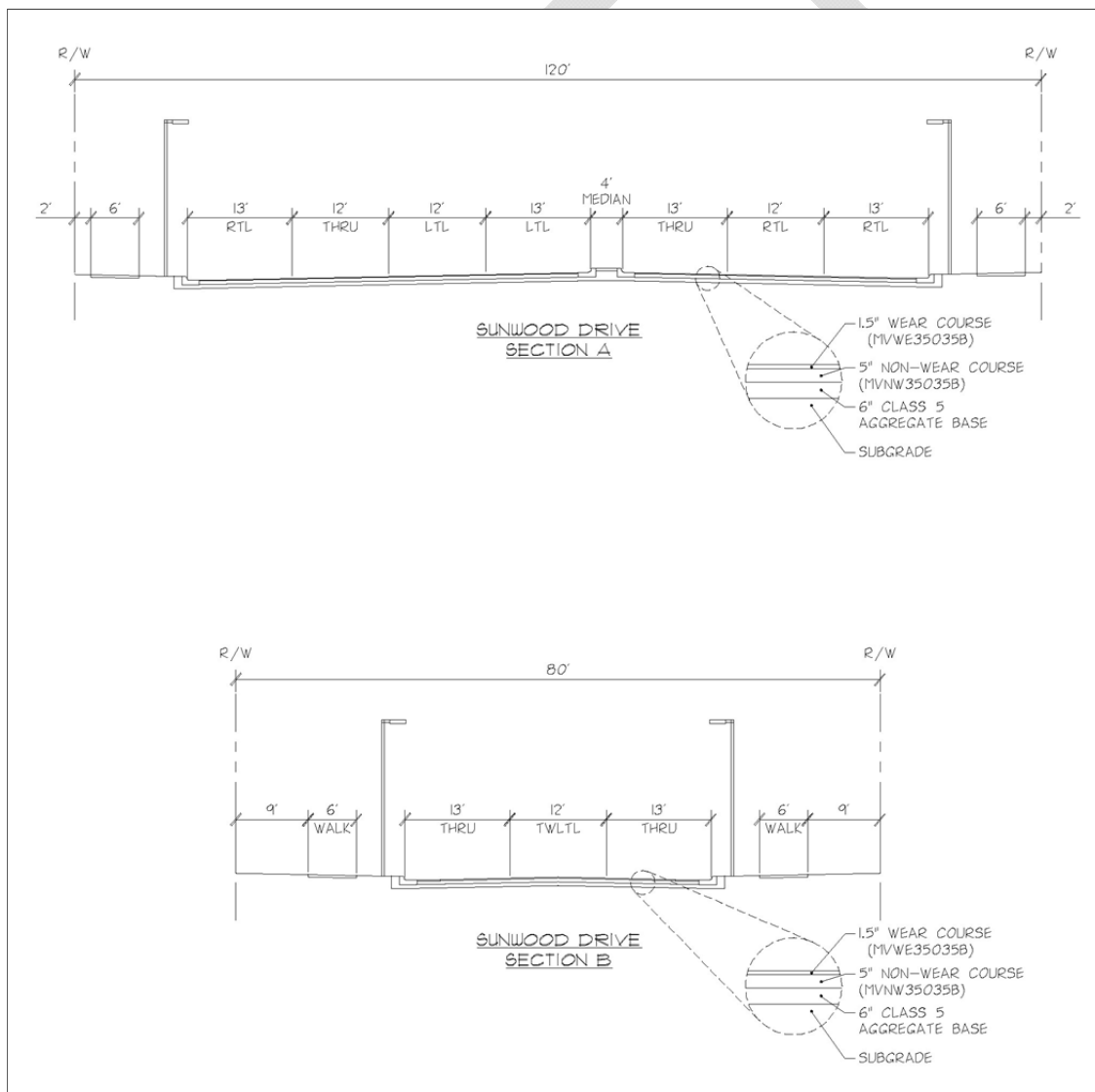
Figure 4: Project Layout Map



Under the proposed realignment, Sunwood Drive turns north at a point approximately 700 feet east of its current intersection with Armstrong Boulevard. Sunwood Drive continues northward to its intersection with the future Ramsey Parkway. At this proposed roundabout intersection Sunwood Drive turns west to connect with Armstrong Boulevard. Improvements to the new Armstrong/Sunwood intersection are described in a separate preliminary engineering report by WSB & Associates, Inc. The preparation of both reports was coordinated to provide an overall plan for the needed improvements.

Existing Sunwood Drive is a hard edged urban section with on street parking, sidewalks adjacent to the curb and store fronts adjacent to the sidewalk. As outlined in The COR Development Plan 5.03, the beginning of the Sunwood realignment marks the transition from hard edged urban to more suburban configurations with off street parking. The roadway sections proposed for the Sunwood realignment reflect that transition. The proposed sections are shown in Figure 5. The traffic volumes on the north/south section of Sunwood Drive are projected to be approximately 10,000 vehicles per day and a two lane roadway with a two way center left turn center lane is proposed. This section will provide an allowance for approximately 50% more capacity beyond the current ultimate projections. The projected traffic volumes on the section of Sunwood Drive between the roundabout and Armstrong Boulevard are approaching 20,000 vehicles per day and a four lane roadway section with right and left turn lanes is proposed.

Figure 5: Typical Sections



The pedestrian friendly design on existing Sunwood Drive is continued with the realigned Sunwood Drive. Sidewalks are proposed on both sides of the roadway connecting to the existing sidewalks and to the new trail along Armstrong Boulevard. Pedestrian crossings are provided through the roundabout. Delaying the construction of the north and east legs of the roundabout is also recommended until the big box site is developed or until Ramsey Parkway is extended. An interim concrete curb is proposed through the unfinished portions of the roundabout, as shown in Figure 4.

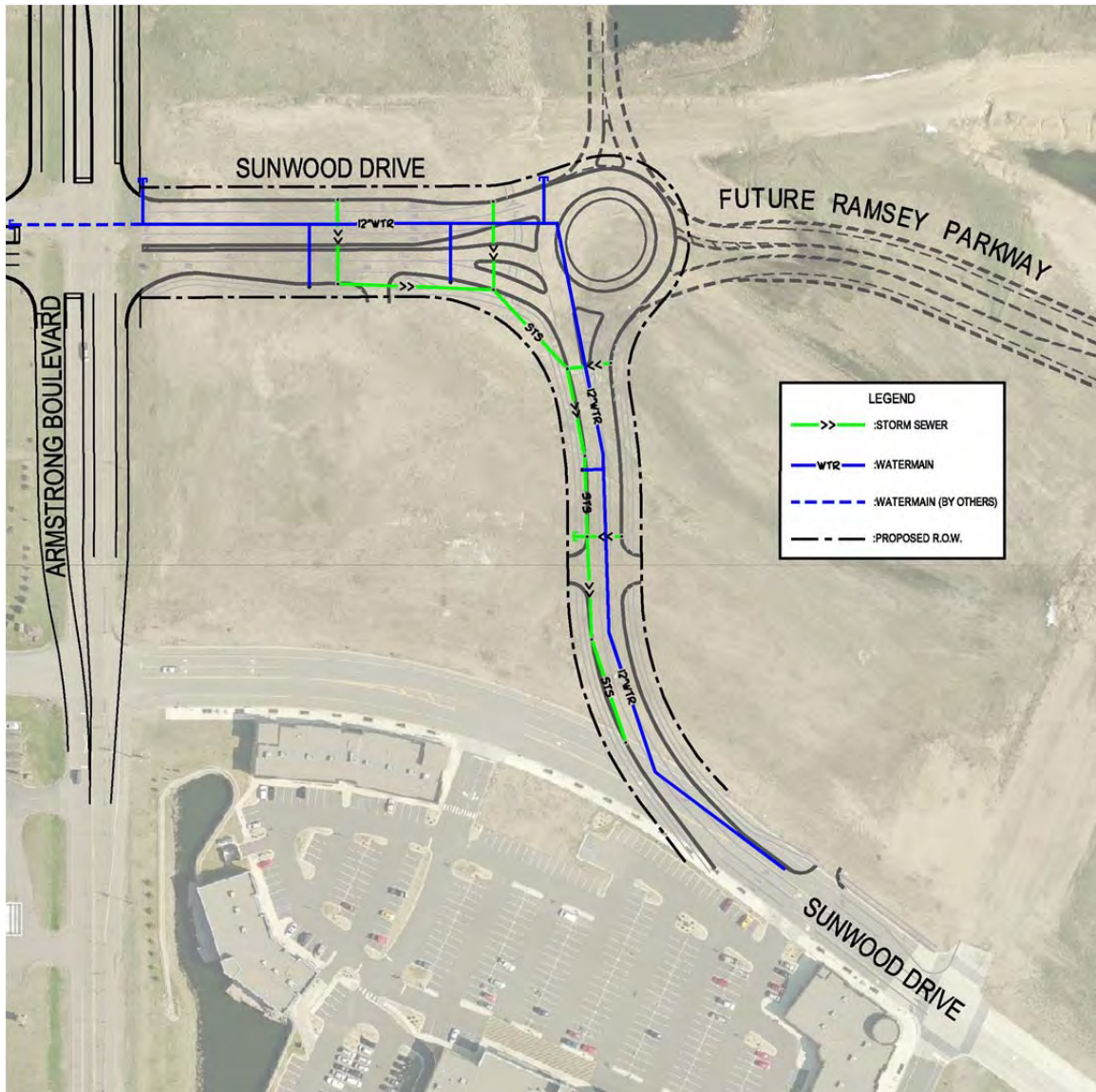
The proposed work also includes demolition of the abandoned portion of Sunwood Drive. Existing street lights and other items will be salvaged and reused to supplement new street lights. The 75-foot street light spacing currently on Sunwood Drive will be maintained. The boulevard will be restored in accordance with the City policy of 4" of topsoil and sod and will be sprinklered. Boulevard trees will be provided at the same spacing on existing Sunwood Drive. The proposed boulevard improvements will present a completed entrance to the western portion of The COR.

A new entrance will be provided to the Coborn's site and the right in only intersection on the east end of that site will be converted to a full intersection. The new entrance is not included in this project.

Water Main

The proposed utility improvements are shown on Figure 6. A 12" water main currently runs on Sunwood Drive terminating on the west side of Armstrong Boulevard. This main will remain in place to serve the area west of Armstrong Boulevard. Ramsey's Water Plan proposes a 12" water main on Armstrong Boulevard. This main will be installed on the realigned Sunwood Drive and extended through the new Armstrong/Sunwood intersection to provide looped water service to the area west of Armstrong Boulevard. Water services will be extended to the commercial area between Sunwood Drive and Armstrong Boulevard. A 24" watermain currently exists in the southeast quadrant of the Armstrong/Bunker intersection. Connection to and extension of the watermain is not recommended at the present time, pending the update of the City's Water Plan and the development of the big box site. A water service will be provided to the roundabout center island and for the boulevard sprinklering.

