City of Ramsey
Agenda
Public Works Committee
Tuesday, January 17, 2017
5:30 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

5. Committee Business

1. Finalize the Landscape Renovation for the Center Median in the Sweet Bay Ridge Development

2. Request for Rate Change at Electrical Vehicle Charging Station

3. Consider Recommendation to City Council to Accept Draft Feasibility Report for Sunwood Drive Reconstruction, Improvement Project #17-00

4. Consider Recommendation to City Council to Accept Draft Feasibility Report for Alpine Drive Reconstruction, Improvement Project #17-01

5. Consider Recommendation to City Council to Accept Draft Feasibility Report for Rivers Bend Street Reconstructions, Improvement Project #17-02

6. Committee/Staff Input

1. Updates on Corridor Studies for Trunk Highway 47, County State Aid Highway 5, and County State Aid Highway 83.

2. Review 2017 Capital Improvement Program Projects

3. Staff Updates on Improvement Projects and Items of Interest

4. Review Future Topics Calendar

7. Adjournment

Public Works Committee **4. 1.**

Meeting Date: 01/17/2017
Submitted For: Grant Riemer, Engineering/Public Works
By: MaryJo Warner, Engineering/Public Works

Title:
Approve Public Works Committee meeting minutes

Purpose/Background:
To review and approve Public Works Committee meeting minutes of November 15, 2016.

Timeframe:
5 minutes.

Observations/Alternatives:
n/a

Funding Source:
n/a

Recommendation:

Action:
Motion to approve meeting minutes of November 15, 2016.

Attachments

Minutes

Form Review

Inbox	Reviewed By	Date
Bruce Westby	Bruce Westby	01/12/2017 09:16 AM
Grant Riemer	Grant Riemer	01/12/2017 09:48 AM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:32 PM
Form Started By: MaryJo Warner		Started On: 01/11/2017 01:25 PM
Final Approval Date: 01/12/2017		

PUBLIC WORKS COMMITTEE
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Public Works Committee conducted a regular meeting on Tuesday, November 15, 2016, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Chairperson Chris Riley
Councilmember Jill Johns
Councilmember Melody Shryock

Also Present: City Administrator Kurtis Ulrich
Public Works Superintendent Grant Riemer
City Engineer Bruce Westby
Civil Engineer IV Leonard Linton

1. CALL TO ORDER

Chairperson Riley called the regular meeting of the Public Works Committee to order at 5:53 p.m.

2. CITIZEN INPUT

There was none.

3. APPROVE AGENDA

Motion by Councilmember Johns, seconded by Councilmember Shryock, to approve the agenda, as presented.

Motion carried. Voting Yes: Chairperson Riley, Councilmembers Johns and Shryock. Voting No: None.

4. APPROVE MINUTES

4.01: Approve October 18, 2016, Meeting Minutes

Motion by Councilmember Johns, seconded by Councilmember Shryock, to approve the following minutes:

Regular Meeting Minutes dated October 18, 2016

Motion carried. Voting Yes: Chairperson Riley, Councilmembers Johns and Shryock. Voting No: None.

5. COMMITTEE BUSINESS

5.01: Consideration of Recommending City Council Approval of Draft Water Supply Plan

Civil Engineer Len Linton reviewed the plan with the Committee.

Chairperson Riley mentioned there are some blanks in the documents that he is wondering about.

Mr. Linton stated they will be filled in and updated before it goes before the City Council for review.

City Engineer Westby stated the City is blessed to have both surface and ground water for water supply options but right now they are still working through what the most appropriate water source(s) will be in the future.

Chairperson Riley stated from the facts and figures it appears the City has the capacity to do this plan over the next ten years.

City Engineer Westby stated that is correct.

Motion by Chairperson Riley, seconded by Councilmember Shryock, to recommend that the working document of the Draft Water Supply Plan be forwarded to the Environmental Policy Board and Planning Commission before it is reviewed by the City Council.

Motion carried. Voting Yes: Chairperson Riley, Councilmembers Shryock and Johns. Voting No: None.

6. COMMITTEE / STAFF INPUT

6.01: Update on Anoka County Highway Department Flashing Yellow Arrow Signal System Improvement Projects

City Engineer Westby provided an update on this plan and a copy of the lights Anoka County is proposing to update in 2017. He stated they want to know if the Public Works Committee thinks the intersection of Armstrong Boulevard/CSAH 83 and Sunwood Drive/147th Avenue should be considered for Flashing Yellow Arrow (FYA) updates. He noted they look at crash incidents and other data before deciding if it is necessary ultimately.

Councilmember Shryock stated she thinks putting in the flashing yellow lights is beneficial overall however stated they should be cautious when deciding to put them in near the COR area due to the possibility that they will build it out more and it may become too busy for that type of light in the intersection.

Chairperson Riley stated he thinks they should keep them all consistent with each other.

City Engineer Westby stated he thinks it is a good idea to apply them in the same way.

Councilmember Shryock asked if they can wait to see what direction they go with the Bunker/Armstrong intersection goes before deciding what to do at the COR intersections.

It was the consensus of the Public Works Committee to recommend this plan move forward coinciding with Anoka County and proceed with the FYA study for the Armstrong Boulevard/CSAH 83 and Sunwood Drive/147th Avenue intersection with the condition that the study cost will not exceed $2,400.

6.02: Staff Updates on Improvement Projects and Items of Interest

City Engineer Westby stated the 8-foot stripe is done along Andrie Street and 164th Lane and they are currently working on the no parking signs and plan to get them in before Friday.

City Engineer Westby stated Phase 3 of the Mississippi River Trail south of Highway 10 is moving along quickly.

City Engineer Westby stated he scheduled a meeting with Mn/DOT to see what they may be able to bring to the table for the Trunk Highway 10 corridor study.

Chairperson Riley asked if they need to wait for the MSA funds to be fully replenished before they can start looking at other projects on MSA routes.

City Engineer Westby stated right now the MSA funds are repaying some bonds and are targeted for other projects and the 5-year street maintenance program includes MSA roads in it that will need to be completed first before they can start to work on other roads.

6.03: Review Future Topics Calendar

Councilmember Shryock stated she had been asked by residents regarding tornado sirens. She was wondering when the last time they had communicated with residents about the sirens, when and where the sirens are, and what they mean when they sound.

Mr. Linton explained the sirens are tested every first Wednesday at 1:00 p.m.

Councilmember Shryock stated maybe it would be a good thing to have an informational meeting to speak about it.

City Administrator Ulrich stated they will put information on the City drills in the spring newsletter.

7. ADJOURNMENT

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

Motion carried.

The regular meeting of the Public Works Committee adjourned at 6:35 p.m.

Respectfully submitted,

_____

Grant Riemer
Public Works Superintendent

Drafted by Michaela Kujawa-Daniels
TimeSaver Off Site Secretarial, Inc.

Public Works Committee **5. 1.**

Meeting Date: 01/17/2017

By: Mark Riverblood, Engineering/Public Works

Title:

Finalize the Landscape Renovation for the Center Median in the Sweet Bay Ridge Development

Purpose/Background:

In July 2016 the Public Works Committee reviewed options for addressing the median(s) at Sweet Bay Ridge, and directed staff to develop a landscape plan pursuant to the discussion. The following is the background within that case:

"The median is located on 161st Avenue, east of Variolite Street. The median consists of two sections, one approximately 150' x 15' and the other 300' x 15'. The median was installed during the first phase of the Sweet Bay Ridge Development and was irrigated and maintained by the developer initially. During the recession, the developer requested that the irrigation meter be removed and with no home owners association to assume payment of the utility bill, the irrigation was shut off and has been off for several years now. Because it was a private irrigation system, we have no record of it being winterized or if it is even functional today. A quick inspection by staff uncovered several broken sprinkler heads and missing parts.

A group of residents from the development have taken on the maintenance of the median themselves, because they take pride in the appearance of their neighborhood. But, the out of pocket costs, time, and labor have become too much for them to continue this practice. Last fall a group of neighbors came to the City asking for help with the maintenance of the median. They were seeking permission to have rock installed on the median, at their cost, as a way to cut back on the maintenance and reduce costs associated with replacing the wood mulch every year. This idea was rejected by Staff because of the harsh environment it would create for the plant material and because of potential maintenance issues the rock could cause (if the rock found its way to the road surface).

It should be noted that whatever solution or direction is taken for this median, City Council approval will be needed before any work can take place. Also, there are other medians throughout the city that are in the same condition of disrepair with no clear cut maintenance agreements or ownership in place. Any decision made on this particular median will impact how we handle the future maintenance on those facilities as well."

At the October 18, 2016 Public Works Committee meeting, Staff recommended a landscape plan with an annual maintenance contract for the median renovation to the Committee for consideration. Following discussion, a motion was made and approved to move forward with the project—but also that staff investigate a shared funding arrangement between the City, volunteer contributions by willing area residents, and the Lennar Corporation (the single family home developer to the south).

As of this case preparation, there has been little interest/commitment expressed in the above referenced cost share opportunity.

Notification:

Staff has had regular contact with Sweetbay Ridge neighborhood (written and via phone) as this topic has progressed in 2016, until today. A neighborhood contact(s) has been notified that this case is being discussed once more at the the January 2017 Public Works Committee meeting.

Observations/Alternatives:

Based upon the direction received at the Committees' July meeting, staff developed a landscape renovation plan reflected in the attached quote from Great Northern Landscapes, Inc. Approval of this landscape plan and cost was ratified by City Council following the October recommendation from the Committee, together with the plan to invite others to cost-share in the project. As the request for funding assistance from other parties has not yielded results (as of this case preparation), Staff is recommending reaffirmation of the Committees' October recommendation to move forward with the landscape renovation and apply outside donations to the project when they are received.

Funding Source:

The landscape improvements, irrigation repairs ($15,150) and contracted maintenance costs (approximately $800 annually) will be accommodated within the General Fund budget proposed for 2017.

Note: Additional 'streetscape' renovations (to ***other*** existing locations in the city) *or* for new landscape treatments along city streets and entrances to the city, may need to be accommodated by increases to the General Fund budget or other funding sources for future years.

Further Note: Direction was provided to work with Lennar Homes on a potential cost share on capital costs to repair the median improvement. Lennar has expressed a willingness to discuss, but final decision will be made as part of Final Plat and Development Agreement Approval when final costs of Woodlands 4th Addition are known.

Action:

Motion to recommend for City Council approval, a landscape renovation plan for the Sweet Bay Ridge center medians as outlined in the quote from Great Northern Landscapes, Inc., and funded primarily by the City of Ramsey.

Attachments

Sweet Bay Ridge Median
Sweet Bay ridge Median 2
Sweet Bay Ridge Median 3
Sweet Bay Ridge Median 4
Sweet Bay Ridge Median 5
Great Northen quote
PW Minutes
Resident Letter

Form Review

Inbox	Reviewed By	Date
Mary Jo Warner	MaryJo Warner	01/11/2017 03:22 PM
Grant Riemer	Grant Riemer	01/12/2017 07:54 AM
Chris Anderson	Chris Anderson	01/12/2017 08:16 AM
Tim Gladhill	Tim Gladhill	01/12/2017 09:30 AM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:32 PM
Form Started By: Mark Riverblood		Started On: 01/10/2017 10:23 AM
Final Approval Date: 01/12/2017		

Great Northern Landscapes, Inc.

19720 Iguana St. NW, Elk River, MN 55330 763-274-2678 Fax 763-274-2679

August 10, 2016

City of Ramsey

Re: Sweet Bay Ridge Development center median restoration

Attn: Mark Riverblood,

Mark:

Please accept our bid for the Landscaping & irrigation portion of the above mentioned project. Our bid includes all materials, labor and applicable taxes.

Landscaping - $14,100

81 - Dwarf bush honeysuckle

60cy - Double shredded mulch

30cy - Mulch removal

2 - Loads hauled off site

240sy - Fiber mat (between curb and daylily's

1 - Preen application

10cy - Planting soil

Liatris as needed

Irrigation repair - $1,050 *install battery operated valves and rain sensor and repair heads

3 year maintenance - $600/year (3 trips)

Thank you,

Mitch Wettschreck

Mitch Wettschreck

5. COMMITTEE BUSINESS

5.01: Recommend Landscape Improvements for Center Median in the Sweet Bay Ridge Development

Parks & Assistant Public Works Superintendent Riverblood reviewed the proposed project and plan and recommendation by the City Council to proceed with the landscape renovation plan by Great Northern Landscapes, Inc. He stated it will include honeysuckle bushes, mulching, planting soil, irrigation, and yearly maintenance.

Clint Seul, 7496 161st Avenue, Sweet Bay Ridge resident, stated the neighbors were hoping to have some plants that were smaller in size so people can see children playing or crossing the street as they come around the corner. He stated the honeysuckle bushes are the residents concern because they grow so tall and large they can create a hazard on the median.

Public Works Superintendent Riemer asked if they could mulch back from the curb to the tree line and then put the bushes in line with that, noting that may resolve the issue Mr. Seul and residents are concerned about.

Parks & Assistant Public Works Superintendent Riverblood stated in the affirmative that this option can be pursued.

Chairperson Riley stated he was surprised to find the cost is $14,000 to renovate this project and that it will cost roughly $600.00 – $800.00 a year to maintain it.

Parks & Assistant Public Works Superintendent Riverblood stated he believes the cost is comparable to other companies and average in pricing. He noted there is a great deal of hand work that is involved in the project, irrigation repairs and new zone controller included.

Councilmember Kuzma asked why the City is the funding source is for this project and inquired about an HOA funding the cost.