Figure 6: Utilities Map



Sanitary Sewer

No sanitary improvements are required as part of the Sunwood Drive realignment. Sanitary service to the commercial area will be provided by internal extension of existing sanitary sewer.

Storm Water Management

Trunk storm water management facilities including water quality treatment, storm water storage and storm sewers were previously installed as part of the original Ramsey Town Center (RTC) development. This project includes the construction of storm sewer along the realigned Sunwood Drive connecting to the existing trunk storm sewer on the east end of the project. Storm sewer services will be extended into the commercial area between Sunwood Drive and Armstrong Boulevard.

Cost Estimates

Cost estimates for the proposed improvements are presented in Appendix C. The estimates include construction, a 10% allowance for contingencies and a 20% allowance for indirect costs including design, construction administration, construction staking and observation, record drawings and administration. A summary of the cost estimates is presented in Table 2.

Table 2: Total Estimates Costs

Total Estimates Costs	
Item	Estimated Total Costs
Sunwood Drive	\$1,151,000
Water Main	\$131,000
Storm Sewer	\$87,000
Total	\$1,369,000

Property Acquisition

The realignment of Armstrong Boulevard in anticipation of the overpass requires the acquisition of additional right of way. There are five properties immediately affected by the proposed project, all requiring some acquisition depending on the ultimate configuration. These properties are showed on Figure 7.

Figure 7: Property Acquisition





The five properties include:

Table 3: Parcel Exhibit

Parcel Exhibit		
PID	Owner	Current Use
28-230005	The City of Ramsey HRA	Vacant/Undeveloped
29-140014	The City of Ramsey	Vacant/Demolished c-store
29-140013	M&W Holding Company	Wiser Choice Liquor
29-140010	USCO Corp	Pavement Operation
29-140009	NDS Properties, LLC	Vacant industrial

Table 4: Current Assessed Value

PID	Current Assessed Value
28-230005	N/A
29-140014	N/A
29-140013	\$392,100
29-140010	\$298,900
29-140009	\$684,800

Acquisition strategies vary with small deviations in the proposed design, but generally consist of a cost/benefit evaluation of considering a partial taking versus a complete taking. In 20XX, the City of Ramsey evaluated five of the subject properties as part of an eminent domain action that was ultimately abandoned. Prior to cessation of those efforts, however, environmental assessments and appraisals were completed in an attempt to determine value. The table below outlines the valuations from the 20XX effort.

Table 5: Appraised Property Value

PID	200X Appraised Property Value
28-230005	N/A
29-140014	N/A
29-140013	\$xxx
29-140010	\$xxx
29-140009	\$xxx

As of the date of this report, the real estate market has seen considerable depreciation. Commercial property values have seen declines ranging from 10% – 40% across the metro, and many would argue that it is impossible to set accurate values today due to the dramatic decline in buyers as well as the volatility of comparable value assessments due to an abundance of bank owned property. Based on these current market conditions, it would be considered advantageous to the project to consider an earlier,



more aggressive acquisition strategy with willing sellers as opposed to waiting for the commencement of the Armstrong Boulevard project and a likely rebound in the market.

Adding to the complexity of the evaluation is the desire of the HRA, as master developers of The COR, to proceed with the proposed realignment of Sunwood Drive to its ultimate location ahead of the commencement of the Armstrong Interchange. This is driven by a number of factors, most notably the desire to continue to advance the Armstrong Interchange project by completing the construction north of the actual interchange thus reducing the scope of the interchange project and increasing the likelihood of commencement. Secondly, the realignment of Armstrong to its final location provides certainty for the adjacent properties both east and west of Armstrong. Certainty in their access provides a greater likelihood of economic development and redevelopment that is necessary in the area.

For these reasons, it is our recommendation that the City and HRA consider the acquisition of the affected parcels and proceed with the project as outlined.

Affected Parcels

PID 29-140014 – Oasis Market. - A total acquisition of this property is required in any viable interchange option. In 20XX, the City acquired and eventually demolished the Oasis Market in anticipation of the proposed project. There are no additional actions recommended for this parcel.

PID 29-140013 – M&W Holding Company, LLC. - A total acquisition of this property is also required in any of the options currently considered in the environmental review process. This property has seen a negative effect from the closure of the adjacent convenience store and is the only remaining retail property west of Armstrong. The owner has a desire to relocate and should be considered a willing seller. Because the Armstrong Interchange will require a total acquisition of the property, and because the proposed reconfiguration of the Sunwood/Armstrong intersection will likely result in a reduction of access to this property, it is recommended that the City consider a complete acquisition of this property at the present time.

PID 29-140010 – USCO Corp. – Of the five parcels, this property is least affected by the proposed project. Access to this industrial use could be reasonably provided via 147th Street, Ferret Street NW and then 146th Street to the existing driveway. A small strip taking and a small retaining wall would be required to accommodate the proposed roadway design. This property, however, is not currently the highest and best use of what will ultimately be a retail node in the community. An assembly effort for redevelopment of this area is likely to occur in the near future. For these reasons, it is recommended that the City evaluate the cost of a strip taking vs. a complete taking and consider the latter in an effort to facilitate redevelopment.



PID 29-140009 – NDS Properties, LLC. – A partial taking to facilitate the proposed construction could be considered for this property, however, it would likely require considerable property along both the north and east sides of the property and the demolition of one of the two existing buildings, as well as a considerable modification to its access. For this reason, it is recommended that the City evaluate both the partial and complete takings options, but we believe it will be more efficient to take the property completely. There are no active uses on this property at the time of this report.

PID 28-230005 – HRA Property – Depending on the final alignment chosen, a small strip taking of HRA land in The COR may be necessary to facilitate the design. Because this property is owned by the HRA, it is assumed for this report that the City will resolve any valuation issues internally.

The HRA has authorized the commencement of current appraisals on the three properties west of Armstrong Boulevard. For the purposes of this report, we will use the values from the **20XX appraisals**, with the understanding that the actual acquisition costs, and accordingly project costs, will be considerably less.

Acquisition Strategy 1 – Partial Takings

This option assumes the proposed project can be completed with the complete acquisition **PID XX**, but only the partial acquisition of right-of-way from the remaining **three** parcels necessary to complete the project. The existing property owners would retain ownership of the remainder of the property, and reasonable access would be provided.

Table 6: Partial Takings Costs

Parcel	Sq. Ft. Acquired	Cost
PID XX	XX,XXX	\$XXX,XXX
PID XX	XX,XXX	\$XXX,XXX
PID XX	XX,XXX	\$XXX,XXX
TOTAL	xxxx	\$XXX,XXX

Acquisition Strategy 2 – Complete Takings

This option assumes the all **four** affected parcels would be acquired completely through a process involving a willing buyer and seller. The cost of acquisition may include relocation, which adds considerable cost to the project, but the excess property could be sold after project completion to facilitate redevelopment and those values are shown as a recovered cost in this option.

Table 7: Full Acquisition Cost

Parcel	Acquisition Cost	Relocation Cost	Total
PID XX	XX,XXX	\$XXX,XXX	\$x,xxx,xxx
PID XX	XX,XXX	\$XXX,XXX	\$x,xxx,xxx
PID XX	XX,XXX	\$XXX,XXX	\$x,xxx,xxx
TOTAL	\$X,XXX,XXX	\$XXX,XXX	\$x,xxx,xxx

Table 8: Excess Property

Excess Property		
Parcel	Remaining Property (sq. ft.)	Approximate Value
PID XX	XX,XXX	\$XXX,XXX
PID XX	XX,XXX	\$XXX,XXX
PID XX	XX,XXX	\$XXX,XXX
TOTAL	XX,XXX	\$XXX,XXX

For the purposes of this study, the net costs of Acquisition Strategy 2 (acquisition cost minus excess property value) will be used as the project costs. After the completion of the current appraisals, and the initial efforts in approaching the affected property owners, this approach should be re-evaluated and adjusted as necessary to minimize project costs.

Right-of-way and Easement Vacation

The realignment of Sunwood Drive will necessitate a re-platting of the project area. This process will include the vacation of existing right-of-way associated with the current alignment, as well as easements for drainage and utility purposes. Several new easements will be dedicated through this process to accommodate utilities that will remain in place after realignment.

The HRA anticipates working with Solomon, the owner of existing grocery-anchored center, to improve and account for access modification associated with this project. Options considered include access through HRA property to their existing full access on Sunwood, as well as improvements to the existing right-in/right-out access to the east.

Project Financing

(To Be Provided in a Separate Document)

Project Schedule

Table 9: Project Schedule

Task	Completion Date
Order Feasibility Study	July 26, 2011
Accept Feasibility Study and Order Plans and Specifications	January 10, 2012
Approve Plans, Specifications and Order Advertisement for Bids	April 2012
Receive Bids	May 2012
Begin Construction	June 2012
Substantial Completion	September 2012
Final Completion	November 2012

Summary and Conclusions

The realignment of Sunwood Drive is necessary to accommodate the grade changes on Armstrong Boulevard associated with the new TH10/Armstrong Interchange. The work outlined in this report is consistent with Development Plan 5.03 of The COR. The proposed roadway improvements meet Municipal State Aid standards. The provision of a roundabout at the Sunwood/Ramsey Parkway intersection provides better management of the projected ultimate traffic and also provides flexibility should those projections be exceeded.

The costs associated with the proposed improvements are presented in the Appendices and summarized in the Cost Estimates section. It is our professional opinion that the benefits derived from this project exceed the associated costs. The work is cost effective and feasible from an engineering standpoint.



Appendix A: Traffic Generation Memo

DRAFT

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Technical Memorandum

To: Bob Schunicht, P.E., Landform
From: Mike Spack, P.E., P.T.O.E.
Date: September 2, 2011
Re: The COR Traffic Generation in Ramsey, MN

Per your request, this technical memorandum provides traffic generation forecasts for Development Plan 5.03 of The COR along with traffic forecasts necessary to design the proposed roundabout at Ramsey Parkway and Sunwood Drive.

Traffic Forecast Results

Build out of The COR is forecast to generate approximately 3,700 vehicles in the a.m. peak hour, 5,600 vehicles in the p.m. peak hour, and 57,700 vehicles per day. The build out (2030) forecasts needed to design the roundabout at the Ramsey Parkway/Sunwood Drive intersection are shown in Figure 1 (a.m. peak hour turning movement volumes), Figure 2 (p.m. peak hour turning movement volumes), and Figure 3 (daily traffic volumes). The traffic forecasts are based on the methodology discussed in the next section.