Public Works Superintendent Riemer stated they don't have an HOA in place and the cost will be coming out of the operational budget. He stated this option is the most cost effective choice; the cost to lay black top on the entire median was roughly $32,000.00 and to remove the median was roughly $54,000

Parks & Assistant Public Works Superintendent Riverblood stated the beautification of the median makes the most sense to add the esthetics instead of removing the median. He noted removing the median added concerns that it would encourage increased driving speed of drivers in that area.

Mr. Seul stated the residents would like anything in that space that is low maintenance to reduce the burden on the neighborhood.

City Engineer Westby stated the special assessment policy does allow for these projects as long as the benefiting properties don't exceed the amount being put into the project.

Chairperson Riley asked if anyone has reached out to Lennar since they still have several properties in that development they are selling they may have an interest in helping fund this project as it would benefit them greatly due to the fact this median is at one of three entrances into the development.

Councilmember Kuźma stated maybe splitting the cost three ways between Lennar, the homeowners and the City would be a good idea.

Mr. Seul stated he believes the residents would be willing to pitch in.

Councilmember Johns stated maybe City Engineer Westby could draft a letter stating the intentions of the City and the proposed idea to cost share for Mr. Seul to give to the residents.

City Engineer Westby stated he could compose a letter.

Public Works Superintendent Riemer stated he will be the contact for the home owners at the City should they have questions or want to discuss anything further.

It was the consensus of the Committee to gather input from the homeowners and Lennar then finalize how to proceed.

Motion by Councilmember Kuzma, seconded by Councilmember Johns, to approve the proposed plan provided by Great Northern Landscapes, Inc., further investigate funding sources for this plan, and return it to the Public Works Committee upon conclusion at the November meeting.

Motion carried. Voting Yes: Chairperson Riley, Councilmembers Kuzma and Johns. Voting No: None. Absent: Councilmember Shryock.

5.02: Consider Work Order for Sunwood Drive Roundabout Streetscape Design

Public Works Superintendent Riemer provided the proposed work order from WSB & Associates, Inc. He stated it is recommended to engage the work order with WSB & Associates, Inc.

Councilmember Kuzma asked how far WSB is willing to go with the cost.

City Engineer Westby stated they are going to cover the $11,989 plus whatever else is needed.

Chairperson Riley stated he thinks $12,000 is too much to invest into that area before they know what else will be built in that area as well.

Councilmembers Kuzma and Johns stated they expect what gets built there to be expensive so they feel it is a fine investment.

City of RAMSEY

7550 Sunwood Drive NW • Ramsey, MN 55303
City Hall: 763.427.1410 • Fax: 763.427.5543
www.cityoframsey.com

December 29, 2016

Dear Sweet Bay Ridge Resident:

This mailing is to update you on the City's plan for the maintenance of the center median on 161st Avenue in the Sweet Bay Ridge development.

The discussion began in the fall of 2015 when a group of Sweet Bay Ridge residents came to the City with a plan to improve the center median. At the time, the group had received voluntary donations from neighborhood residents to purchase landscaping rock and requested that they be allowed to place the rock in the median island to replace the deteriorating mulch. Weeds were growing in the median island and it was believed the landscape rock would reduce weed growth.

The City Public Works department rejected that plan based on a couple of factors. Staff felt there was potential for the rock to migrate from the berm onto the road, and the heat radiating from the rocks would create a harsh environment for the plant material in the median.

At the October 18th Public Works Committee meeting, City staff presented a quote from Great Northern Landscaping, for the repair of the irrigation system and the restoration of the berm, including new plant material. The committee recommended that the cost be divided three-ways, that is, between the City, voluntary donations from the neighborhood, and possibly a donation from Lennar homes. The Community Development department has been in contact with Lennar homes and is waiting on a final answer on their commitment.

It is important to note that, contrary to some reports, non-voluntarily assessment of neighborhood homeowners for the project is not an option.

This topic will be back in front of the Public Works Committee for discussion at their next meeting scheduled for 5:30 pm, January 17th, 2017 in the Lake Itasca room, Ramsey Municipal Center, 7550 Sunwood Drive NW. If you need any clarification on this project, please contact Grant Riemer, Public Works Superintendent at 763-433-9863 or email at Griemer@cityoframsey.com

Sincerely,

Grant Riemer
Public Works Superintendent

Public Works Committee **5. 2.**

Meeting Date: 01/17/2017

Submitted For: Grant Riemer, Engineering/Public Works

By: Grant Riemer, Engineering/Public Works

Title:

Request for Rate Change at Electrical Vehicle Charging Station

Purpose/Background:

In 2014 the City of Ramsey received a grant for the Twin Cities Clean Cities Coalition in conjunction with the American Lung Association and the National Park Service to install an electric vehicle charging station along the Mississippi River to encourage electric vehicle use in the corridor. The grant was for $10,333.00 and covered the purchase, installation and a 3 year maintenance agreement for the charging station, which is located on the first floor of the municipal parking ramp. The Public Works Committee recommended and the council approved charging $1.00/ hour to charge your vehicle. The unit was installed in January of 2015 and to date has generated $19.87 in revenue. Staff has received a request from a Ramsey resident, who is also a frequent user of the NorthStar commuter train, asking if we could change how we charge to use the EV charging station. Currently we charge $1.00 for every hour your vehicle is plugged into the station. The resident stated that she would use the EV station more, if the station was configured to stop charging the $1.00/hour once the vehicle was fully charged. We use ChargePoint for our EV station provider and there is an option that would let us accomplish what the resident is requesting.

Timeframe:

10-15 Minutes

Observations/Alternatives:

One way to look at our current policy of per hour pricing would be to consider our station as a parking meter. The driver pays the per-hour fee for as long as the vehicle is plugged in whether or not the vehicle is actually drawing power. So, if a driver plugs in for 8 hours, and the car was fully charged after 5 hours, the driver still pays for 8 hours. That's how long the parking spot was occupied, and that's how the fee was computed. Another alternative would be to lower the per hour pricing, but retain the per hour fee for when the vehicle is plugged into the station. The third alternative would be to change the pricing model to retain the $1.00 per hour flat rate, but have the station shut off when the vehicle has fully charged. So to summarize the pricing alternatives would be:
Alternative #1 retain our current policy of charging $1.00/hour for every hour the vehicle is plugged into the station.
Alternative #2 reduce the per /hour pricing, but retain the policy of charging for every hour that a vehicle is plugged into the station.
Alternative #3 Retain the $1.00/hour charging rate, but change the software to shut off the charging station when the vehicle reaches full charge

Funding Source:

N/A

Recommendation:

Staff's recommendation would be alternative #2 - reduce the per /hour pricing, but retain the policy of charging for every hour that a vehicle is plugged into the station.

Action:

Motion to accept staffs recommendation of alternative # 2 or or reject the staff recommendation and approve an alternative motion based on committee discussion

Attachments

No file(s) attached.

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:29 PM
Form Started By: Grant Riemer		Started On: 01/03/2017 12:02 PM
Final Approval Date: 01/12/2017		

Public Works Committee **5. 3.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Consider Recommendation to City Council to Accept Draft Feasibility Report for Sunwood Drive Reconstruction, Improvement Project #17-00

Purpose/Background:

The purpose of this case is to consider providing a recommendation to the City Council for accepting the DRAFT Feasibility Report for Sunwood Drive Reconstruction, City Improvement Project #17-00.

Timeframe:

Staff estimates 20 minutes will be required to present this case and respond to questions.

Observations/Alternatives:

Attached is a DRAFT copy of the Feasibility Report. Please note this is a working document still under development.

While the majority of information in the attached draft report is complete, the preliminary assessments are currently incomplete. Before publishing preliminary assessments, Staff wishes to discuss preliminary assessments for this project with the Public Works Committee since the City has not yet applied the adopted Special Assessments Policy to projects assessing commercial or industrial properties. Staff would therefore like to discuss the optional assessment methods with the Committee before finalizing preliminary assessments within the draft Feasibility Report, which is proposed to be presented to the City Council on January 24th.

Once the Feasibility Report is complete, meetings with individual property owners will be conducted to discuss the proposed project, their preliminary assessment, and to gather feedback for future consideration by Council.

Alternatives:

Alternative #1 – Motion recommending City Council acceptance of the recommendations outlined in the draft Feasibility Report for Sunwood Drive Reconstruction, City Improvement Project #17-00, with the following modifications; _____.

Alternative #2 – Motion denying City Council recommendation at this time.

Funding Source:

Staff proposes to fund the proposed improvements using a combination of special assessments, street reconstruction bond funds, and stormwater utility funds. Staff proposes to assess 9 identified benefiting property owners for 25% of the eligible project costs totaling $151,750.

Recommendation:

Staff recommends alternative #1.

Action:

Motion to recommend approval of Alternative #1.

Attachments

DRAFT Feas Report IP1700

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	01/12/2017 03:06 PM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:29 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 09:07 AM
Final Approval Date: 01/12/2017		

DRAFT FEASIBILITY REPORT

SUNWOOD DRIVE RECONSTRUCTION

CITY IMPROVEMENT PROJECT NO. 17-00

January 12, 2017

Prepared By:

City of Ramsey
Engineering Department
7550 Sunwood Drive
Ramsey, MN 55303
763-433-9820
763-433-9848 (Fax)

January 12, 2017

Honorable Mayor and City Council
City of Ramsey
7550 Sunwood Drive
Ramsey, MN 55303

Re: Feasibility Report - City of Ramsey Improvement Project #17-00
Sunwood Drive Reconstruction

Dear Mayor and City Council Members:

Transmitted herewith is a Feasibility Report for the proposed Sunwood Drive Reconstruction project between Ramsey Boulevard/CSAH 56 and Bunker Lake Boulevard/CSAH 116 which examines the feasibility of reconstructing the bituminous street section and completing other appurtenant improvements.

This Feasibility Report examines the scope of the proposed improvements, explores estimated costs and available funding sources, defines a preliminary project schedule, and determines the necessity, feasibility and general cost-effectiveness of the proposed improvements, including any alternate designs, as well as whether the improvements would best be completed separately or in conjunction with another project.

I would be happy to discuss this report with you at your convenience. Please feel free to contact me at 763-433-9825 or bwestby@cityoframsey.com with any questions.

Sincerely,
City of Ramsey

Bruce Westby, PE
City Engineer

Enclosure

C: Kurt Ulrich, City Administrator
Diana Lund, Finance Director
Grant Reimer, Public Works Superintendent
Leonard Linton, Civil Engineer IV

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.

Bruce Westby, PE

Date: January 18, 2017 License No. 40116

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Leonard Linton, PE

Date: January 18, 2017 License No. 21112

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

City Improvement Project 17-00 proposes to reconstruct Sunwood Drive between Ramsey Boulevard/CSAH 56 and Bunker Lake Boulevard /CSAH 116 which totals approximately 3,050 linear feet (0.58 miles) in length. A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A***.

This segment of Sunwood Drive was constructed in 1996 using bituminous pavement between B618 concrete curb and gutter. The street was constructed to a width of 40 feet from face-of-curb to face-of-curb, which is centered within an 80 foot wide right-of-way. A storm sewer system also exists under this segment of Sunwood Drive including numerous catch basins which drain runoff from the street to adjacent low-lying areas using concrete storm sewer pipes.

City staff evaluates and rates the condition of pavement sections on all city streets on an annual basis using the Pavement and Surface Evaluation Rating (PASER) system. In the fall of 2016, the pavement section of the above-referenced street segment were rated with PASER ratings of 3 and 4, depending on location, which indicates this street is past the point of applying mill and overlay improvements. The current condition of this street requires City staff to patch the street at least once per year, particularly before winter so the street can be plowed without tearing up the pavement in the process. Pictures of the street are located in ***Appendix A***.

Proposed improvements include removing and replacing damaged sections of concrete curb and gutter and reconstructing the existing bituminous pavement section using a process known as Stabilized Full Depth Reclamation, or SFDR. This process involves milling the top 3 inches of existing bituminous pavement which is then hauled off site, reclaiming (grinding and mixing) the remaining bituminous pavement along with approximately 2 inches of existing aggregate base, injecting an asphalt emulsion stabilizer into the reclaimed material, mixing and spreading the stabilized reclaimed material on top of the reshaped and compacted subgrade, then placing 4 inches of new bituminous pavement on top. This results in a 10-ton pavement design that meets current State Aid standards.

The existing storm sewer system is in good condition and meets all current State Aid standards and is therefore not proposed to be improved. An off-street bike trail exists along the north side Sunwood Drive but is not proposed to be improved as part of this project.

Pavement corings, soil borings, and associated pavement reconstruction design recommendations were just recently completed so staff has not yet had an opportunity to discuss the proposed improvements, or the use of special assessments to help pay for a portion of the improvements, with owners of abutting properties or local business owners. However, Staff recently mailed letters to the owners of abutting properties and area businesses for the purpose of explaining the proposed improvements and requesting meetings with impacted and interested parties to discuss the proposed improvements and gather public input.

The engineer's opinion of probable costs for completing the proposed improvements on Sunwood Drive as outlined in this report is $607,000. Estimated costs include 23% indirect costs for administrative, engineering, finance and legal costs. A summary of the engineer's opinion of probable costs is included in ***Appendix B***.

A total of 9 parcels have been identified as receiving special benefit from the improvements. These parcels are identified in the preliminary assessment map and roll in ***Appendix C***.

Staff recommends the use of special assessments to pay for 25% of all eligible improvement costs, which will then be applied across 9 assessable properties using the "area" method of assessment. All costs for this project are eligible for special assessments since all construction costs are based strictly on reconstructing the street at its existing width using a comparable pavement section design with no subgrade corrections or public utility improvements. The existing street width and pavement section are sufficient to accommodate current State Aid design standards.