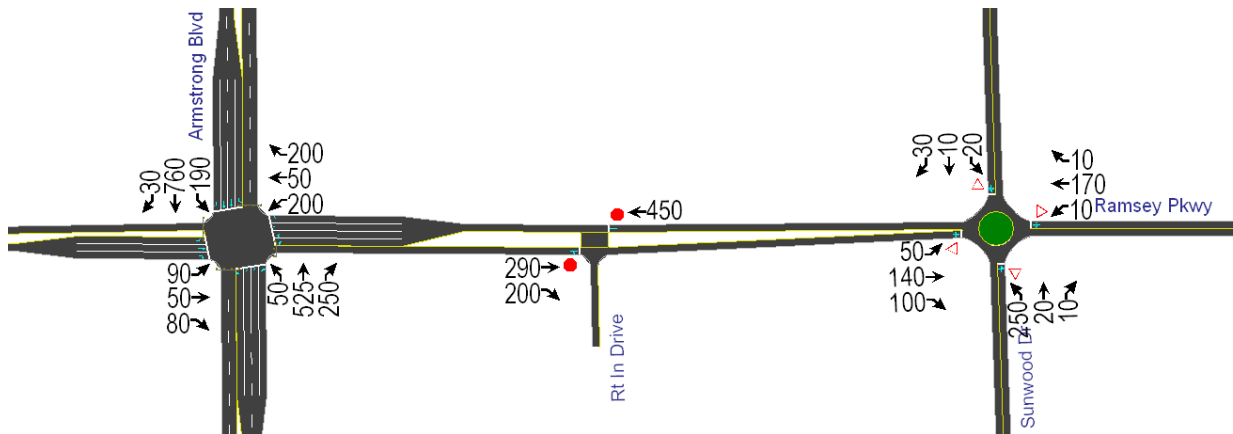


Figure 1 – Build Out A.M. Peak Hour Turning Movement Volumes

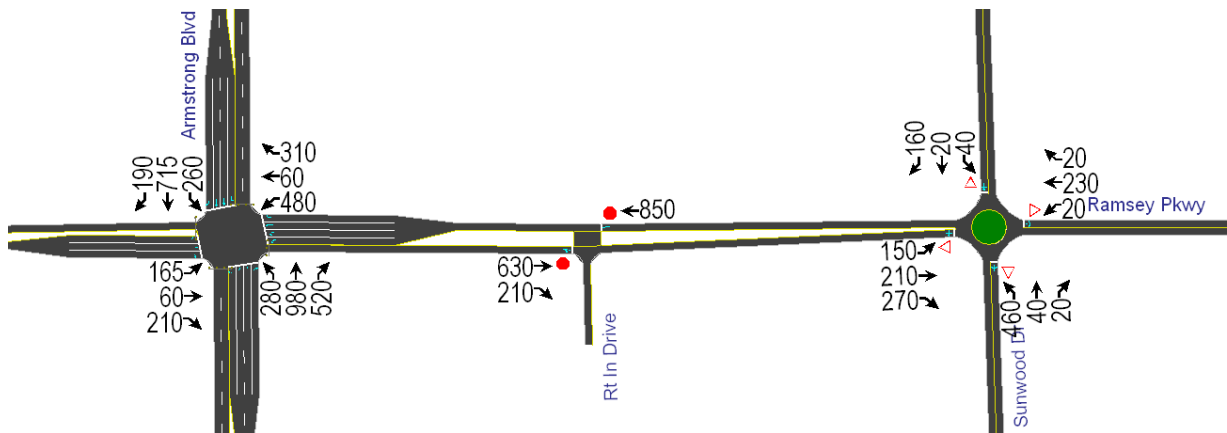


Figure 2 – Build Out P.M. Peak Hour Turning Movement Volumes

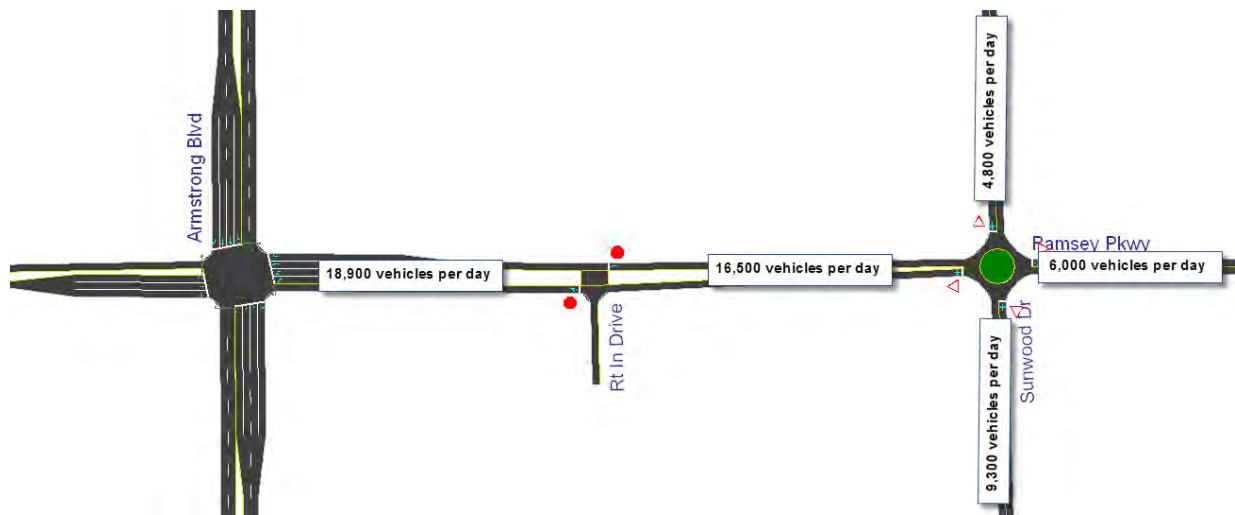


Figure 3 – Build Out Daily Traffic Volumes

Traffic Forecast Methodology

Landform provided details for The COR, including the Traffic Analysis Zones (TAZs) shown in Figure 4 and individual land uses/square footages per TAZ as shown in Table 1. A trip generation analysis was performed for The COR based on the methods and average rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 8th Edition*. Based on data in the Institute of Transportation Engineers (ITE) *Trip Generation Handbook, 2nd Edition*, a 20% reduction was applied to the trips generated by the development to account for internal, multi-purpose trips. The resultant trip generation per TAZ as well as totals for the whole development is shown in Table 1.

WSB & Associates prepared 2030 turning movement volume forecasts for the Armstrong Boulevard/Ramsey Parkway intersection in the *US 10 at Armstrong Boulevard Traffic Operations Memo*. The volumes entering/exiting The COR at the intersection were based on the March 24, 2003 *Ramsey Town Center Traffic Analysis* (The COR's previously proposed development plan). The *Ramsey Town Center Traffic Analysis* calculated the development will generate 51,186 vehicles per day whereas The COR is forecast to generate 57,739 vehicles per day. Since The COR is forecast to generate 12.8% more traffic than the Ramsey Town Center, the 2030 turning movement volumes entering/exiting The COR in the *US 10 at Armstrong Boulevard Traffic Operations Memo* were factored up by 12.8%. The resultant turning movement volumes for the Armstrong Boulevard/Ramsey Parkway intersection are shown in Figures 1 and 2.

The turning movement volume forecasts in Figures 1 and 2 for the Ramsey Parkway/Right-In Access intersection and the Ramsey Parkway/Sunwood Drive intersection were prepared by distributing the peak hour traffic volumes from Table 1 per the trip distribution percentages contained in the March 24, 2003 *Ramsey Town Center Traffic Analysis*.

According to Table 41 from *NCHRP Report 365 – Travel Estimation Techniques for Urban Planning*, 8.95% of the daily traffic volumes would be expected to use the roadway network through The COR in the p.m. peak hour. The p.m. peak hour volumes from Figure 2 were factored by this ratio (11.17 x p.m. peak hour volume = daily traffic volume) to develop the daily traffic volumes shown in Figure 3.