Staff recommends ordering a special benefit consultation report for this project to verify that the proposed assessment amount will not exceed the amount of benefit to any of the properties. If the report concludes that the benefit to any of the properties is less than the proposed preliminary assessment rate, Staff will propose to lower the assessment rate accordingly at the Assessment Hearing scheduled for October 10th, 2017. However, if the special benefit consultation report verifies that the assessment rates as proposed are justified, Staff will propose to adopt the final assessment roll using the rate as preliminarily proposed.

This improvement project, which is listed in the City's current Capital Improvement Program, is proposed to be funded using a combination of special assessments to benefiting properties, street reconstruction bond proceeds, and stormwater utility funds.

This project can best be constructed as a stand-alone project, is necessary, feasible, and cost-effective from an engineering standpoint, and can be constructed as proposed herein.

2. INTRODUCTION

2.1 Authorization

The preparation of this report was authorized by the Ramsey City Council on August 9, 2016. This project has been designated as City Improvement Project No. 17-00.

2.2 Program Overview

In support of the City's long-term Street Maintenance Program, the entire existing bituminous pavement section will be reconstructed using a stabilized full-depth reclamation (SFDR) process. All damaged concrete curb and gutter sections will also be removed and replaced, plus other appurtenant work will be completed as outlined in this report.

The City's pavement evaluation process involves a visual evaluation of each street's pavement surface based on the type, extent and severity of each pavement distress observed. Numerous types of pavement distresses may exist within a pavement section including, but not limited to, alligator cracking, block cracking, longitudinal cracking, transverse cracking, rutting, raveling, shoving, potholes and patches. This field data is then used to rate the pavement condition.

The City uses the Pavement and Surface Evaluation Rating (PASER) system to rate pavement condition. A PASER rating is a numerical index between 1 and 10 indicating the condition of a pavement based on the various pavement distresses recorded during visual observations. A PASER rating of 10 represents brand new pavement, while a PASER rating of 1 represents a pavement section that has fallen into complete disrepair requiring full reconstruction.

In the fall of 2016, City staff evaluated and rated the condition of the pavement along this segment of Sunwood Drive. A PASER rating of 4 was determined for the segment of Sunwood Drive between Bunker Lake Boulevard and Ramsey Boulevard.

2.3 Scope

City of Ramsey Improvement Project 17-00 proposes to reconstruct the existing bituminous pavement, to remove and replace damaged concrete curb and gutter sections, and to complete other appurtenant work on Sunwood Drive between Ramsey Boulevard/CSAH 56 and Bunker Lake Boulevard /CSAH 116 which totals approximately 3,050 linear feet (0.58 miles) in length.

The existing bituminous pavement section is proposed to be reconstructed using the SFDR process. This involves milling the top 3 inches of existing bituminous pavement, reclaiming the remaining bituminous pavement along with approximately 2 inches of existing aggregate base, injecting an asphalt emulsion stabilizer into the reclaimed material, mixing and spreading the stabilized reclaimed material on top of the reshaped and compacted subgrade, then placing 4 inches of new bituminous pavement on top. This results in a 10-ton pavement design that meets current State Aid standards.

A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A***.

3. EXISTING CONDITIONS

3.1 Existing Pavement and Soil Conditions

The segment of Sunwood Drive between Ramsey Boulevard/CSAH 56 and Bunker Lake Boulevard/CR 116 was constructed in 1996 using bituminous pavement and B618 concrete curb and gutter. The street has a consistent width of 40 feet from face-of-curb to face-of-curb, and is centered within an 80 foot right-of-way. Striped parking lanes exist along both sides of the street. The existing posted speed is 35 mph along this entire segment of Sunwood Drive.

In 2002 the pavement was cracksealed and sealcoated, and spot spray patching has been applied since on an as-needed basis. In 2016 Staff observed a Pavement and Surface Evaluation Rating (PASER) of 3 to 4, depending on location.

In 2015, the City recorded a traffic volume of 3,500 average annual daily traffic (AADT). While truck counts are not available, Staff believes it is reasonable to assume between 5 and 10 percent of vehicles using this street segment can be classified as truck traffic, and that the percentage of trucks using this corridor could increase slightly over time due to current business expansion projects and since several undeveloped but developable parcels exist along the corridor.

Northern Technologies, Inc. (NTI) was employed to complete a Geotechnical Exploration and Engineering Review for this project, which included eleven (11) soil borings that were spaced at approximately 200 feet along Sunwood Drive. The locations of the borings are shown in the Boring Location Diagram in Appendix C of NTI's report, attached in ***Appendix D.***

The soil borings provide information on existing bituminous pavement and aggregate base course thicknesses, subsurface soil conditions, existing ground water elevations, and potential issues that may be encountered during construction. Recommendations are also provided for excavations, site preparation, engineered fill and compaction, depths of unsuitable soils to be removed, ground water management, and pavement design parameters. All borings terminated at a nominal depth of 11 feet below the existing ground surface.

Groundwater was observed in all soil borings at depths ranging between 7 and 9.5 feet below the existing ground surface. Based on the work being proposed and the recorded water level depths, groundwater is not anticipated to be a significant issue for work completed with this proposed project.

The soil borings generally indicate that existing bituminous pavement thicknesses range between 4.3 to 8.3 inches. Apparent aggregate base was not observed at any of the boring locations. Previously placed fill soils, generally consisting of poorly graded sand with silt (SP-SM), are present at depths ranging from 2.0 to 7.0 feet below the top of the pavement. Native alluvial soils consisting of poorly graded sand (SP), silty sand (SM), and poorly graded sand with silt (SP-SM) generally extend to the bottom of the borings.

3.2 Watermain

Watermain was installed in 1996 under the pavement along the entire segment of Sunwood Drive. Staff believes the existing watermain is in good condition, and that no repairs will be

required prior to reconstructing the pavement. However, if the City Council orders plans and specifications for the proposed improvements, staff proposes to hire a leak detection expert to ensure there are no detectable leaks. If leaks are detected, repairs would be made under separate contract before work commences on this project.

3.3 Sanitary Sewer

Sanitary sewer was installed in 1996 under the pavement along the entire segment of Sunwood Drive. Staff believes the existing sanitary sewer is in good condition, and that no repairs will be required prior to reconstructing the pavement. However, if the City Council orders plans and specifications for the proposed improvements, staff proposes to hire a firm to televise the sewer to ensure the pipes are not deformed, cracked, or broken, and that all joints are sealed. If any issues are detected, repairs would be made under separate contract before work commences on this project.

3.4 Storm Sewer/Drainage

Storm sewer exists along the entire segment of Sunwood Drive. Based on design calculations completed by City staff, no modifications are required to the existing storm sewer system to meet current State Aid standards. Stormwater runoff is currently conveyed within the concrete curb and gutter along the outside edges of Sunwood Drive, where it is then collected in concrete catch basins and routed through concrete storm sewer pipes to existing wetlands, stormwater drainage ditches, and ponding facilities.

3.5 Streets

3.5.1 Existing Typical Sections

Sunwood Drive is centered within 80 feet of City-owned right-of-way. The street section is 40 feet wide from face-of-curb to face-of-curb. All curb along these streets are B618 concrete curb and gutter.

Parking is currently allowed on both sides of the streets and is delineated with striping.

3.5.2 Maintenance History

This segment of Sunwood Drive was originally constructed in 1996 and received a crackseal and sealcoat treatment in 2002. Spot patching has also been completed since then.

3.6 Land Use

The properties abutting this segment of Sunwood Drive are all zoned E1, with the exception of Cottonwood Park.

4. PROPOSED IMPROVEMENTS

4.1 Street and Stormwater Improvements

The segment of Sunwood Drive between Ramsey Boulevard/CSAH 56 and Bunker Lake Boulevard/CR 116 is part of the City's Municipal State Aid System (MSAS). The proposed improvements must therefore be designed and constructed in accordance with current Minnesota Department of Transportation (MnDOT) State Aid standards which are generally based on the street's functional classification, projected traffic volume, design speed, lane designations and widths, and proposed pedestrian facilities.

Based on the proposed design, Sunwood Drive must be reconstructed in accordance with State Aid Rule 8820.9936 or 8820.9946. This will depend on the percentage of damaged curb and gutter that needs to be removed and replaced, which will be determined during final design.

The scope of the proposed surface improvements is shown in ***Figure 1*** in ***Appendix A***.

4.1.1 Street Improvements

Sunwood Drive is proposed to be reconstructed with bituminous pavement matching the existing width while still allowing for on-street parking along both sides of Sunwood Drive. This design will meet current State Aid standards. All damaged B618 concrete curb and gutter is proposed to be removed and replaced in kind. A typical section for the proposed pavement reconstruction improvements is shown in ***Figure 2*** in ***Appendix A.***

The proposed reconstructed pavement design must accommodate a 10-ton design in accordance with State Aid design standards. City staff is proposing a pavement section design of 2 inches bituminous wear course, 2 inches bituminous base course, and 5 inches of base composed of stabilized full depth reclamation. This pavement section would be constructed over the existing subgrade after it is reshaped and compacted.

The proposed pavement design should result in a minimum pavement life of 30 years, assuming that proactive, regular pavement maintenance treatments are performed during the life of the pavement. While staff would typically target a 60-year design life for reconstructed streets, this project is not proposing to remove and replace all curb and gutter due to the good condition of the existing 20 year old curb and gutter. Therefore, it may make sense to replace this pavement section at the time the existing curb and gutter is replaced, which will likely be 30 or more years in the future.

4.1.2 Stormsewer Improvements

The existing storm sewer system is in good condition and meets all current State Aid standards and is therefore not proposed to be improved. The only proposed storm sewer improvements include repairing catch basin castings as needed. No stormwater quality treatment improvements are required for this project since the street is proposed to be reconstructed at its current width.

4.1.3 Geotechnical Considerations

Northern Technologies, Inc. (NTI) was employed to complete a Geotechnical Exploration and Engineering Review for this project, which included eleven (11) soil borings that were spaced at approximately 200 feet along Sunwood Drive. The locations of the borings are shown in the Boring Location Diagram in Appendix C of NTI's report, attached in ***Appendix D.***

4.1.4 Other Considerations

Driveways:
Existing driveways will need to be reconstructed to varying degrees with this project. The limits of construction will vary with each driveway based on the elevation of the street abutting the driveway and the driveway pavement type. During design, staff will evaluate the construction limits for each driveway and will incorporate this into the plans, but as with all street reconstruction projects the exact limits of construction will be determined in the field during construction. Right-of-entry forms will be obtained from private property owners if work is required outside City right-of-ways and easements.

Irrigation Systems:
All developed properties along the project corridor have private irrigation systems. However, impacts to these systems would only occur if the existing curb and gutter is being removed and replaced. In the past, the City has typically repaired private irrigation systems that are damaged as part of a street reconstruction project. However, staff will be requesting Council permission to change this practice on all future projects by instead notifying property owners of pending construction at least 15 business days in advance to allow them time to move their irrigation systems out of harm's way before work begins.

Parking Restrictions:
Parking is currently provided along both sides of the streets and is not currently restricted except for overnight parking per City code. During this project, parking will be restricted during allowable working hours.

4.2 Stormwater Treatment

No stormwater retention and/or treatment improvements will be required as a result of this project.

4.3 Water Main Improvements

No watermain improvements are proposed with this project.

4.4 Sanitary Sewer Improvements

No sanitary sewer improvements are proposed with this project.

4.5 Construction Methods

The existing bituminous pavement section will be reconstructed using the SFDR process outlined within this report. See Pavement Evaluations and Recommendations in ***Appendix D*** for additional detail.

4.6 Private Utilities

Staff has not yet met with the telephone, gas, and cable utilities regarding this project. During preparation of plans and specifications, staff will meet with the private utility companies to discuss the proposed improvements as noted in the project schedule within this report. The alignment and footprint of the streets will be considered to minimize impacts to private utilities. No impacts to power poles or street lights are anticipated with this project.

Should any utility companies indicate they wish to upgrade, replace and/or otherwise modify their services during this project, any such upgrades, replacements and/or modifications will be at the sole discretion and cost of the utilities.

4.7 Permits

Permits that are anticipated to be required as part of the proposed improvements include:

- MPCA General Stormwater Permit (NPDES)..... Grading and Storm Water

A stormwater permit from the Lower Rum River Watershed Management Organization will not be required with this project.

4.8 Right-of-Ways/Easements

It is anticipated that all improvements will occur within existing City right-of-ways and/or easements, with the possible exception of tying into private driveways and yards. It is therefore not anticipated that the City will need to acquire additional permanent right-of-way or easements for this project. As such, costs for right-of-way or easement acquisitions are not included in the probable project costs.

If rights of entries will be required from any property owners prior to construction, City staff will obtain the right of entries.

5. FINANCING

5.1 Opinion of Cost

A detailed opinion of probable costs for the proposed improvements can be found in ***Appendix B*** of this report. The opinion of probable costs incorporates anticipated 2017 construction costs for the proposed improvements plus 23% indirect costs for administrative, engineering, financing and legal costs. No construction contingency costs are included in the estimated costs.

City staff prepared the Feasibility Report in-house as part of staff's normal duties.

NTI prepared the Geotechnical Exploration and Engineering Review, included in ***Appendix D***, at a cost of $4,400.

WSB and Associates, Inc. prepared the Pavement Evaluations and Recommendations included in ***Appendix D***, at the not-to-exceed cost of $2,687.50.

5.2 Funding

5.2.1 Assessments

The City's adopted Special Assessments Policy allows special assessments in an amount not to exceed 25% of eligible street reconstruction project costs to be levied against all benefiting properties. Eligible project costs include all costs required to reconstruct the street at its current width of 40 feet. Benefiting properties include any properties that either currently have, or have the ability to create, one or more direct accesses onto the segment of Sunwood Drive being reconstructed. A total of 9 benefitting properties have been identified for this project.

The engineer's opinion of probable costs for eligible assessment costs totals $607,000. Assessable commercial/industrial parcels are preliminarily proposed to be assessed a total of $151,750.

Staff is proposing to use the "area" method of assessment as identified in the City of Ramsey's Special Assessments Policy. Assessments for this project are proposed to be assessed over a term of fifteen years with interest at two percent above the U.S. Treasury Rate.

Special assessments have not been utilized widely in recent years for street reconstruction projects in Ramsey, and special assessments for commercial and industrial properties have never been applied using the new Special Assessments Policy. In addition, State Statute and the City Charter do not allow for assessments to exceed the benefit to the property. Therefore, Staff wants to ensure that all assessments applied with this project will not exceed the benefit to assessed properties and will therefore request Council authorization to order a benefit appraisal consultation report for this project in accordance with the City's Special Assessments Policy at the time a construction contract is awarded.

The Preliminary Assessment Map and Roll are included in ***Appendix C.***

5.2.2 City Contribution

The City contribution to the project will include all funding in excess of the amount collected through special assessments to benefiting properties. No funds have been budgeted for this project.

The City's share of eligible project costs related to surface (street) improvements is proposed to come from the previously encumbered 5-year street reconstruction bonds. Stormwater Utility Funds would be utilized for all storm sewer improvements.

Special assessments would be used to pay back a portion of these costs based on the term of the special assessments as adopted by Council at the end of the project.

Table 1 illustrates the proposed project funding based on the proposed design outlined within this report. This funding program assumes construction will occur in 2017.

TABLE 1
Proposed Project Funding

	ASSESSMENTS	CITY FUNDS	TOTAL
Estimated Costs	**$151,750**	**$455,250**	**$607,000**

Total Project Cost		**$607,000**
Less Special Assessments	-	$151,750
Subtotal	**=**	**$455,250**
Less City Bonding Funds	-	$447,950
Subtotal	**=**	**$7,300**
Less Stormwater Utility Funds	-	$7,300
TOTAL Remaining Cost	**=**	**$0**

6. PROJECT SCHEDULE

The proposed project schedule is as follows:

Council Orders Feasibility Report ..... August 9, 2016

Council Accepts Feasibility Report/Orders Public Hearing ..... January 24, 2017

Staff Publishes Notice of Public Hearing .....January 27 & February 3, 2017

Public Input Meetings .....February 1 - 10, 2017

Council Conducts Public Hearing/Authorizes Plans and Specifications ..... February 14, 2017

Staff Conducts Private Utility Coordination Meeting .....February/March, 2017

Council Approves Plans and Specifications/Authorizes Ad for Bids..... April 11, 2017

Staff Advertises for Bids..... April 14 & 21, 2017

Staff Receives Bids ..... May 15, 2017

Council Awards Contract ..... May 23, 2017

Contractor Begins Construction ..... June 2017

Contractor Completes Construction ..... September 8, 2017

Council Orders Assessment Roll/Hearing ..... September 12, 2017

Council Conducts Assessment Hearing.....October 10, 2017

7. CONCLUSIONS AND RECOMMENDATIONS

City of Ramsey Improvement Project 17-00 proposes to reconstruct the bituminous pavement section, to remove and replace all damaged concrete curb and gutter, and to complete miscellaneous appurtenant work on Sunwood Drive between Ramsey Boulevard/CSAH 56 and Bunker Lake Boulevard /CSAH 116. This street segment measures approximately 3,050 linear feet (0.58 miles).

It is the recommendation of City staff that City Project No. 17-00 is feasible, necessary, and cost-effective from an engineering standpoint.

The following staff recommendations related to the proposed project are presented for Council consideration and concurrence:

1. Staff recommends reconstructing this street segment in 2017 as outlined in this report.
2. Staff recommends reconstructing the off-road bike trail along the north side of Sunwood Drive at a later date pending adoption of the City's Trail Maintenance Policy / Program.
3. Staff recommends constructing the 10-ton pavement section for Sunwood Drive as proposed herein to accommodate State Aid design standards understanding that 100% of the costs will be eligible for assessment per the City's Special Assessments Policy.
4. Staff recommends ordering an assessment appraisal consultation to ensure that special assessments do not exceed the benefit received as a result of the improvements in accordance with the City's Special Assessments Policy.
5. Staff recommends meeting with the owner of each assessable property, as well as all business owners, in early February of 2017 to inform them on the proposed improvements and to gather public input prior to conducting the public hearing and requesting Council authorization to prepare plans and specifications on February 14th.

The City Council is asked to act on the following items related to the proposed project:

1. Accept the preliminary commercial/industrial special assessment rates proposed herein.
2. Adopt Resolution #17-01-0XX accepting this Feasibility Report and ordering Plans and Specifications based on the design proposed herein.

APPENDIX A

Figure 1 – Project Scope
Figure 2 – Typical Section
Project Site Pictures

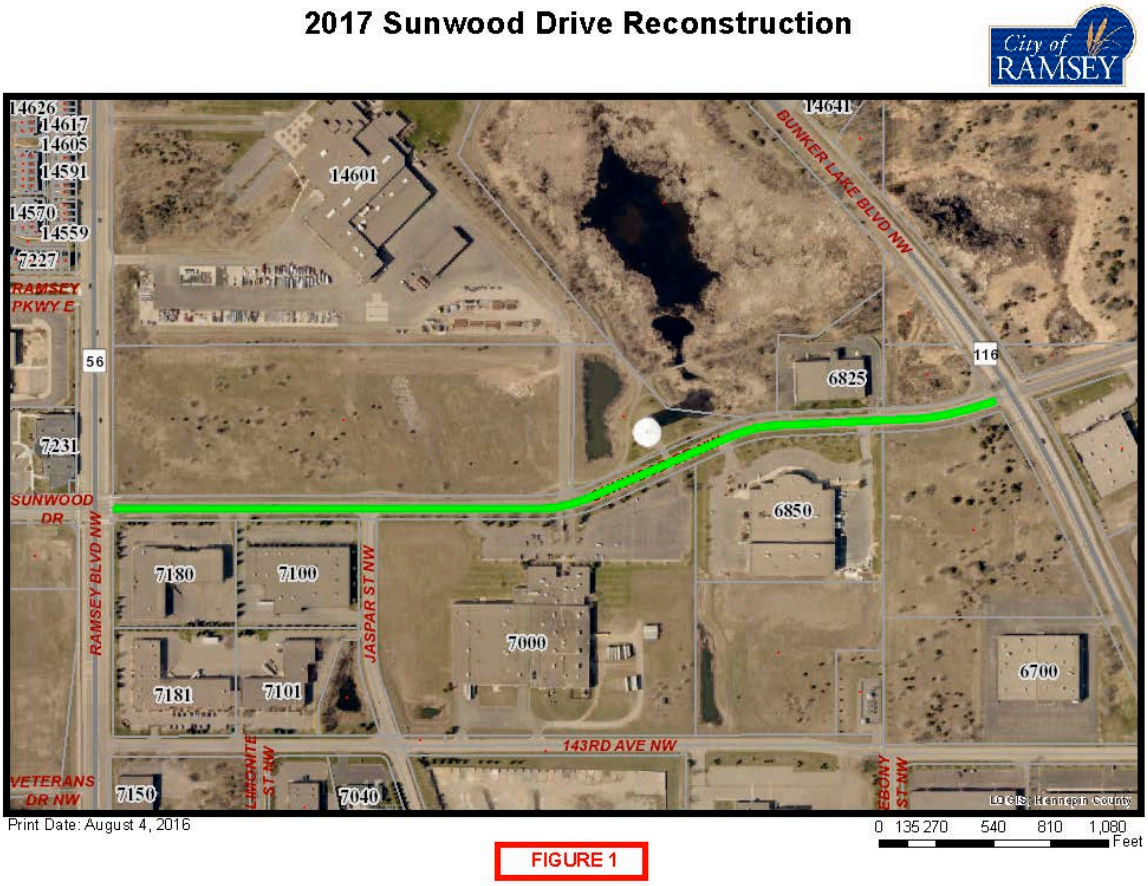


FIGURE 1
PROJECT SCOPE

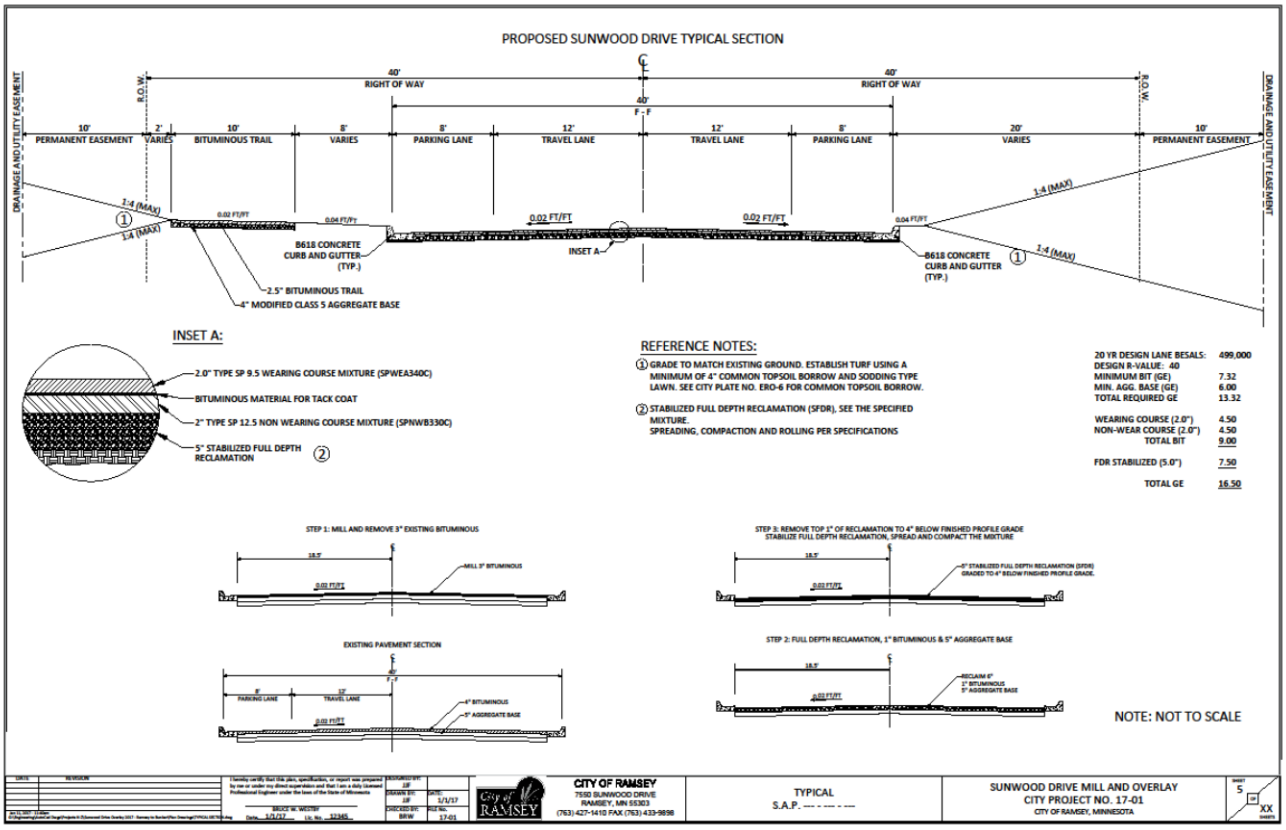


FIGURE 2
TYPICAL SECTION

PROJECT SITE PICTURES

APPENDIX B

Opinion of Probable Costs

17-00 SUNWOOD DRIVE RECONSTRUCTION: RAMSEY BLVD. to BUNKER LAKE BLVD.