LAND DESIGNATION

- PARK/PUBLIC SPACES
- PARCELS FOR SALE
- PARCELS OWNED BY OTHERS

DEVELOPMENT STATUS

- EXISTING DEVELOPMENT
- PROPOSED DEVELOPMENT
- ACTIVE DEALS
- UNDER CONTRACT

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

FORM



29

**DEVELOPMENT
PLAN 5.03**

Figure 4 - Traffic Analysis Zones

Table 1 - Land Uses and Traffic Generation

Zone/Block	Code	Land Use	Dwelling Units	Sq. ft.	Park Area ¹ (sq. ft.)	ITE Code ²	AM Peak			PM Peak			Daily Total
							Total	In	Out	Total	In	Out	
1a	3	Retail		11,882		820	10	6	4	35	17	18	408
1b	3	Retail		9,022		820	7	4	3	27	13	14	310
1c	3	Supermarket		62,396		850	179	109	70	524	267	257	5103
1d	3	Retail		13,283		820	11	6	4	40	19	20	456
1e	3	Retail		7,300		820	6	4	2	22	11	11	251
2a	3	Retail		5,248		820	4	3	2	16	8	8	180
2b	3	Retail		39,000		820	31	19	12	116	57	59	1340
2c	2	Daycare Center		10,320		565	101	54	48	103	48	55	654
2d	1	Senior Housing - Assisted Living	84			254	9	6	3	15	7	8	179
3a	1	Luxury Apartments / Townhomes	230			220	94	19	75	114	74	40	1224
3a	3	Retail		67,085		820	54	33	21	200	98	102	2305
3b	2	Government Office Building		49,107		730	231	194	37	48	15	33	2708
3c	0	Park & Ride (Northstar) ³											
4a	2	Clinic		50,092		720	92	73	19	139	37	101	1448
4b	3	Sit Down Restaurant		9,037		931	6	3	3	54	36	18	650
4c	3	Hotel ⁴		24,900		310	14	9	6	15	8	7	209
4d	3	Convention Center ⁵		110,000		310	34	20	13	35	19	17	490
5a	2	Office		17,598		710	22	19	3	21	4	17	155
5b	2	Business Park		93,871		770	107	90	17	97	22	75	958
6a	2	School		44,827		520	186	104	82	43	20	24	553
6b	3	Retail		13,070		820	10	6	4	39	19	20	449
6c	3	Retail		17,987		820	14	9	6	54	26	27	618
6d	3	Retail		17,987		820	14	9	6	54	26	27	618
7a	2	Charter School ⁶		50,511		534	468	258	211	264	129	135	1405
7b	2	Medical Office		33,374		720	61	49	13	92	25	67	965
7c	3	Retail		24,780		820	20	12	8	74	36	38	851
8a	0	City Park w/ Lake			430,000								
8b	2	General Office		43,584		710	54	48	6	52	9	43	384
8c	2	General Office		43,584		710	54	48	6	52	9	43	384
9a	0	City Park w/ Lake			171,445								
9b	1	Apartments	95			220	39	8	31	47	31	16	505
9c	2	Recreational Community Center		107,556		495	139	85	54	125	46	79	1969
9d	2	General Office		59,696		710	74	65	9	71	12	59	526
9e	2	General Office		42,765		710	53	47	6	51	9	42	377
9f	2	General Office		59,208		710	73	65	9	71	12	59	522
10a	0	City Park			3,500								
10b	2	General Office		8,400		710	10	9	1	10	2	8	74
10b	3	Specialty Retail		4,200		820	3	2	1	13	6	6	144
10c	2	General Office		40,800		710	51	45	6	49	8	40	359
10c	1	Apartments	120			220	49	10	39	60	39	21	638
10d	2	General Office		11,500		710	14	13	2	14	2	11	101
10d	3	Specialty Retail		11,500		820	9	6	4	34	17	18	395
10e	2	General Office		8,500		710	11	9	1	10	2	8	75
10e	3	Specialty Retail		4,250		820	3	2	1	13	6	6	146
10f	2	General Office		11,900		710	15	13	2	14	2	12	105
10f	3	Specialty Retail		8,500		820	7	4	3	25	12	13	292
10f	1	Apartments	14			220	6	1	5	7	5	2	74
10g	3	Specialty Retail		7,600		820	6	4	2	23	11	12	261
10g	2	General Office		7,600		710	9	8	1	9	2	8	67
10g	1	Apartments	18			220	7	1	6	9	6	3	96
10h	3	Specialty Retail		6,300		820	5	3	2	19	9	10	216
10i	3	Specialty Retail		6,100		820	5	3	2	18	9	9	210
10i	2	General Office		6,100		710	8	7	1	7	1	6	54
10i	1	Apartments	26			220	11	2	8	13	8	5	138
11a	3	Specialty Retail		17,000		820	14	8	5	51	25	26	584
11a	1	Apartments	89			220	36	7	29	44	29	15	473
11b	2	General Office		11,000		710	14	12	2	13	2	11	97
11b	1	Apartments	13			220	5	1	4	6	4	2	69
11c	2	General Office		20,700		710	26	23	3	25	4	20	182
11d	2	General Office		10,700		710	13	12	2	13	2	11	94
11d	3	Specialty Retail		10,700		820	9	5	3	32	16	16	368
11e	2	General Office		5,900		710	7	6	1	7	1	6	52
11e	3	Specialty Retail		11,800		820	9	6	4	35	17	18	405
11e	1	Apartments	14			220	6	1	5	7	5	2	74
11f	3	Specialty Retail		11,800		820	9	6	4	35	17	18	405
11f	2	General Office		5,900		710	7	6	1	7	1	6	52
11f	1	Apartments	14			220	6	1	5	7	5	2	74
11g	0	City Park			82,804								
12a	3	Sit Down Restaurant		23,355		931	15	8	8	140	94	46	1681
12b	3	Sit Down Restaurant		8,805		931	6	3	3	53	35	17	634
12c	3	Movie Theater ⁷		74,071		444	0	0	0	225	144	81	1733
13a	3	Retail		19,200		820	15	9	6	57	28	29	660
13b	3	Retail		16,664		820	13	8	5	50	24	25	572
14a	3	Gas Station w/Convenience Store ⁸		5,000		945	317	162	155	388	194	194	1563
14b	3	Retail		10,628		820	9	5	3	32	16	16	365
14c	3	Fast Food Restaurant w/Drive-Through		4,800		934	190	97	93	129	67	62	1905
15	3	Shopping Center		135,986		820	109	66	42	406	199	207	4671
16	3	Retail		94,960		820	76	46	30	283	139	145	3262

Table 1 - Land Uses and Traffic Generation

Zone/Block	Code	Land Use	Dwelling Units	Sq. ft.	Park Area ¹ (sq. ft.)	ITE Code ²	AM Peak			PM Peak			Daily
							Total	In	Out	Total	In	Out	Total
17a	3	Sit Down Restaurant		6,000		931	4	2	2	36	24	12	432
17b	3	Sit Down Restaurant		5,470		931	4	2	2	33	22	11	394
17c	3	Sit Down Restaurant		5,470		931	4	2	2	33	22	11	394
17d	0	City Park w/ Lake			480,000								
18a	1	Condos	80			230	28	5	23	33	22	11	372
18b	1	Condos	69			230	24	4	20	29	19	9	321
18c	1	Condos	48			230	17	3	14	20	13	7	223
18d	1	Townhomes	32			230	11	2	9	13	9	4	149
19a	1	Townhomes	52			230	18	3	15	22	14	7	242
19b	1	Single Family - Detached	14			210	8	2	6	11	7	4	107
19c	1	Townhomes	31			230	11	2	9	13	9	4	144
20a	1	Townhomes	42			230	15	3	12	17	12	6	195
20b	1	Single Family - Detached	14			210	8	2	6	11	7	4	107
20c	1	Townhomes	28			230	10	2	8	12	8	4	130
21a	1	Townhomes	77			230	27	5	22	32	21	11	358
21b	1	Townhomes	90			230	32	5	26	37	25	12	418
22a	1	Single Family - Detached	23			210	14	3	10	19	12	7	176
22b	1	Townhomes	72			230	25	4	21	30	20	10	335
23a	1	Single Family - Detached	44			210	26	7	20	36	22	13	337
23b	1	Single Family - Detached	19			210	11	3	9	15	10	6	145
24a	1	Single Family - Detached	7			210	4	1	3	6	4	2	54
24b	0	City Park w/ Lake & Amphitheater			320,000								
24c	1	Single Family - Detached	17			210	10	3	8	14	9	5	130
Total			1,476	1,798,229	1,487,749		3,726	2,186	1,540	5,571	2,696	2,875	57,739
Residential Total (Code 1)			1,476	0			569	116	453	699	454	245	7,489
Office Total (Code 2)			0	855,093			1,903	1,360	543	1,406	427	979	14,319
Retail Total (Code 3)			0	943,136			1,255	710	544	3,467	1,815	1,651	35,930
			1,476	1,798,229			3,726	2,186	1,540	5,571	2,696	2,875	57,739

Notes:

¹ Due to the minimal amount of traffic generated by parks, they were not considered traffic generators in the original study. Likewise, parks are not considered traffic generators in this forecast.

² The trip generation was based on the methods and average rates published in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition*.

³ The traffic generated by the park and ride was included in the analysis of the original study, however the unspecified volumes were added directly to the intersection traffic assignment instead of being listed with the other trip generation numbers. Accordingly, the traffic volumes generated by the park and ride facility are not considered with the rest of the generated traffic in this forecast.

⁴ The number of dwelling units (DU) for the hotel was obtained by proportioning the proposed hotel to the hotel in the original study via their respective footprints. The hotel was modeled as having 32 rooms.

⁵ Currently, there is no data for traffic volumes generated by Convention Centers. The Convention Center was modeled as a 75-unit Hotel (310).

⁶ Currently, there is no data for daily traffic volumes generated by 534 - Private School (K-8). For public elementary, junior high, and high schools, the ratio of the total daily traffic to the A.M. peak hour traffic is approximately 3.0. The total daily traffic generated by the charter school was calculated by multiplying the A.M. peak hour traffic by a factor of 3.0.

⁷ Due to the lack of data for the proposed theater type (445 - Multiplex Movie Theater), the daily and P.M. peak hour trips generated by the theater were obtained by scaling up the figures found in the original study using the theaters' respective footprints.

⁸ Due to the lack of data for total weekday trips generated by 945 - Gas Station w/Convenience Store using square footage, the total weekday trips were calculated using the number of fueling positions. Based on the typical size of gas stations currently being constructed, it was assumed that new gas station will have 12 fueling positions.

The forecasts reflect a 20% reduction for internal, multi-purpose trips.



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Appendix B: Operational Analysis Memo

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TECHNICAL MEMORANDUM

PREPARED FOR: Robert Schunicht – Landform

PREPARED BY: Jedidiah Munroe, Ourston Roundabout Engineering, Inc.
Q/C and Q/A Mark Lenters, Ourston Roundabout Engineering, Inc.

PROJECT NUMBER ORE 11-958

DATE: December 1, 2011

SUBJECT: Operational Analysis
Ramsey Parkway & Sunwood Drive
Ramsey, Minnesota

PURPOSE

An operational analysis was completed for the proposed roundabout at Ramsey Parkway and Sunwood Drive located in the COR development project in Ramsey, Minnesota. The analysis also assessed possible queue spillbacks from the proposed roundabout to the signal at Armstrong Boulevard and Sunwood Drive. There is approximately 440 feet of queue storage between the signalized intersection and the proposed roundabout intersection. We understand that the queue space associated with the signal operations has been analyzed and the space requirements associated with the traffic signal control have been fulfilled by others to a satisfactory conclusion. We have also designed and analyzed an initial and potential ultimate roundabout lane configuration for the City's consideration.

OPERATIONAL ANALYSIS METHODOLOGY

Based on the AM and PM peak hourly traffic forecasts, the capacity of the roundabout intersection was analyzed using ARCADY roundabout design and capacity analysis software. ARCADY (Assessment of Roundabout Capacity and Delay) is a program based on U.K. empirical research into geometry-capacity relationships. Two features that ARCADY provides is its ability take into account horizontal geometric design sensitivity and its ability to be calibrated to the recent NCHRP Report 572 (Roundabouts in the United States, 2007) roundabout capacity model.

The ARCADY analysis was calibrated to the NCHRP Report 572 empirical results, which indicate a reasonable 10% capacity reduction. The findings on capacity performance for U.S. roundabouts to date suggest that a reduction in the capacity modeling is appropriate pending the availability of more at-capacity data to improve the confidence of modeling roundabouts. Some single lane roundabouts are performing better than expected, but this may not be the case everywhere in the U.S., especially in areas where few roundabouts exist.

The results represent the most probable capacity of the roundabout and employ capacity measures of level of service, delay and queuing, consistent with typical unsignalized capacity analysis methodologies (Highway Capacity Manual, 2010). The combination of using ARCADY with calibration allows for consideration of the U.S. data obtained by NCHRP.