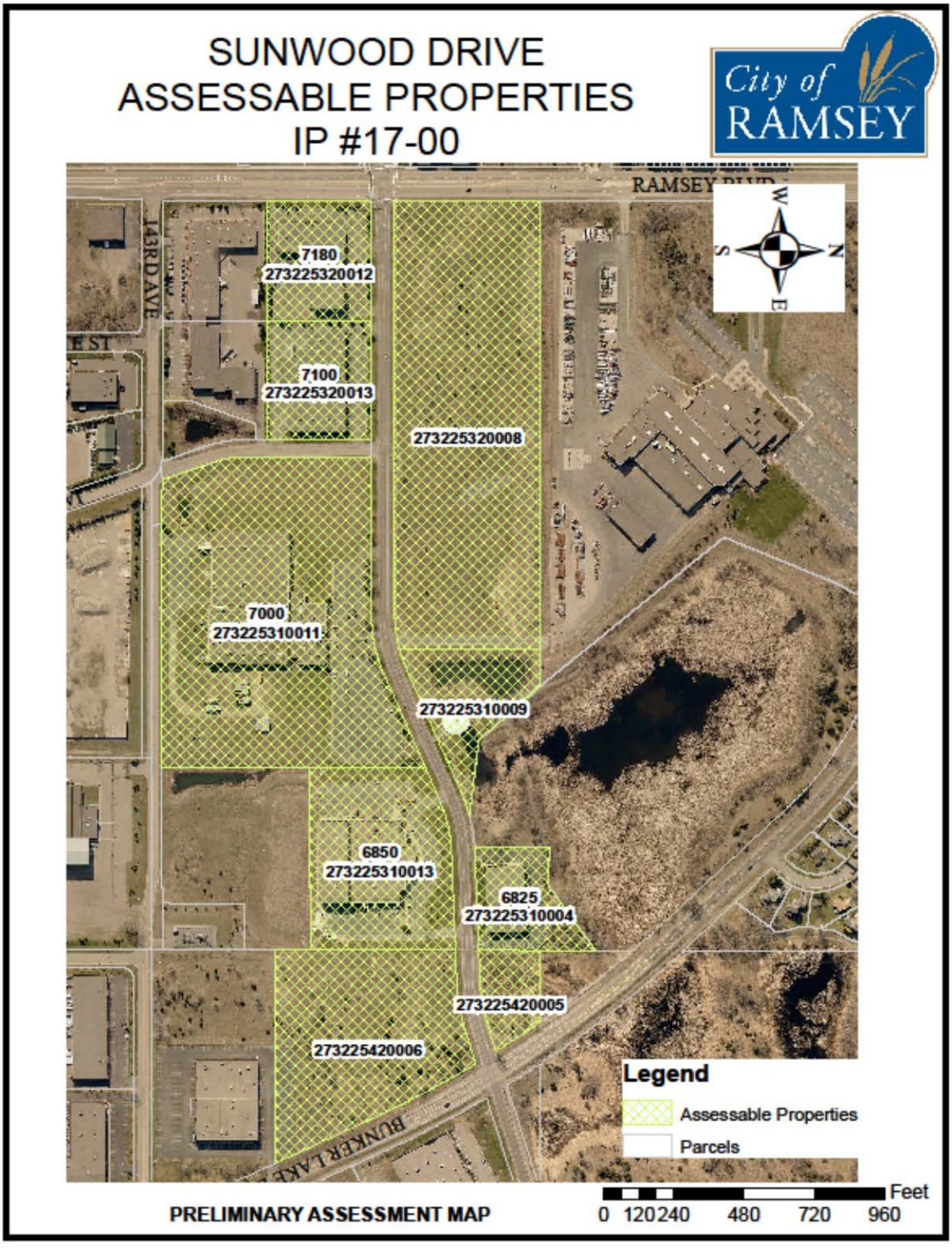
ENGINEER ESTIMATE

1/11/2017

ITEM No.	MNDOT No.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	COST ESTENSION
1	2021.501	MOBILIZATION (10%)	LS	1	$ 44,841.03	$ 45,000.00
2	2104.501	REMOVE CONCRETE CURB AND GUTTER	LF	1100	$ 6.00	$ 6,600.00
3	2104.505	REMOVE BITUMINOUS PAVEMENT	SY	317	$ 4.50	$ 1,426.50
4	2104.505	REMOVE CONCRET VALLEY GUTTER	SY	179	$ 20.00	$ 3,580.00
5	2104.511	SAWING CONCRETE PAVEMENT - FULL DEPTH	LF	200	$ 8.50	$ 1,700.00
6	2104.513	SAWING BITUMINOUS PAVEMENT - FULL DEPTH	LF	564	$ 5.50	$ 3,102.00
7	2130.501	WATER	MGAL	50	$ 32.50	$ 1,625.00
8	2232.501	MILL BITUMINOUS PAVEMENT (1.5" DEPTH X 2' WIDTH)	SY	62	$ 15.00	$ 930.00
9	2232.501	MILL BITUMINOUS PAVEMENT (3.0" DEPTH)	SY	12707	$ 1.25	$ 15,883.75
10	2215.501	STABILIZED FULL DEPTH RECLAMATION (6" DEPTH)	SY	12707	$ 3.50	$ 44,474.50
11	2331.607	HAUL BIT PAVEMENT RECLAMATION (LV)	CY	459	$ 10.00	$ 4,590.00
12	2331.609	BITUMINOUS MATERIAL FOR MIXTURE	TON	133	$ 600.00	$ 79,800.00
13	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	896	$ 2.36	$ 2,114.56
14	2360.502	TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C) (2.0")	TON	1719	$ 65.00	$ 111,735.00
15	2360.502	TYPE SP 12.5 NON-WEARING COURSE MIXTURE (SPNWB330C) (2.0")	TON	1689	$ 61.00	$ 103,029.00
16	2506.602	GROUT CATCH BASIN	EA	11	$ 300.00	$ 3,300.00
17	2506.602	ADJUST CATCH BASIN CASTING	EA	4	$ 1,000.00	$ 4,000.00
18	2531.501	CONCRETE CURB & GUTTER DESIGN B618 (ESTIMATED 20% REPLACE)	LF	1100	$ 13.00	$ 14,300.00
19	2504.602	ADJUST VALVE BOX	EA	6	$ 250.00	$ 1,500.00
20	2506.522	ADJUST FRAME AND RING CASTING (SANITARY MH IN STREET)	EA	9	$ 550.00	$ 4,950.00
21	2531.604	7" CONCRETE VALLEY GUTTER	SY	179	$ 85.00	$ 15,215.00
22	2563.601	TRAFFIC CONTROL	LS	1	$ 10,000.00	$ 10,000.00
23	2573.503	SILT FENCE	LF	100	$ 3.00	$ 300.00
24	2573.530	STORM DRAIN INLET PROTECTION	EA	17	$ 200.00	$ 3,400.00
25	2575.525	COMMON TOPSOIL BORROW (LV)	CY	35	$ 30.00	$ 1,050.00
26	2575.505	SODDING TYPE LAWN	SY	262	$ 7.00	$ 1,834.00
27	2582.501	PAVT MSSG (LT ARROW) EPOXY	EA	2	$ 135.00	$ 270.00
28	2582.501	PAVT MSSG (RT-THRU ARROW) EPOXY	EA	1	$ 200.00	$ 200.00
29	2582.502	24" SOLID LINE WHITE - EPOXY	LF	29	$ 10.00	$ 290.00
30	2582.502	24" SOLID LINE YELLOW - EPOXY	LF	52	$ 10.00	$ 520.00
31	2582.502	4" DOUBLE SOLID LINE YELLOW - EPOXY	LF	3182	$ 1.00	$ 3,182.00
32	2582.502	4" SOLID LINE WHITE - EPOXY	LF	5038	$ 0.50	$ 2,519.00
33	2582.503	CROSSWALK MARKING - EPOXY	SF	198	$ 5.00	$ 990.00
					TOTAL CONSTRUCTION COST	$ *493,410.31*
					23% INDIRECT COST	$ *113,484.37*
					TOTAL PROJECT COST	$ *606,894.68*

APPENDIX C

Preliminary Assessment Map
Preliminary Assessment Roll



PRELIMINARY ASSESSMENT MAP

Preliminary Assessment Roll - IP #17-00						
PID No.	Property Owner	Property Address	City	State	Zip	Assessment
273225310004	NORTH SUBURBAN MANAGEMENT LLC	6825 SUNWOOD DR NW	RAMSEY	MN	55303	
273225310009	RAMSEY CITY OF			MN		
273225310011	VISION EASE LP	7000 SUNWOOD DR NW	RAMSEY	MN	55303	
273225310013	KNOLL PROPERTIES LLC	6850 SUNWOOD DR NW	RAMSEY	MN	55303	
273225320008	CONNEXUS ENERGY			MN		
273225320012	RMR CAPITAL LLC	7180 SUNWOOD DR NW	RAMSEY	MN	55303	
273225320013	OBRIEN PROP OF MINNESOTA LLC	7100 SUNWOOD DR NW	RAMSEY	MN	55303	
273225420005	RAMSEY CITY OF			MN		
273225420006	PHILLIPS ALAN C & D V TRUSTEES			MN		
TOTAL PROJECT ASSESSMENTS						$0.00

PRELIMINARY ASSESSMENT ROLL

APPENDIX D

Geotechnical Exploration and Engineering Review (NTI – 30 pages)
Pavement Evaluations and Recommendations (WSB & Associates – 8 pages)

NTI™
NORTHERN TECHNOLOGIES, LLC

6160 Carmen Avenue East
Inver Grove Heights, MN 55076
P: 651.389.4191 F: 651.389.4190

www.NTIgeo.com

Unearthing confidence™

November 23, 2016

City of Ramsey
Attention: Mr. Bruce Westby, P.E.
7550 Sunwood Drive NW
Ramsey, Minnesota 55303

Subject: Geotechnical Exploration and Engineering Review
Sunwood Drive – Street Improvements
Ramsey, Minnesota
NTI Project No. 16.61770.100

Northern Technologies, LLC (NTI) has completed a total of eleven (11) borings for the Sunwood Drive project area in the City of Ramsey, Minnesota.

The scope of services included determining existing bituminous and aggregate base thicknesses, and subsurface conditions, and providing recommendations for site preparation, excavations, engineered fill and compaction, depths of unsuitable soils to be removed, groundwater management, potential difficulties during construction, utility installation, and pavement design.

Our services were performed in accordance with our proposal dated October 25, 2016.

PROJECT AND SITE DESCRIPTION

The project includes street and possibly utility improvements to a section of Sunwood Drive between Ramsey Boulevard and Bunker Lake Boulevard in Ramsey, Minnesota.

The pavement sections are proposed to be designed using the average annual daily traffic (AADT) information and based on a 20-year design pavement life. The AADT information noted on the Mn/DOT Traffic Data webpage indicates an AADT of 3500 for the project section of Sunwood Drive. NTI was not aware of invert elevations or other design details of the proposed utilities at the time this report was prepared.

SUBSURFACE EXPLORATION SUMMARY

NTI performed the subsurface exploration program on November 8, 2016 with a two-person crew using a truck-mounted CME-55 drill rig. Samples were generally collected in accordance with ASTM D 1586 "Standard Test Method for Standard Penetration Testing (SPT) and Split-Barrel Sampling of Soils."

The boring locations and depths were determined by a representative with the City of Ramsey. The boring locations were staked in the field by NTI. The borings terminated at nominal depths 11.0 feet below the existing pavement surface. .

Elevations were not provided to NTI, therefore, NTI has assumed a ground surface elevation of 100.0 feet for each of the boring locations. Please refer to the Boring Location Diagram, the Boring Logs in Appendix C, and the Pavement Core Photographs in Appendix D.

Sunwood Drive - (Borings S-1 through S-11)

Bituminous pavement thickness in this project area ranged from approximately 4.3 to 8.3 inches at the boring locations. Apparent aggregate base was not observed at the boring locations. Previously placed fill soils, generally consisting of poorly graded sand with silt (SP-SM), were encountered extending to depths ranging from approximately 2.0 to 7.0 feet below the top of pavement.

Native alluvial soils consisting of poorly graded sand (SP), silty sand (SM), and poorly graded sand with silt (SP-SM) were generally observed extending to the boring termination depths. Varying amounts of gravel were encountered throughout the boring locations.

Groundwater was observed in the boreholes at depths ranging from approximately 7.0 to 9.5 feet below the top of pavement at the time of drilling. Table 1 summarizes the encountered subsurface conditions for these project areas.

Table 1: Pavement and Subgrade Summary[1]
Sunwood Drive

Boring No.	Bituminous Pavement Thickness[2] (inches)	Apparent Aggregate Base Thickness[3] (inches)	Fill Subgrade Material[4]	Native Subgrade Material
S-1	8.3	None	SP-SM	SP-SM
S-2	4.5	None	SP-SM	SP, SP-SM
S-3	4.5	None	SP-SM	SM, SP, SP-SM
S-4	4.5	None	SP-SM	SP-SM
S-5	4.8	None	SP-SM	SP-SM
S-6	4.8	None	SP-SM	SP-SM
S-7	4.3	None	SP-SM	SP, SP-SM
S-8	5.8	None	SP-SM	SP-SM
S-9	4.5	None	SP-SM	SP, SP-SM
S-10	5.0	None	SP-SM	SP, SP-SM
S-11	4.8	None	SP-SM	SP, SP-SM

1. Table summary is a generalization of subsurface conditions at the individual soil boring locations only. They may not reflect variations in subsurface strata occurring on site between boring locations. The general geologic origin of retained soil samples is listed on the boring logs.
2. Measured thickness of the pavement core.
3. Apparent aggregate base thickness, at time of our fieldwork, by visual inspection only and is not mean to confer conformance with DOT specifications.
4. Undocumented fill soils.

GROUNDWATER AND GROUNDWATER CONTROL

Groundwater was observed in the boreholes at depths ranging from approximately 7.0 to 9.5 feet below the top of pavement at the time of drilling.

Depending upon elevations of underground utilities, groundwater may be an issue during construction. It should be noted that if excavations are proposed below the groundwater level, the granular nature of the majority of the on-site soils will likely result in significant volumes of water entering the excavations unless proper dewatering measures are implemented. Well points embedded into the underlying sands will likely be the most suitable method for controlling excess water in deeper excavations. If dewatering is needed during construction, we recommend that the groundwater be maintained a minimum of 2 feet below the bottom of the excavation.

LABORATORY TEST PROGRAM

Our analysis and recommendations of this report are based upon our interpretation of the standard penetration test resistance determined while sampling soils, laboratory test results and experience with similar soils from other sites near the project. The results of such tests are summarized on the boring logs or attached laboratory test reports.

UTILITY LINE CONSTRUCTION

The native sand soils observed in soil borings were generally suitable for utility support and utility backfill. Due to the encountered groundwater levels and depending on the installation depth of the utilities, temporary dewatering may be required during the utility trench excavations. Stabilization of the trench subgrade may be required in order to provide a stable platform for construction. Stabilization could consist of a one half to one foot layer of crushed rock or sand with a maximum 5 percent material passing the No. 200 sieve and 50 percent passing the No. 40 sieve.

The Geotechnical Engineer of Record or their designated representative should observe the project excavations to determine that unsuitable materials have been properly removed and adequate bearing support is provided by the exposed soils. The exposed soil at the base should be compacted to no less than 95 percent standard Proctor maximum dry density (ASTM D698). Such observations and testing should be performed prior to backfilling.

The on-site non-organic soils are anticipated to be suitable for reuse if properly moisture conditioned and compacted. Replacement backfill required in utility trenches should consist of non-organic material similar to the surrounding soil. All import fill should be approved by NTI or the City's representative.

It is especially important that trench backfill for utility construction within paved areas be thoroughly compacted to minimize future pavement damage. We recommend that such soils be compacted in accordance with the recommendations noted in the "Placement and Compaction of Engineered Fill" section in Appendix B of this report.

The stability of embankments along utility excavations is dependent on soil strength, site geometry, moisture content, and any surcharge load for excavated soils and equipment. We present cautionary remarks concerning stability of excavation sideslopes in the "Excavation Stability" section of this report.

The Contractor is solely responsible for assessing the stability of and executing underground utility and project excavations using safe methods. The contractor is also responsible for naming the "competent individual" as per Subpart P of 29 CFR 1926.6 (Federal Register - OSHA).

The Geotechnical Engineer of Record or their designated representative should observe the project excavations to determine that conditions are similar to those encountered in the borings, and that adequate bearing support is provided by the exposed soils.

Excavation Stability

Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations. Excavations may need to be widened and sloped, or temporarily braced, to maintain or develop a safe work environment. Contractors must comply with local, state, and federal safety regulations including current OSHA excavation and trench safety standards. Temporary shoring must be designed in accordance with applicable regulatory requirements.

Excavations that penetrate the groundwater surface will require dewatering with sand points or wells. We recommend that the groundwater surface be maintained a minimum of 2 feet below the bottom of the exposed excavation.

Engineered Fill and Winter Construction

The silty sand soils on this site will be susceptible to frost action if not provided adequate drainage, insulation or coverage. Frozen soil should not be used as backfill. When the ambient air temperature falls below freezing for an extended period of time, frost forms, and soil near the surface grade expands. Settlement of the fill may occur as the frozen soils thaw.

If frost penetrates the soil prior to paving, soils must be thawed, scarified, and re-compacted as recommended in this report. Subgrade soils should be inspected prior to paving to verify frozen conditions are not present.

PAVEMENT RECOMMENDATIONS

Mill and Overlay Recommendations

Consideration could be made to milling and overlaying the existing pavement. The roadway sections appear to have a sufficiently thick in place pavement section, over a majority of the project alignment, which would lend itself to rehabilitation via mill and overlay techniques.

In general, pavement sections consisting of 3 inches or less of bituminous asphalt can be difficult to effectively mill and overlay as often times the entire pavement section is reclaimed during the attempted partial section milling process. Additionally, in locations where the existing pavement thickness is less than the recommended thickness, a mill and overlay would not be recommended unless a structural overlay were applied to increase the overall thickness.

Pavement Reconstruction

If the pavement section is to be removed and replaced in its entirety, the most conservative method of subgrade preparation would be remove the undocumented fill soils and replace them in their entirety with properly compacted engineered fill. This method of subgrade preparation would provide the most uniform subgrade but would also be the most costly method of construction and would be relatively a-typical method of subgrade preparation for improvements to existing municipal roadways.

If the City is willing to accept some risk in potential long term detrimental performance for the significant upfront savings, the roadway can be reconstructed over the existing fill. NTI recommends that prior to installing the aggregate base, the existing subgrade should be scarified and re-compacted to a depth of at least 12 inches. A proof roll test should then be performed to determine soft or unstable subgrade areas. The proof roll should be performed with a tandem axle dump truck loaded to gross capacity (at least 20 tons). Acceptance criteria of the proof roll shall be limited to rut formation no more than one inch depth (front or rear axles) and no pumping (rolling) observed during the visual inspection. Proof roll tests should be observed by an experienced technician or geotechnical engineer prior to placement of the aggregate base course to verify the subgrade will provide adequate pavement support.

If rutting or localized unstable subgrade areas are observed, those areas should be subcut, moisture-conditioned, and re-compacted or removed to a stable depth.

If imported fill is required in paved areas it should consist of debris free, non-organic, mineral soil similar in composition to the subgrade soils encountered in the surrounding areas. If sand is imported into areas that are underlain by relatively impervious fine grained soils the sand layer must be drained with drain tile in order to prevent frost heave from water trapped within the imported sand layer during freezing temperatures. Individual lifts of engineered fill should be tempered for moisture content, placed and compacted as noted in the "Placement and Compaction of Engineered Fill" section in Appendix B of this report.

The performance of stabilometer or similar tests, were beyond the scope of this report; however, they may be performed, upon request, for an additional fee. Based on the encountered soil conditions, we estimate that a properly prepared poorly graded sand with silt (SP-SM) soils will have an average stabilometer R-Value of 40.

For a 20-year design pavement life, Table 3 presents our thickness recommendations for flexible (bituminous) pavement. These recommendations were based upon the encountered subgrade conditions, estimated R-value for the existing subgrade soils, the assumed AADT volumes, and the City of Ramsey's typical pavement section for the respective project area.

Table 3: Flexible Pavement Thickness Design[1]
Sunwood Drive

Pavement Section	Calculated Required Pavement Section	City's Typical Pavement Section[2]
Bituminous Wear Course (inches)	1.5	1.5
Bituminous Base Course (inches)	2.0	2.0
Class 5 or 7 Aggregate Base (inches)	6.0	4.0

1. Assumed AADT volume of 3500 and an estimated R-value of 40.
2. The calculated required section was greater than the City's typical section for residential streets, thus NTI recommends that the Calculated Required Pavement Section be implemented.

Pavement recommendations assume the subgrade soils and aggregate section below paved surfaces will drain to subsurface piping for eventual discharge into storm sewer, or above grade to ditching, or similar acceptable systems. Lack of surface and subsurface drainage will significantly reduce the capacity and longevity of the pavement systems indicated above.

We recommend pavements receive annual maintenance, as a minimum, to correct damages to the pavement structure, clean and infill cracks which develop, and repair or resurface areas which exhibit reduced subgrade performance. The lack of maintenance can lead to moisture infiltration of the pavement structure and softening of the subgrade soils. This, in turn, can degrade the performance of the pavement system and result in poorly performing pavements with shortened life expectancy.

CLOSURE

As the widely spaced, small diameter borings provide only a limited amount of data regarding the existing fill, the existing fill may contain soft zones, debris or significantly greater amounts of unsuitable materials than could be reasonably inferred from the boring information. Unsuitable materials may not be discovered during construction and may remain buried within the fill below the slabs and pavements, resulting in greater than anticipated settlements of the slabs and pavements. These risks cannot be eliminated without completely removing the fill, but can be reduced by thorough exploration and testing during site preparation and construction.

Our conclusions and recommendations are predicated on observation and testing of the earthwork directed by Geotechnical Engineer of Record. Our opinions are based on data assumed representative of the site. However, the area coverage of borings in relation to the entire project is very small. For this and other reasons, we do not warrant conditions below the depth of our borings, or that the strata logged from our borings are necessarily typical of the site. Deviations from our recommendations by plans, written specifications, or field applications shall relieve us of responsibility unless our written concurrence with such deviations has been established.

The scope of services for this project does not include either specifically or by implication any environmental or biological assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of The City of Ramsey and its agents for specific application to the proposed Sunwood Drive – Street Improvements project in the City of Ramsey, Minnesota. Northern Technologies, LLC has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Northern Technologies, LLC makes no other warranty, express or implied.

Northern Technologies, LLC

Debra A. Schroeder, P.E.
Senior Engineer

Steven D. Gerber, P.E.
Senior Engineer

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.

Debra A. Schroeder
Date: 11/23/2016 Reg. No. 52743

Attachments
Appendix A - General Notes
Appendix B - Groundwater Issues, Compaction and Placement of Fill
Appendix C - Attachments: Boring Location Diagram (1), Soil Boring Logs (11)
Appendix D - Photographs (11 cores)

APPENDIX A

GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

FIELD EXPLORATION PROCEDURES

GENERAL NOTES

WATER LEVEL SYMBOL

DESCRIPTIVE TERMINOLOGY

RELATIVE PROPORTIONS

PARTICLE SIZES

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

We visually examined recovered soil samples to estimate distribution of grain sizes, plasticity, consistency, moisture condition, color, presence of lenses and seams, and apparent geologic origin. We then classified the soils according using the Unified Soil Classification System (ASTM D2488). A chart describing this classification system and general notes explaining soil sampling procedures are presented within appendices attachments.

The stratification depth lines between soil types on the logs are estimated based on the available data. In-situ, the transition between type(s) may be distinct or gradual in either the horizontal or vertical directions. The soil conditions have been established at our specific boring locations only. Variations in the soil stratigraphy may occur between and around the borings, with the nature and extent of such change not readily evident until exposed by excavation. These variations must be properly assessed when utilizing information presented on the boring logs.

We request that you, your design team or contractors contact NTI immediately if local conditions differ from those assumed by this report, as we would need to review how such changes impact our recommendations. Such contact would also allow us to revise our recommendations as necessary to account for the changed site conditions.

FIELD EXPLORATION PROCEDURES

Soil Sampling – Standard Penetration Boring:

Soil sampling was performed according to the procedures described by ASTM D-1586. Using this procedure, a 2 inch O.D. split barrel sampler is driven into the soil by a 140 pound weight falling 30 inches. After an initial set of six inches, the number of blows required to drive the sampler an additional 12 inches is recorded (known as the penetration resistance (i.e. “N-value”) of the soil at the point of sampling. The N-value is an index of the relative density of cohesionless soils and an approximation of the consistency of cohesive soils.

Soil Sampling – Power Auger Boring:

The boring(s) was/were advanced with a 6 inch nominal diameter continuous flight auger. As a result, samples recovered from the boring are disturbed, and our determination of the depth, extend of various stratum and layers, and relative density or consistency of the soils is approximate.

Soil Classification:

Soil samples were visually and manually classified in general conformance with ASTM D-2488 as they were removed from the sampler(s). Representative fractions of soil samples were then sealed within respective containers and returned to the laboratory for further examination and verification of the field classification. In addition, select samples were submitted for laboratory tests. Individual sample information, identification of sampling methods, method of advancement of the samples and other pertinent information concerning the soil samples are presented on boring logs and related report attachments.

GENERAL NOTES

DRILLING and SAMPLING SYMBOLS		*LABORATORY TEST SYMBOLS*	
SYMBOL	**DEFINITION**	**SYMBOL**	**DEFINITION**
C.S.	Continuous Sampling	W	Moisture content-percent of dry weight
P.D.	2-3/8" Pipe Drill	D	Dry Density-pounds per cubic foot
C.O.	Cleanout Tube	LL, PL	Liquid and plastic limits determined in accordance with ASTM D 423 and D 424
3 HSA	3 ¼" I.D. Hollow Stem Auger	Q_U	Unconfined compressive strength-pounds per square foot in accordance with ASTM D 2166-66
4 FA	4" Diameter Flight Auger		
6 FA	6" Diameter Flight Auger		
2 ½ C	2 ½" Casing		
4 C	4" Casing		
D.M.	Drilling Mud	Pq	Penetrometer reading-tons/square foot
J.W.	Jet Water	S	Torvane reading-tons/square foot
H.A.	Hand Auger	G	Specific Gravity – ASTM D 854-58
NXC	Size NX Casing	SL	Shrinkage limit – ASTM 427-61
BXC	Size BX Casing	Ph	Hydrogen ion content-meter method
AXC	Size AX casing	O	Organic content-combustion method
SS	2" O.D. Split Spoon Sample	M.A.	Grain size analysis
2T	2" Thin Wall Tube Sample	C*	One dimensional consolidation
3T	3" Thin Wall Tube Sample	Q_C	Triaxial Compression
		* See attached data Sheet and/or graph	

WATER LEVEL SYMBOL

Water levels shown on the boring logs were determined at the time and under the conditions indicated. In sand, the indicated levels can be considered relatively reliable for most site conditions. In clay soils, it is not possible to determine the ground water level within the normal scope of a test boring investigation, except where lenses or layers of more pervious water bearing soil are present; and then a long period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed soils may not indicate the true level of the ground water table. The available water level information is given at the bottom of the log sheet.