Analysis of residual capacity for future traffic growth was also performed for the intersection. Residual capacity is expressed as the percentage increase in total entering traffic beyond the existing turning counts that would result in any individual leg operating at LOS E (delay greater than 35 seconds). Increases in traffic flow were assumed to occur equally on all legs until one leg reached LOS E.

The 2030 AM and PM peak hourly traffic forecasts prepared by Spack Consulting, as illustrated in Figure 1, were used for this analysis.

OPERATIONAL ANALYSIS RESULTS

Ramsey Parkway and Sunwood Drive (ARCADY Analysis)

LOS for proposed initial roundabout configuration

The operational analysis was performed with the traffic forecasts provided for the interim lane configuration shown in Figure 2. The overall intersection levels of service and anticipated delay with a break down by approach are listed in Table 1.

Table 1. Ramsey Parkway & Sunwood Drive – Proposed Initial Lane Configuration

Peak Hour	Analysis Condition	Overall Intersection		Average Delay By Approach							
		Level of Service		SB - Driveway		EB - Sunwood Dr.		NB - Sunwood Dr.		WB - Ramsey Pkwy	
		Level of Service	Average Delay	Level of Service	Average Delay	Level of Service	Average Delay	Level of Service	Average Delay	Level of Service	Average Delay
AM	Calibrated	A	4.4	A	4.2	A	3.8	A	4.7	A	4.6
PM	Calibrated	A	6.9	A	6.6	A	4.7	A	8.5	A	6.8

LOS Source: 2010 Highway Capacity Manual - Unsignalized Intersections

Delay in Seconds

The eastbound Sunwood Drive predicted 95th percentile queue is 1 vehicles (20 feet) in the PM peak period.

The residual capacity for the AM and PM peak hours is also listed below.

- AM: NB congests with a **159%** increase in traffic growth above the 2030 traffic volumes.
- PM: NB congests with a **39%** increase in traffic growth above the 2030 traffic volumes.

The ARCADY operational analysis data is documented in Appendix A, pages A.1.1 thru A.1.3

LOS for potential ultimate roundabout configuration

The operational analysis was performed with the traffic forecasts provided for the ultimate lane configuration shown in Figure 3. The overall intersection levels of service and anticipated delay with a break down by approach are listed in Table2.

Table 2. Ramsey Parkway & Sunwood Drive – Potential Ultimate Lane Configuration

Peak Hour	Analysis Condition	Overall Intersection		Average Delay By Approach							
		Level of Service		SB - Driveway		EB - Sunwood Dr.		NB - Sunwood Dr.		WB - Ramsey Pkwy	
		Level of Service	Average Delay	Level of Service	Average Delay	Level of Service	Average Delay	Level of Service	Average Delay	Level of Service	Average Delay
AM	Calibrated	A	3.3	A	4.2	A	3.8	A	3.0	A	2.9
PM	Calibrated	A	4.7	A	6.6	A	4.7	A	4.2	A	3.9

LOS Source: 2010 Highway Capacity Manual - Unsignalized Intersections

Delay in Seconds

The residual capacity for the AM and PM peak hours is also listed below.

- AM: SB congests with a **232%** increase in traffic growth above the 2030 traffic volumes.
- PM: SB congests with a **63%** increase in traffic growth above the 2030 traffic volumes.

The ARCADY operational analysis data is documented in Appendix B, pages B.1.1 thru B.1.3

Discussion of Proposed Roundabout Lane Configuration

The roundabout would operate within acceptable ranges of congestion as a single lane roundabout. But, to maintain the proposed eastbound two lanes, an eastbound partial right turn bypass lane should be used to facilitate dropping a lane at the roundabout, see Figure 2.

The roundabout can also be expanded inward into the central island, with minimal rework, to create a multilane roundabout with a northbound double left and two westbound thru lanes. The ultimate lane configuration has the ability to handle any potential increases in traffic from the forecasted volumes.

DISCUSSION AND CONCLUSIONS

The results of the ARCADY analysis of the proposed roundabout show a LOS A for the two peak periods for the interim roundabout design, and has the ability to expand to a multilane roundabout in the future.

Typically, when a roundabout is close to a traffic signal, the impacts to the signal are negligible, while the roundabout can be impacted by queue spillback from the signal. The impacts to the Ramsey Parkway and Sunwood Drive intersection will be infrequent but the roundabout is better suited to reduce the effects of the closely spaced intersections, for the following reasons:

- If the Ramsey Parkway and Sunwood Drive intersection were traffic signal controlled, it would likely have the same cycle length as the Armstrong Boulevard traffic signal, assuming they both have to operate as one system due to being closely spaced. Using the same cycle length for the Ramsey Parkway intersection imposes timings that may not be ideal for the traffic patterns at the intersection. Additional operational impacts to the Ramsey Parkway intersection are likely due to the inflexibility of signal timings.
- The roundabout intersection will have slower entering and circulating speeds. This will reduce the impact of queue spill back from Armstrong Boulevard. The roundabout has greater flexibility in responding to traffic demands as compared to a traffic signal constrained by timings that suit the adjacent intersection.



- With the slow entry speeds and good visibility in the roundabout drivers will be able adjust and leave gaps for the entering drivers if occasionally the westbound queue spills back to the roundabout.

Additional benefits of having the roundabout are improved safety, less restrictions to nearby access, pedestrian accommodation and added capacity as compared to stop control.

Figure 1: 2030 AM and PM Peak Hourly Forecasts for Ramsey Parkway and Sunwood Drive

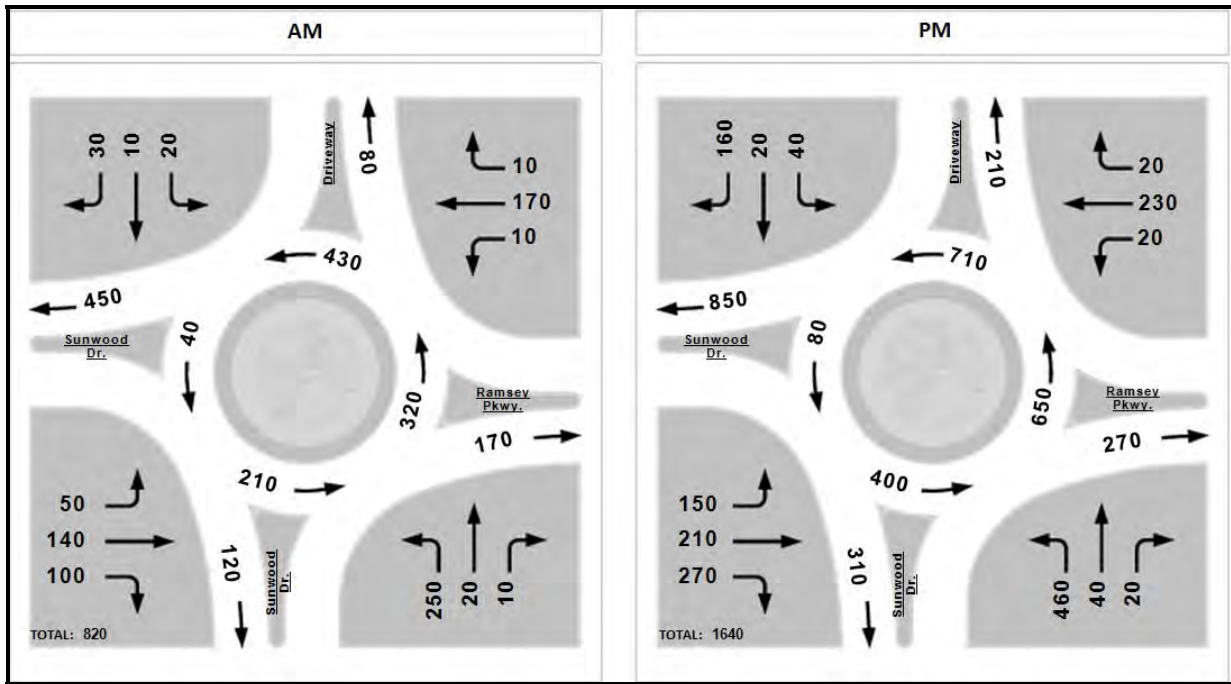


Figure 2: Proposed Initial Roundabout Configuration

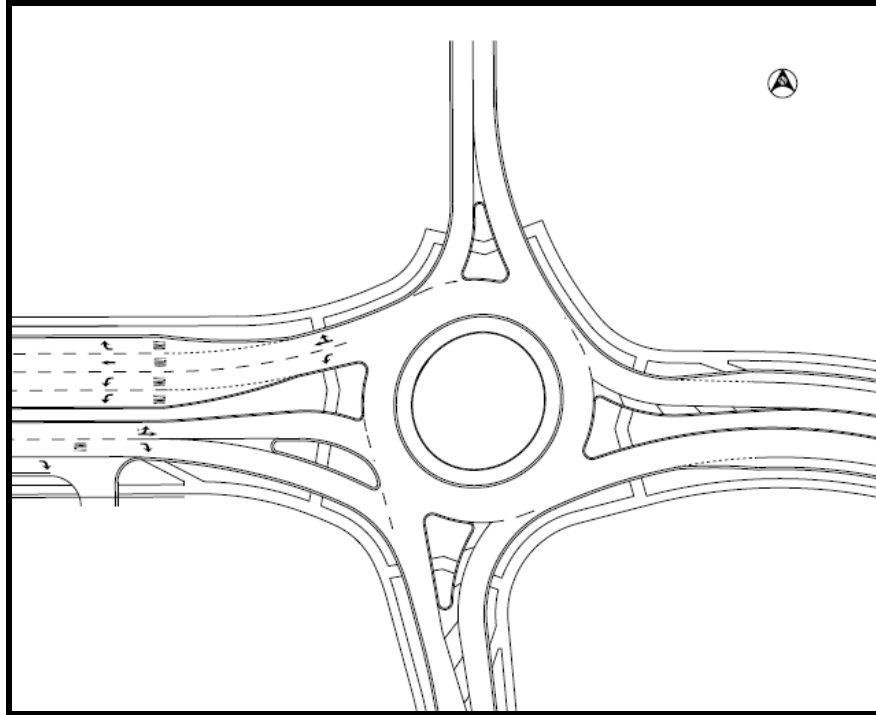
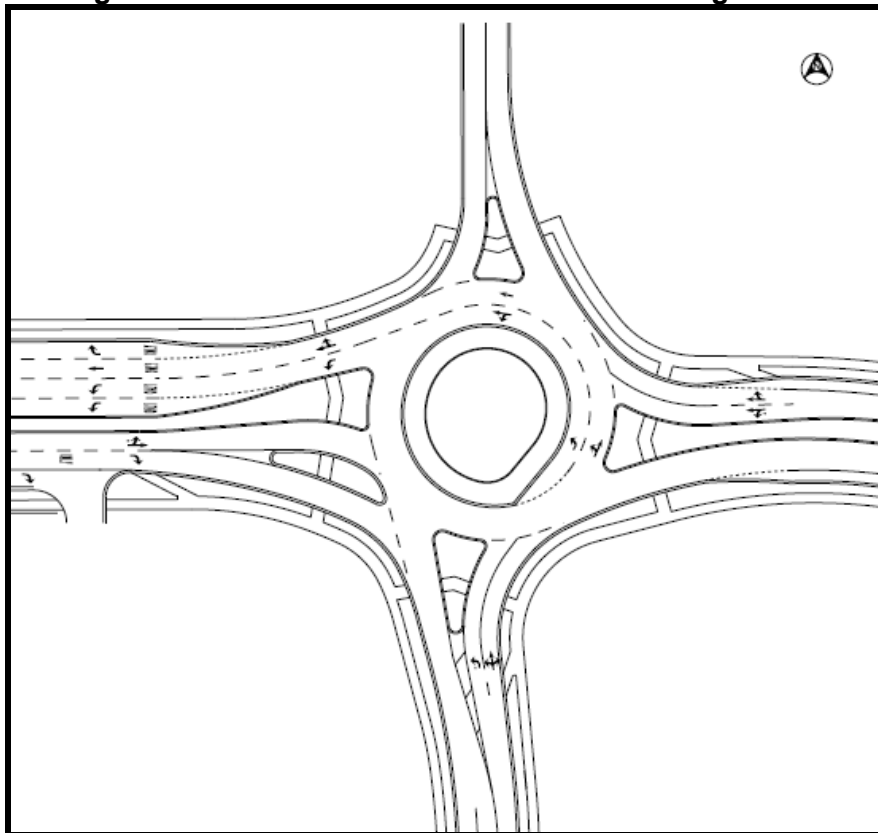


Figure 3: Potential Ultimate Roundabout Configuration



APPENDIX A

Ramsey, Minnesota

Ramsey Parkway and Sunwood Drive

Proposed Initial Roundabout Configuration

A.1 Operational Analysis.....A.1.1 – A.1.3

Ramsey, Minnesota
RAMSEY PARKWAY AND SUNWOOD DRIVE
PROPOSED INITIAL ROUNDABOUT CONFIGURATION

Operational Analysis

2030 – AM Peak Hour Forecasts

D1 - 2030, AM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts ▾ Rotate grid Full-size mode

Standard Geometry Edit In Window

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	55.06	174.44	256.93	174.35
Total Arrivals (Veh)	82.59	261.66	385.40	261.52
Max Queue (Veh)	0.08	0.23	0.44	0.29
Max Delay (s)	4.48	3.97	5.14	4.93
Max RFC	0.08	0.19	0.31	0.22
Slope	0.576	0.576	0.576	0.576
Intercept (PCE/hr)	1164.481	1164.481	1164.481	1164.481
Average Queuing Delay (s)	4.21	3.81	4.70	4.55

Turning Proportions/Counts - (untitled) - Whole Period

Counts (Veh/hr) Proportions (Veh) Options

From \ To	1st	2nd	3rd	U-Turn
SB Driveway	30.000	10.000	20.000	0.000
EB Sunwood Dr	0.100	140.000	50.000	0.000
NB Sunwood Dr	10.000	20.000	250.000	0.000
WB Ramsey Pkwy	10.000	170.000	10.000	0.000
Total	50.10	340.00	330.00	0.00

Ramsey, Minnesota
RAMSEY PARKWAY AND SUNWOOD DRIVE
PROPOSED INITIAL ROUNDABOUT CONFIGURATION

Operational Analysis

2030 – PM Peak Hour Forecasts

D2 - 2030, PM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts **Rotate grid** Full-size mode

Standard Geometry Edit In Window

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	201.88	330.59	477.16	247.76
Total Arrivals (Veh)	302.81	495.89	715.74	371.64
Max Queue (Veh)	0.54	0.57	1.78	0.68
Max Delay (s)	8.02	5.18	11.40	8.33
Max RFC	0.35	0.36	0.64	0.41
Slope	0.576	0.576	0.576	0.576
Intercept (PCE/hr)	1164.481	1164.481	1164.481	1164.481
Average Queuing Delay (s)	6.63	4.73	8.53	6.82

Turning Proportions/Counts - (untitled) - Whole Period

Counts (Veh/hr) **Proportions (Veh)** Options

From \ To	1st	2nd	3rd	U-Turn
SB Driveway	160.000	20.000	40.000	0.000
EB Sunwood Dr	0.270	210.000	150.000	0.000
NB Sunwood Dr	20.000	40.000	460.000	0.000
WB Ramsey Pkwy	20.000	230.000	20.000	0.000
Total	200.27	500.00	670.00	0.00

Ramsey, Minnesota
RAMSEY PARKWAY AND SUNWOOD DRIVE
PROPOSED INITIAL ROUNDABOUT CONFIGURATION

Operational Analysis

2030 – AM Peak Hour Forecasts
 NB is starting to congest with a traffic increase of **159%**

D1 - 2030, AM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts ▾ Rotate grid Full-size mode

Standard Geometry Edit In Win

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	142.60	689.22	665.46	451.56
Total Arrivals (Veh)	213.90	1033.83	998.18	677.34
Max Queue (Veh)	0.60	3.21	20.00	5.29
Max Delay (s)	12.93	14.37	90.62	37.54
Max RFC	0.38	0.77	1.00	0.86
Slope	0.576	0.576	0.576	0.576
Intercept (PCE/hr)	1164.481	1164.481	1164.481	1164.481
Average Queueing Delay (s)	9.55	9.96	35.53	18.99

Average queueing delay over whole period. This is the average delay per vehicle per PCE, depending on current units. Default

ADDITIONAL SCALING

Network Flow Scaling Factor (%)

2030 – AM Peak Hour Forecasts
 NB is starting to congest with a traffic increase of **39%**

D2 - 2030, PM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts ▾ Rotate grid Full-size mode

Standard Geometry Edit In Win

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	14.00	14.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	280.61	803.56	663.25	344.38
Total Arrivals (Veh)	420.91	1205.34	994.88	516.57
Max Queue (Veh)	1.68	7.76	20.77	2.31
Max Delay (s)	18.56	30.87	93.77	20.88
Max RFC	0.64	0.90	1.01	0.71
Slope	0.576	0.576	0.576	0.576
Intercept (PCE/hr)	1164.481	1164.481	1164.481	1164.481
Average Queueing Delay (s)	12.20	16.27	36.71	13.17

Average queueing delay over whole period. This is the average delay per vehicle per PCE, depending on current units. Default

ADDITIONAL SCALING

Network Flow Scaling Factor (%)

APPENDIX B

Ramsey, Minnesota

Ramsey Parkway and Sunwood Drive

Potential Ultimate Roundabout Configuration

B.1 Operational Analysis.....	B.1.1 – B.1.3
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Ramsey, Minnesota
RAMSEY PARKWAY AND SUNWOOD DRIVE
POTENTIAL ULTIMATE ROUNDABOUT CONFIGURATION

Operational Analysis

2030 – AM Peak Hour Forecasts

D1 - 2030, AM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts ▾ Rotate grid Full-size mode

Standard Geometry Edit In Window

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	26.00	26.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	55.06	174.44	256.93	174.35
Total Arrivals (Veh)	82.59	261.66	385.40	261.52
Max Queue (Veh)	0.08	0.23	0.27	0.18
Max Delay (s)	4.48	3.97	3.16	3.11
Max RFC	0.08	0.19	0.21	0.15
Slope	0.576	0.576	0.683	0.683
Intercept (PCE/hr)	1164.481	1164.481	1638.424	1638.424
Average Queueing Delay (s)	4.21	3.81	2.97	2.94

Turning Proportions/Counts - (untitled) - Whole Period

Counts (Veh/hr) Proportions (Veh) Options

From \ To	1st	2nd	3rd	U-Turn
SB Driveway	30.000	10.000	20.000	0.000
EB Sunwood Dr	0.100	140.000	50.000	0.000
NB Sunwood Dr	10.000	20.000	250.000	0.000
WB Ramsey Pkwy	10.000	170.000	10.000	0.000
Total	50.10	340.00	330.00	0.00

Ramsey, Minnesota
RAMSEY PARKWAY AND SUNWOOD DRIVE
POTENTIAL ULTIMATE ROUNDABOUT CONFIGURATION

Operational Analysis

2030 – PM Peak Hour Forecasts

D2 - 2030, PM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts Rotate grid Full-size mode

Standard Geometry Edit In Window

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	26.00	26.00
I' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	201.88	330.59	477.16	247.76
Total Arrivals (Veh)	302.81	495.89	715.74	371.64
Max Queue (Veh)	0.54	0.57	0.78	0.36
Max Delay (s)	8.02	5.18	4.91	4.39
Max RFC	0.35	0.36	0.44	0.27
Slope	0.576	0.576	0.683	0.683
Intercept (PCE/hr)	1164.481	1164.481	1638.424	1638.424
Average Queueing Delay (s)	6.63	4.73	4.22	3.87

Turning Proportions/Counts - (untitled) - Whole Period

Counts (Veh/hr) Proportions (Veh) Options

From \ To	1st	2nd	3rd	U-Turn
SB Driveway	160.000	20.000	40.000	0.000
EB Sunwood Dr	0.270	210.000	150.000	0.000
NB Sunwood Dr	20.000	40.000	460.000	0.000
WB Ramsey Pkwy	20.000	230.000	20.000	0.000
Total	200.27	500.00	670.00	0.00

Ramsey, Minnesota
RAMSEY PARKWAY AND SUNWOOD DRIVE
POTENTIAL ULTIMATE ROUNDABOUT CONFIGURATION

Operational Analysis

2030 – AM Peak Hour Forecasts
 NB is starting to congest with a traffic increase of **232%**

D1 - 2030, AM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts ▾ Rotate grid Full-size mode

Standard Geometry Edit In Window

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	26.00	26.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	182.79	579.14	853.02	578.83
Total Arrivals (Veh)	274.18	868.71	1279.53	868.25
Max Queue (Veh)	5.58	1.87	11.89	5.21
Max Delay (s)	98.34	9.86	44.54	28.66
Max RFC	0.91	0.66	0.94	0.85
Slope	0.576	0.576	0.683	0.683
Intercept (PCE/hr)	1164.481	1164.481	1638.424	1638.424
Average Queueing Delay (s)	34.83	7.70	18.70	14.05