DESCRIPTIVE TERMINOLOGY

RELATIVE DENSITY		*CONSISTENCY*	
TERM	**N_{60} Value** (corrected)	**TERM**	**N_{60} Value** (corrected)
Very Loose	0 – 4	Soft	0 – 4
Loose	5 – 8	Medium	5 – 8
Medium Dense	9 – 16	Rather Stiff	9 – 15
Dense	16 – 30	Stiff	16 – 30
Very Dense	Over 30	Very Stiff	Over 30

RELATIVE PROPORTIONS

TERMS	**RANGE**
Trace	0 – 5%
A little	5 – 15%
Some	15 – 30%

PARTICLE SIZES

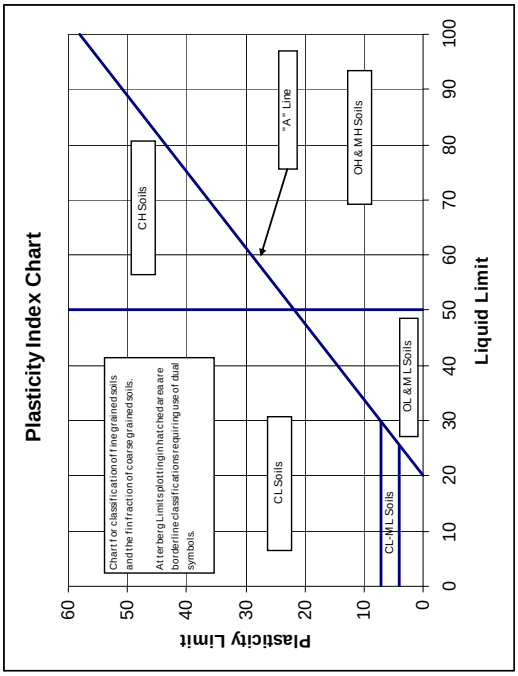
MATERIAL	**DESCRIPTION**	**U.S. SIEVE SIZE**
Boulders		Over 3"
Gravel	Coarse	3" to ¾"
	Medium	¾" to #4
Sand	Coarse	#4 to #10
	Medium	#10 to #40
	Fine	#40 to #200
Silt and Clay	Determined by Hydrometer Test	

CLASSIFICATION of SOILS for ENGINEERING PURPOSES

ASTM Designation D-2487 and D2488 (Unified Soil Classification System)

Major Divisions			Group Symbol	Typical Name	Classification Criteria
Course Grained Soils: More than 50% retained on No. 200 sieve *	Gravels: 50% or more of coarse fraction retained on No. 4 sieve.	Clean Gravels	GW	Well –graded gravels and gravel-sand mixtures, little or no fines.	Cu = D60 / D10 greater than 4. Cz = (D30)2 / (D10 x D60) between 1 & 3.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines.	Not meeting both criteria for GW materials.
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures.	Atterberg limits below "A" line, or P.I. less than 4. / Atterberg limits above "A" line with P.I. greater than 7. — Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols.
			GC	Clayey gravels, gravel-sand-clay mixtures.	
	Sands: More than 50% of coarse fraction passes No 4 sieve.	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines.	Cu = D60 / D10 greater than 6. Cz = (D30)2 / (D10 x D60) between 1 & 3.
			SP	Poorly-graded sands and gravelly sands, little or no fines.	Not meeting both criteria for SW materials.
		Sands with Fines	SM	Silty sands, sand-silt mixtures.	Atterberg limits below "A" line, or P.I. less than 4. / Atterberg limits above "A" line with P.I. > 7. — Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures.	
Fine Grained Soils More than 50% passes No. 200 sieve *	Silts and Clays Liquid Limit of 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands.	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
			OL	Organic silts and organic silty clays of low plasticity.	
	Silts and Clays Liquid Limit greater than 50%.		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts.	
			CH	Inorganic clays of high plasticity, fat clays.	
			OH	Organic clays of medium to high plasticity.	
	Highly Organic Soils		Pt	Peat, muck and other highly organic soils.	

Classification on basis of percentage of fines.
Less than 5% passing No. 200 Sieve: GW, GP, SW, SP
More than 12% passing No. 200 Sieve: GM, GC, SM, SC
From 5% to 12% passing No. 200 Sieve: Borderline Classification requiring use of duel symbols.



APPENDIX B

GROUNDWATER ISSUES

PLACEMENT and COMPACTION OF ENGINEERED FILL

GROUNDWATER ISSUES

The following presents additional comment and soil specific issues related to measurement of groundwater conditions at your project site.

Note that our groundwater measurements, or lack thereof, will vary depending on the time allowed for equilibrium to occur in the borings. Extended observation time was not available during the scope of the field exploration program and, therefore, groundwater measurements as noted on the borings logs may or may not accurately reflect actual conditions at your site.

Seasonal and yearly fluctuations of the ground water level, if any, occur. Perched groundwater may be present within sand and silt lenses bedded within cohesive soil formations. Groundwater typically exists at depth within cohesive and cohesionless soils.

We anticipate that a system of sump pits and pumps located outside of the excavation areas would be suitable for control if groundwater were to be encountered. However, a well point system would be more suitable for control of groundwater if excavations were to be advanced into the ground water table at depth in free draining granular soils. Additionally, we caution such seepage from such formations and any water entry from excavations below the groundwater table may be heavy and will vary based on seasonal and annual precipitation, and ground related impacts in the vicinity of the project. The groundwater surface should be maintained a minimum of 2 feet below the bottom of the excavation at all times.

PLACEMENT and COMPACTION OF ENGINEERED FILL

Unless otherwise superseded within the body of the Geotechnical Exploration Report, the following criteria shall be utilized for placement of engineered fill on project. This includes, but is not limited to earthen fill placement to improve site grades, fill placed below structural footings, fill placed interior of structure, and fill placed as backfill of foundations.

Engineered fill placed for construction, if necessary should consist of natural, non-organic, competent soils native to the project area. Such soils may include, but are not limited to gravel, sand, or clays with Unified Soil Classification System (ASTM D2488) classifications of GW, SP, or SM. Use of silt or clayey silt as project fill will require additional review and approval of project Geotechnical Engineer of Record. Such soils have USCS classifications of ML, MH, ML-CL, MH-CH. Use of topsoil, marl, peat, other organic soils construction debris and/or other unsuitable materials as fill is not allowed. Such soils have USCS classifications of OL, OH, Pt.

Engineered fill, classified as clay, should be tempered such that the moisture content at the time of placement is equal to and no more than 3 percent above the optimum content for as defined by the appropriate proctor test. Likewise, engineered fill classified as gravel or sand should be tempered such that the moisture content at the time of placement is within 3 percent of the optimum content.

All engineered fill for construction should be placed in individual 8 inch maximum depth lifts. Each lift of fill should be compacted by large vibratory equipment until the in-place soil density is equal to or greater than the criteria established within the following tabulation.

	Compaction Criteria (% respective Proctor)[1]	
Type of Construction	**Clay**	**Sand or Gravel**
General Embankment Fill	Min. 95	Min. 95
Engineered Fill below Foundations	NA	Min. 98
Engineered Fill below Floor Slabs	NA	Min. 98
Engineered Fill placed as Pavement Aggregate Base	NA	Min. 100
Engineered Fill placed to within 3 feet of pavement aggregate base	Min. 95	Min. 95
Engineered Fill placed within 3 feet of pavement aggregate base	Min. 100	Min. 100

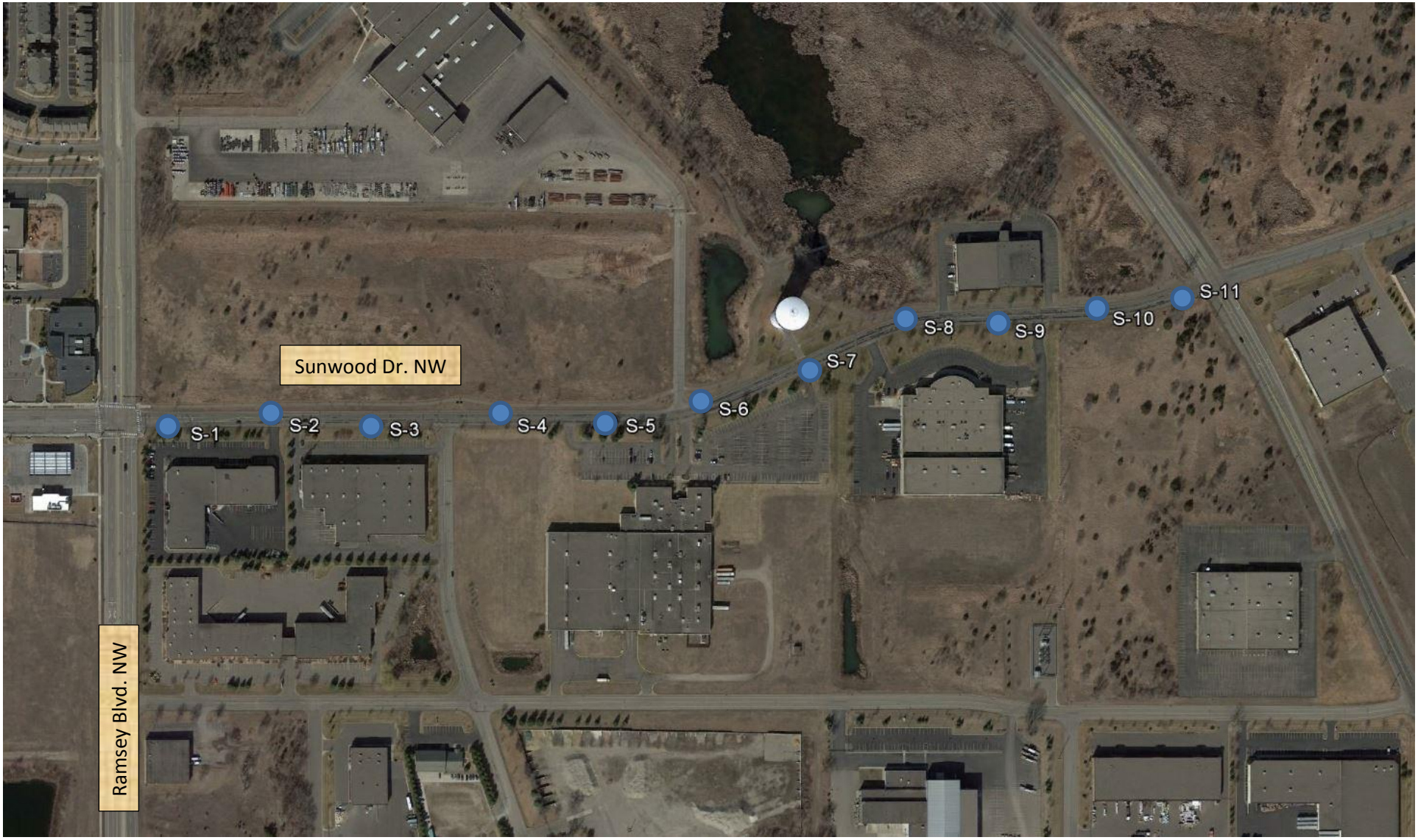
1 Unless otherwise required, compaction shall be based on the Standard Proctor Test (ASTM D698).

Density tests should be taken during engineered fill placement to document earthwork has achieved necessary compaction of the material(s). Recommendations for interior fill placement and backfill of foundation walls are presented within other sections of this report.

APPENDIX C

BORING LOCATION DIAGRAM

SOIL BORING LOGS



Boring Location Diagram

Completed Soil Borings:

Alpine and Sunwood Drive – Street Improvements – Sunwood Drive

Ramsey, Minnesota

NTI Project #: 16.61770.100

N

NOTE: Boring locations are approximate.

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BORING NUMBER S-1

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 9.50 ft / Elev 90.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) --- **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.7 BITUMINOUS PAVEMENT (8.3 Inches) 99.3	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel (Fill) NOTE: Brown to dark brown below 2.0 feet.	SS 2	100	7-8-9 (17)			9				
		4.5 95.5										
5		POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, moist to saturated, medium dense to loose, trace gravel (Alluvial)	SS 3	89	6-7-6 (13)							
			SS 4	94	3-2-3 (5)							
10		▽	SS 5	89	4-6-5 (11)							
		11.0 89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-2

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.00 ft / Elev 93.00 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches)	99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, moist, trace gravel (Fill)		SS 2	67	3-6-8 (14)							
5				SS 3	83	5-6-5 (11)			6				
		7.0 ▽	93.0										
		POORLY GRADED SAND, (SP) light brown, fine to medium grained, saturated, loose, trace gravel (Alluvial)		SS 4	100	3-4-3 (7)							
		9.5	90.5										
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, saturated, loose, trace gravel (Alluvial)		SS 5	78	3-3-5 (8)							
		11.0	89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-3

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.50 ft / Elev 92.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 3.5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches)	99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, moist, little gravel (Fill)	98.0	SS 2	94	4-5-4 (9)			9				16
5		4.5 SILTY SAND, (SM) brown, fine to medium grained, moist, medium dense, trace gravel (Alluvial)	95.5	SS 3	94	5-6-7 (13)							
		POORLY GRADED SAND, (SP) light brown, fine to medium grained, moist to saturated, medium dense to loose, trace gravel (Alluvial) ▽		SS 4	89	3-4-3 (7)							
10		9.5	90.5										
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, saturated, loose, trace gravel (Alluvial) 11.0	89.0	SS 5	83	3-3-4 (7)							

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-4

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.00 ft / Elev 93.00 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) --- **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches)	99.6	AU 1									
		2.0 POORLY GRADED SAND WITH SILT, (SP-SM) dark brown, fine to medium grained, moist, trace gravel (Fill)	98.0	SS 2	94	5-6-7 (13)			8				9
		4.5 POORLY GRADED SAND WITH SILT, (SP-SM) dark brown, fine to medium grained, moist, trace gravel (Fill)	95.5										
5		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist to saturated, medium dense to loose, trace gravel (Alluvial)		SS 3	89	5-6-6 (12)							
		▽		SS 4	83	3-4-3 (7)							
10		11.0	89.0	SS 5	89	3-3-4 (7)							

Bottom of borehole at 11.0 feet.

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Inver Grove Heights
6160 Carmen Avenue East
Inver Grove Heights, MN 55076
P: 651-389-4191
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BORING NUMBER S-5

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.50 ft / Elev 92.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.8 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, moist, trace gravel (Fill) NOT: Brown to dark brown below 2.0 feet.	SS 2	78	6-6-8 (14)			5				
		4.5										
5		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist to saturated, medium dense to loose, trace gravel (Alluvial) 95.5	SS 3	83	5-5-6 (11)							
		▽	SS 4	72	3-4-3 (7)							
10		11.0	SS 5	89	3-4-5 (9)							
		89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-6

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.00 ft / Elev 93.00 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 3.5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.8 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, little gravel (Fill)	SS 2	67	4-6-7 (13)							
		4.5 95.5										
5		POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, moist to saturated, medium dense to loose, trace gravel (Alluvial) ▽	SS 3	89	5-6-6 (12)			12				
			SS 4	94	3-4-3 (7)							
10		11.0 89.0	SS 5	50	3-4-4 (8)							

Bottom of borehole at 11.0 feet.