ADDITIONAL SCALING

Network Flow Scaling Factor (%)

2030 – AM Peak Hour Forecasts
 SB is starting to congest with a traffic increase of **63%**

D2 - 2030, PM

Data Grid - Standard Geometry - Showing 4 of 4 items; 15 column(s)

Column Layouts ▾ Rotate grid Full-size mode

Standard Geometry Edit In Window

Arm	SB Driveway	EB Sunwood Dr	NB Sunwood Dr	WB Ramsey Pkwy
V - Approach road half-width (ft)	12.00	12.00	12.00	12.00
E - Entry width (ft)	14.00	14.00	26.00	26.00
l' - Effective flare length (ft)	50.00	50.00	50.00	50.00
R - Entry radius (ft)	65.00	65.00	65.00	65.00
D - Inscribed circle diameter (ft)	110.00	110.00	110.00	110.00
PHI - Conflict (entry) angle (deg)	25.00	25.00	25.00	25.00
Exit Only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total Demand (Veh/hr)	329.06	538.86	777.77	403.84
Total Arrivals (Veh)	493.59	808.29	1166.66	605.77
Max Queue (Veh)	10.45	1.54	4.76	1.46
Max Delay (s)	98.71	8.68	19.17	11.05
Max RFC	0.97	0.61	0.84	0.60
Slope	0.576	0.576	0.683	0.683
Intercept (PCE/hr)	1164.481	1164.481	1638.424	1638.424
Average Queueing Delay (s)	36.23	7.02	10.88	7.60

ADDITIONAL SCALING

Network Flow Scaling Factor (%)



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Appendix C: Cost Estimates

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Street Work Cost Estimates

Project: Sunwood Drive Realignment
Ramsey, MN



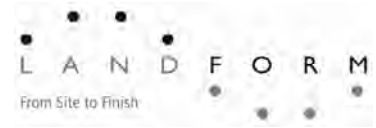
Item No.	Item	Units	Quantity	Unit Price	Total Price
2011.601	Construction Surveying	LUMP SUM	1	\$10,000.00	\$10,000.00
2021.501	Mobilization	LUMP SUM	1	\$50,000.00	\$50,000.00
2031.501	Field Office Type-D Modified	EACH	1	\$8,000.00	\$8,000.00
2101.511	Clearing & Grubbing	ACRE	2	\$4,000.00	\$8,000.00
2104.501	Remove B618 Curb & Gutter	LF	1578	\$4.00	\$6,312.00
2104.509	Remove Sign Type A	EACH	2	\$40.00	\$80.00
2104.523	Salvage Light Standard Base	EACH	12	\$3,500.00	\$42,000.00
2104.505	Remove Bituminous Pavement	SY	5585	\$3.00	\$16,755.00
2104.513	Sawing Bituminous Pavement (Full Depth)	LF	151	\$2.75	\$415.25
2105.501	Common Excavation	CY	19950	\$4.50	\$89,775.00
2105.507	Subgrade Excavation	CY	1050	\$6.00	\$6,300.00
2105.526	Select Topsoil Borrow	CY	375	\$16.00	\$6,000.00
2123.610	Vacuum Truck and Foreman	HOUR	20	\$150.00	\$3,000.00
2123.610	Tractor Mounted Backhoe	HOUR	20	\$110.00	\$2,200.00
2123.610	Street Sweeper (With Pickup Broom)	HOUR	20	\$120.00	\$2,400.00
2211.503	Aggregate Base Class 5	TON	2385	\$15.00	\$35,775.00
2360.501	Type SP 12.5 Wearing Course Mixture (3, C)	TON	641	\$65.00	\$41,665.00
2360.502	Type SP 12.5 Non-Wearing Course Mixture (3, B)	TON	2141	\$63.00	\$134,883.00
2401.516	Raised Median Concrete (3Y46)	SF	7374	\$6.00	\$44,244.00
2503.601	Irrigation System	LUMP SUM	1	\$9,800.00	\$9,800.00
2521.501	4" Concrete Walk	SF	14217	\$3.50	\$49,759.50
2531.501	Concrete Curb & Gutter B612	LF	153	\$10.00	\$1,530.00
2531.501	Concrete Curb & Gutter B618	LF	3973	\$11.40	\$45,292.20
2531.501	Surmountable Curb	LF	342	\$10.00	\$3,420.00
2531.618	Truncated Domes	SF	200	\$60.00	\$12,000.00
2545.509	Lighting Unit	EACH	15	\$7,500.00	\$112,500.00
2563.601	Traffic Control	LUMP SUM	1	\$20,000.00	\$20,000.00
2564.537	Install Sign Type D	EACH	12	\$175.00	\$2,100.00
2571.502	Deciduous Tree 2.5" Cal B & B	EACH	27	\$250.00	\$6,750.00
2573.502	Silt Fence, Type Machine Sliced	LF	2500	\$3.25	\$8,125.00
2575.501	Seeding	ACRE	0.51	\$300.00	\$153.00
2575.502	Seed Mixture 250	POUND	100	\$3.50	\$350.00
2575.505	Sodding Type Salt Resistant	SY	3135.000	3.250	10188.750
N/A	Landscape Feature	EACH	1	\$50,000.00	\$50,000.00
2582.501	Pavement Message (Thru Arrow) Poly Pref - GR IN	EACH	11	\$450.00	\$4,950.00
2582.501	Pavement Message (Left Arrow) Poly Pref - GR IN	EACH	14	\$450.00	\$6,300.00
2582.501	Pavement Message (Right Arrow) Poly Pref - GR IN	EACH	8	\$450.00	\$3,600.00
2582.501	Pavement Message ("ONLY") Poly Pref - GR IN	EACH	6	\$450.00	\$2,700.00
2582.502	4" Double Solid Line, Yellow Epoxy	LF	1231	\$0.70	\$861.70
2582.502	4" Solid Line, White Epoxy	LF	1758	\$0.35	\$615.30
2582.502	4" Solid Line, Yellow Epoxy	LF	294	\$0.35	\$102.90
2582.502	4" Broken Line, White Epoxy	LF	574	\$0.30	\$172.20
2582.502	24" Stop Line, White Epoxy	LF	100	\$7.00	\$700.00
2582.503	Crosswalk Marking - Epoxy	SF	900	\$6.00	\$5,400.00
					\$865,174.80

10% Contingency:	\$86,517.48
Subtotal:	\$951,692.28

21% Indirect Costs:	\$199,855.38
Street Work Estimated Cost:	\$1,151,547.66

Watermain Cost Estimates

Project: Sunwood Drive Realignment
 Ramsey, MN



Item No.	Item	Units	Quantity	Unit Price	Total Price
2504.602	6" Gate Valve & Box	EACH	5	\$1,200.00	\$6,000.00
2504.602	12" Gate Valve & Box	EACH	3	\$2,500.00	\$7,500.00
2504.602	Hydrant	EACH	3	\$3,300.00	\$9,900.00
2504.603	6" DI Watermain, Class 52	LF	90	\$45.00	\$4,050.00
2506.501	12" DI Watermain, Class 52	LF	1400	\$50.00	\$70,000.00
2504.602	Connect To Existing Watermain	EACH	1	\$850.00	\$850.00
					\$98,300.00

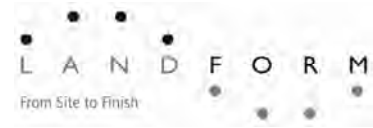
10% Contingency:	\$9,830.00
Subtotal:	\$108,130.00

21% Indirect Costs:	\$22,707.30
Watermain Estimated Cost:	\$130,837.30

Storm Sewer Cost Estimates

Project: Sunwood Drive Realignment

Ramsey, MN



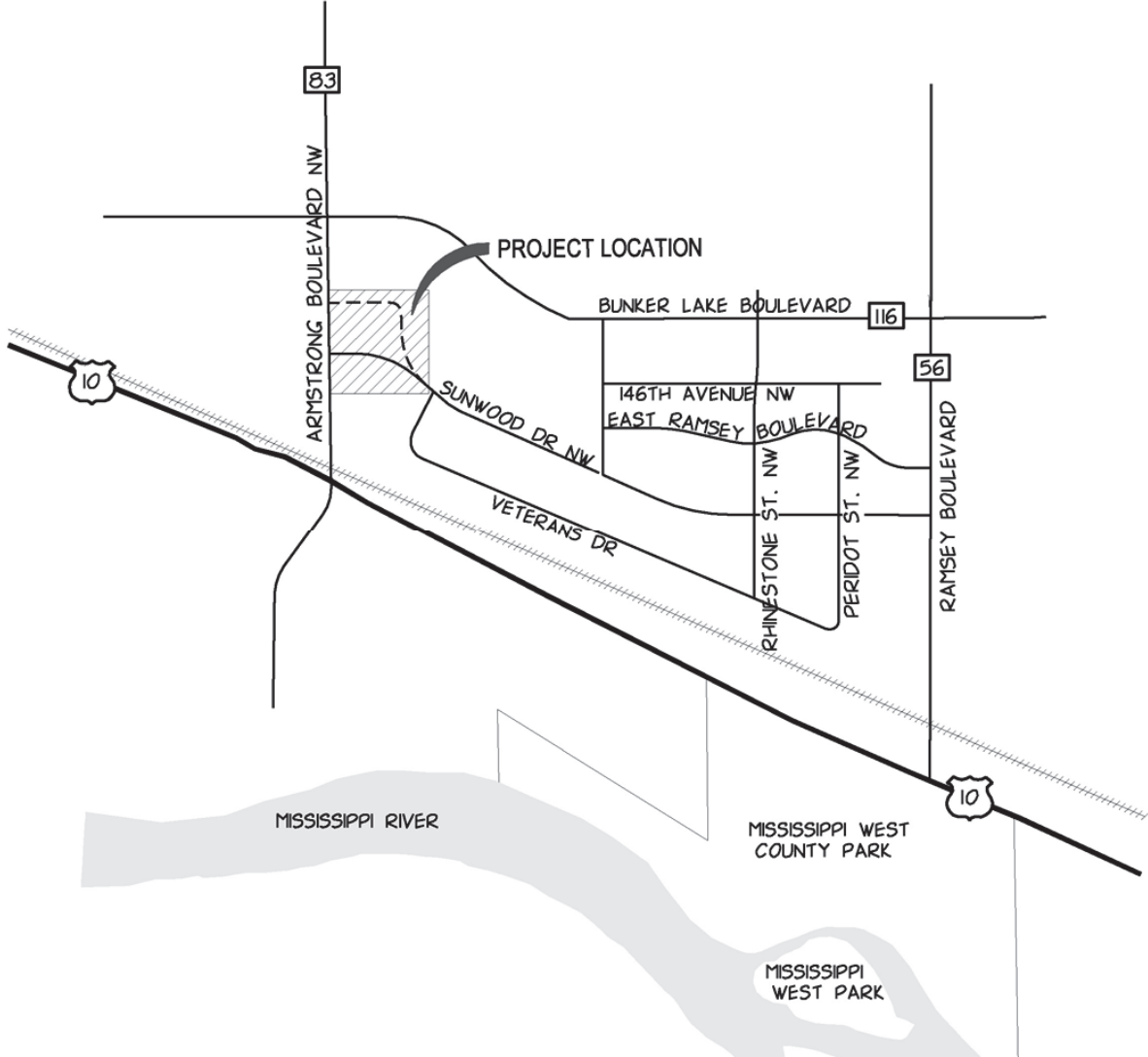
Item No.	Item	Units	Quantity	Unit Price	Total Price
2104.509	Remove Storm Sewer Structure	EACH	1	\$500.00	\$500.00
2503.541	15" RC Pipe Sewer DES 3006 CL V	LF	274	\$27.00	\$7,398.00
2503.541	18" RC Pipe Sewer DES 3006 CL III	LF	287	\$28.00	\$8,036.00
2503.541	21" RC Pipe Sewer DES 3006 CL III	LF	184	\$32.00	\$5,888.00
2503.541	24" RC Pipe Sewer DES 3006 CL III	LF	30	\$38.00	\$1,140.00
2503.541	27" RC Pipe Sewer DES 3006 CL III	LF	231	\$45.00	\$10,395.00
2503.602	Connect To Existing Storm Sewer	EACH	1	\$500.00	\$500.00
2506.501	48" Diameter Catch Basin Neenah Casting R-3067	EACH	10	\$1,500.00	\$15,000.00
2506.501	Catch Basin Neenah Casting R-3067 - Special	EACH	1	\$12,000.00	\$12,000.00
2573.530	Storm Drain Inlet Protection Type C	EACH	12	\$350.00	\$4,200.00
					\$65,057.00

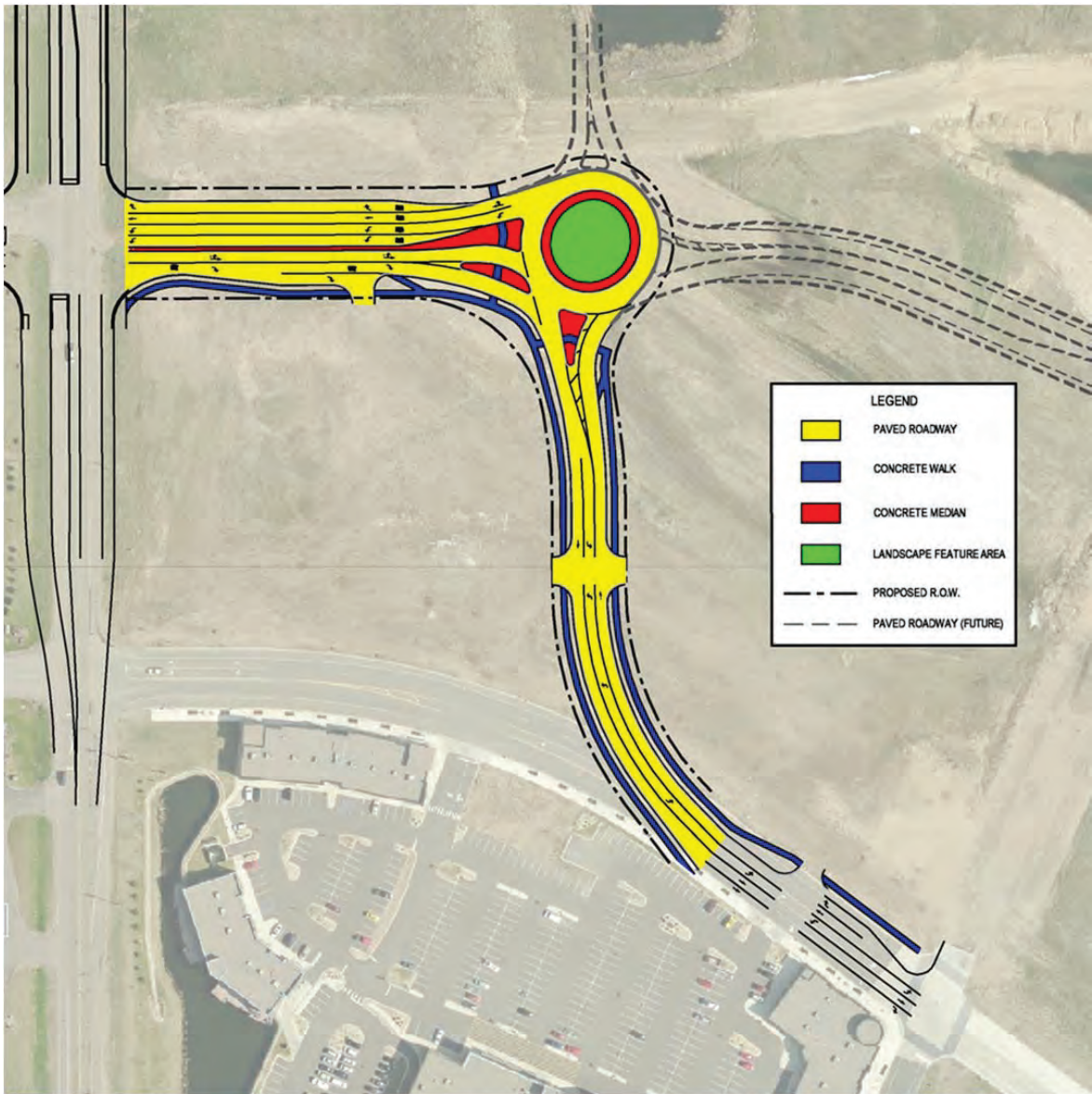
10% Contingency:	\$6,505.70
Subtotal:	\$71,562.70

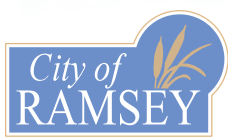
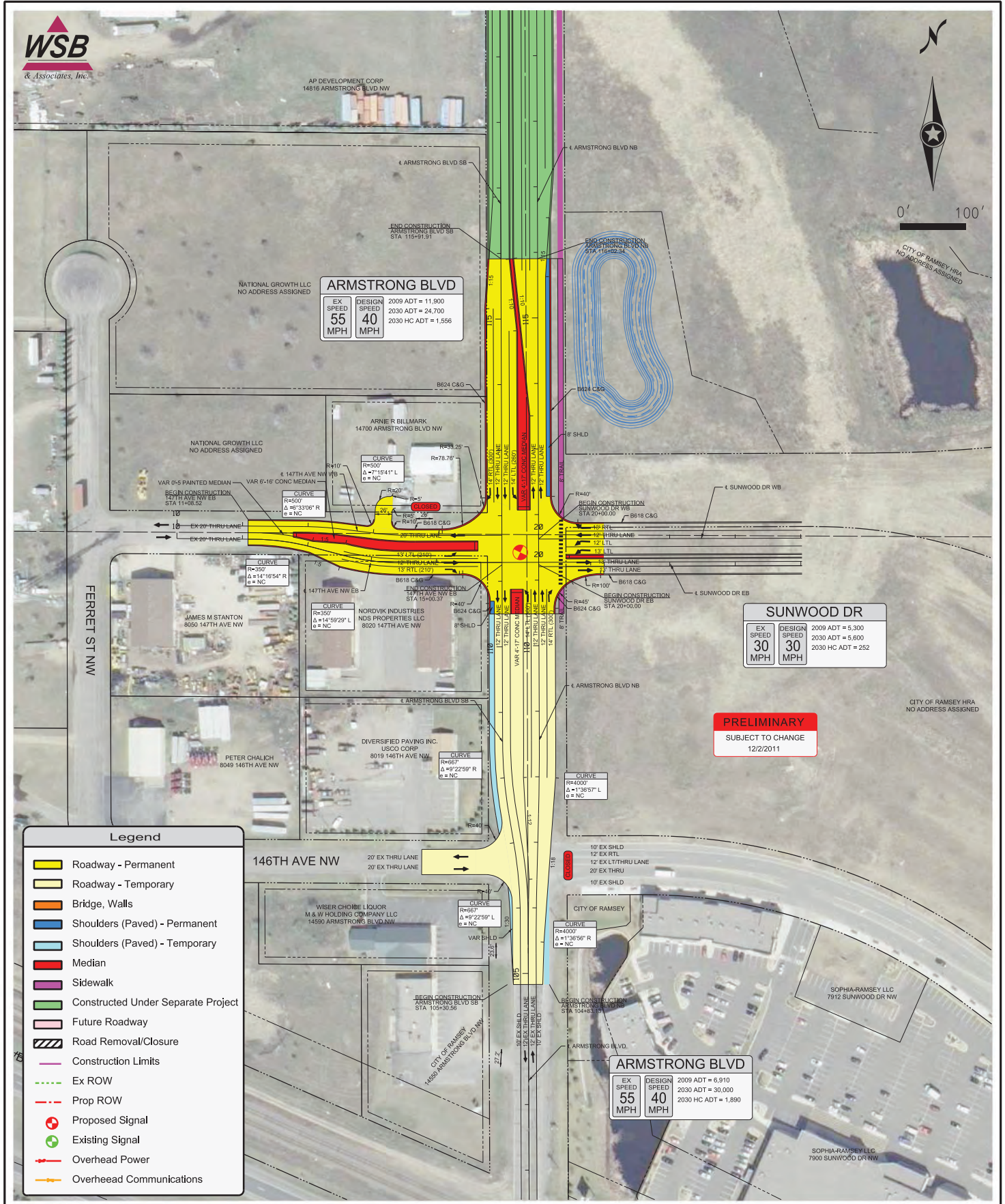
21% Indirect Costs:	\$15,028.17
Storm Sewer Estimated Cost:	\$86,590.87

Summary	Total Price
Street Work Estimated Cost:	\$1,151,547.66
Watermain Estimated Cost:	\$130,837.30
Storm Sewer Estimated Cost:	\$86,590.87
Total Estimated Cost:	\$1,368,975.83

RAMSEY, MN







Armstrong Blvd at Sunwood Drive

City of Ramsey, Minnesota

Project Layout
 Figure 2