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Inver Grove Heights
6160 Carmen Avenue East
Inver Grove Heights, MN 55076
P: 651-389-4191
www.NTIgeo.com

BORING NUMBER S-7

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.00 ft / Elev 93.00 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 3.5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.3 Inches) 99.7	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel, occasional bituminous debris (Fill)	SS 2	89	4-5-5 (10)			4				
		4.5 95.5										
5		POORLY GRADED SAND, (SP) light brown, fine to medium grained, moist, loose, trace gravel (Alluvial)	SS 3	83	4-4-4 (8)							
		7.0 ▽ 93.0										
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, saturated, medium dense, trace gravel (Alluvial)	SS 4	89	3-4-5 (9)							
10			SS 5	100	3-5-6 (11)							
		11.0 89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-8

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.00 ft / Elev 93.00 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.5 BITUMINOUS PAVEMENT (5.8 Inches) 99.5	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel (Fill) NOTE: Brown to dark brown with occasional bituminous debris below 2.0 feet.	SS 2	78	7-8-7 (15)			5				
		4.5		95.5								
5		POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, moist to saturated, loose, trace gravel ▽ (Alluvial)	SS 3	83	3-4-4 (8)							
			SS 4	94	4-3-4 (7)							
10			SS 5	89	3-4-3 (7)							
		11.0		89.0								

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-9

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.50 ft / Elev 92.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches)	99.6	AU 1					6				8
		2.0 POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel (Fill)	98.0	SS 2	89	6-10-8 (18)							
		POORLY GRADED SAND WITH SILT, (SP-SM) orange brown, fine to medium grained, moist, trace gravel (Fill)											
5		4.5	95.5	SS 3	100	5-6-5 (11)							
		POORLY GRADED SAND, (SP) light brown, fine to medium grained, moist, medium dense, trace gravel (Alluvial)											
		7.0	93.0	SS 4	89	3-4-4 (8)							
		▽ POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist to saturated, loose to medium dense, trace gravel (Alluvial)											
10		11.0	89.0	SS 5	89	3-4-5 (9)							

Bottom of borehole at 11.0 feet.

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BORING NUMBER S-10

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 7.50 ft / Elev 92.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (5.0 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel, occasional bituminous debris (Fill)	SS 2	100	16-7-8 (15)			4				
5		4.5 95.5 POORLY GRADED SAND, (SP) light brown, fine to medium grained, moist, loose, trace gravel (Alluvial)	SS 3	100	3-4-4 (8)							
		7.0 93.0 ▽ POORLY GRADED SAND WITH SILT, (SP-SM) gray, fine to medium grained, moist to saturated, loose, trace gravel (Alluvial)	SS 4	100	2-2-3 (5)							
10			SS 5	89	5-4-4 (8)							
		11.0 89.0 Bottom of borehole at 11.0 feet.										

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www.NTIgeo.com

BORING NUMBER S-11

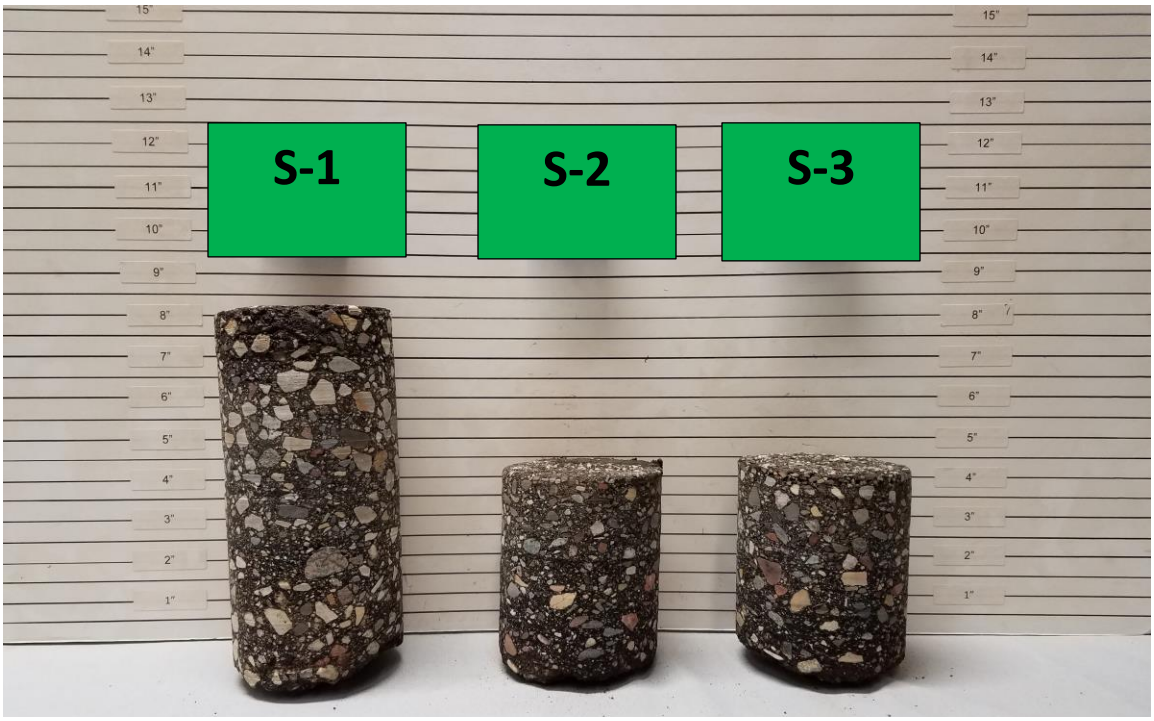
CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 9.50 ft / Elev 90.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.8 Inches)	99.6	AU 1									
		2.0 POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, moist, trace gravel (Fill)	98.0	SS 2	89	3-4-5 (9)							
5		POORLY GRADED SAND, (SP) light brown, fine to medium grained, moist, medium dense to very loose, trace gravel (Alluvial)		SS 3	94	3-3-3 (6)			5				4
				SS 4	83	2-2-2 (4)							
10		9.5 ▽	90.5										
		11.0 POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, saturated, loose, trace gravel (Alluvial)	89.0	SS 5	78	3-3-4 (7)							
		Bottom of borehole at 11.0 feet.											

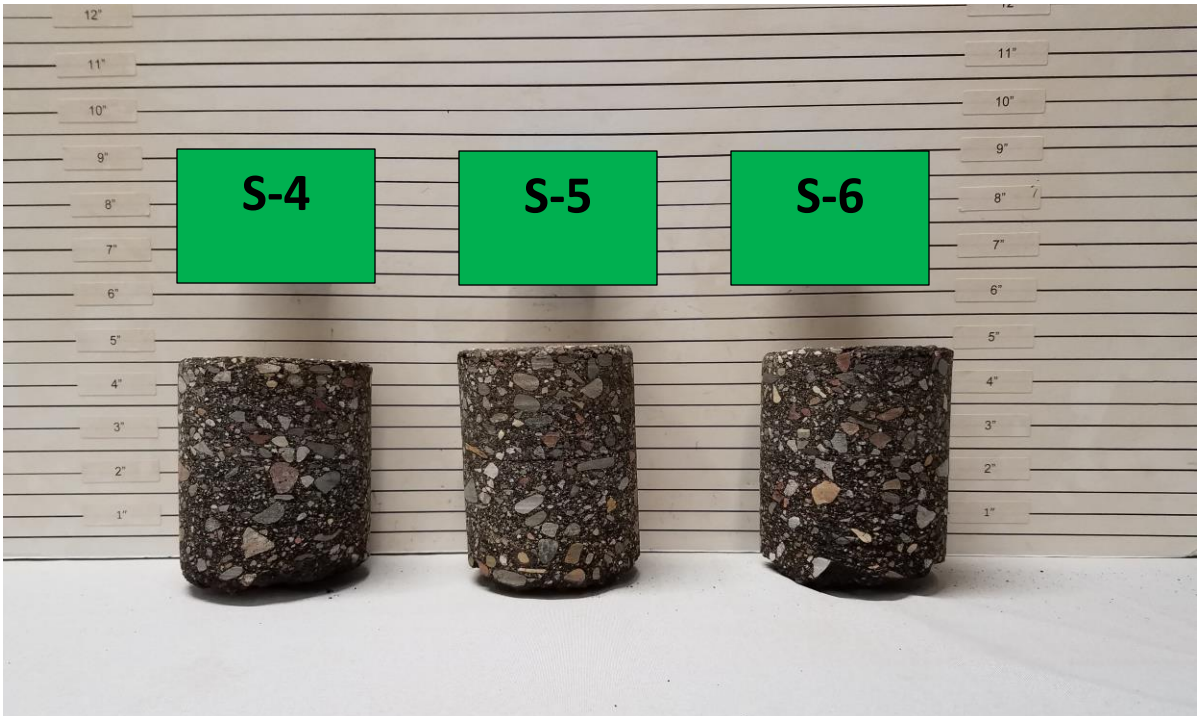
APPENDIX D

PAVEMENT CORE PHOTOGRAPHS

Bituminous Pavement Cores, S-1: 8 ¼ Inches, S-2: 4 ½ Inches, S-3: 4 ½ Inches.



Bituminous Pavement Cores, S-4: 4 ½ Inches, S-5: 4 ¾ Inches, S-6: 4 ¾ Inches.



Bituminous Pavement Cores, S-7: 4 ¼ Inches, S-8: 5 ¾ Inches, S-9: 4 ½ Inches.

Bituminous Pavement Cores, S-10: 5 Inches, S-11: 4 ¾ Inches.

701 Xenia Avenue South | Suite 300 | Minneapolis, MN 55416 | (763) 541-4800

December 27, 2016

Mr. Bruce Westby P.E.
City Engineer
7550 Sunwood Drive NW.
Ramsey, MN 55303

Re: Pavement Evaluations and Recommendations for City of Ramsey Improvement Project #17-00
2017 Sunwood Drive Reconstruction

Observation: On December 20, 2016 WSB & Associates cored Sunwood Drive from Ramsey Blvd. to Bunker Lake Blvd in Ramsey, MN, to verify the thickness of the Hot Mix Asphalt (HMA) and to determine what type of granular base was under the HMA. The pavement is in a light industrial park area and was constructed in 1980s. The main observed distress was cracking caused by aging of the HMA. Some fatigue cracks were observed in the wheel paths which are to be expected as a pavement meets its design life. One other observation was that the some of the warehouses were expanding their building which leads me to believe the truck traffic will only increase over the next 20 years. The cores measured 4 inches thick with a granular base material that appears to be Class 5.

Recommendations: Based on the information above our first recommendation would be to mill off 3 inches of the HMA and then do a 6 inch Stabilized Full Depth Reclamation (SFDR) using asphalt emulsion. The concept of doing SFDR over removing and repaving is that we can increase the structural capacity of the pavement by building down deeper into the pavement structure. This option would completely break up the existing crack pattern. Properly designed and constructed SFDR should yield gravel equivalencies of 1.5 to 2.0 with 1.8 being a good design value to use. Then repave the last 3 inches using SPWEB440C Super Pave. MnDOT gives this option the same value as a complete reconstruction at approximately 40 to 60 percent of the cost.

Option 2 would be to remove all the HMA and re-compact the base and repave. This option should be less expensive than Option 1. The one issue that we have with this option is the belief that truck traffic on Sunwood is only going to increase and that this option may fail prematurely compared to the existing pavement. If this option is chosen we would recommend using 4 inches of the same HMA as spelled out above.

Please let me know if you have any other questions of comments regarding this report.

Sincerely,

WSB & Associates, Inc.

Thomas J. Wood
Project Manager

Appendix A

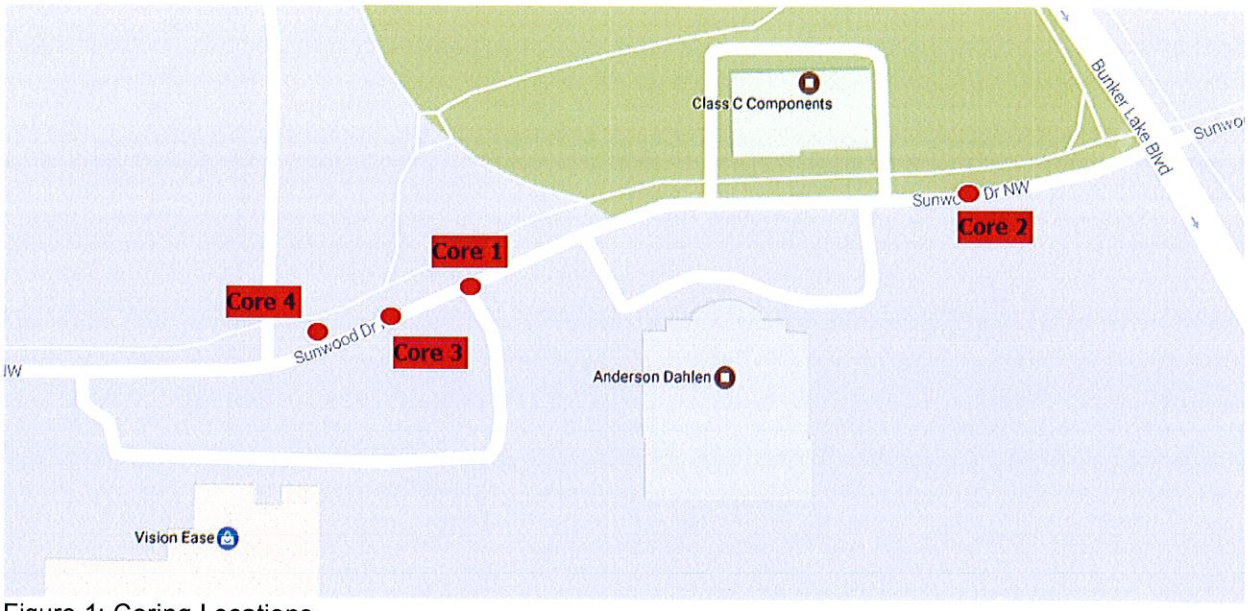


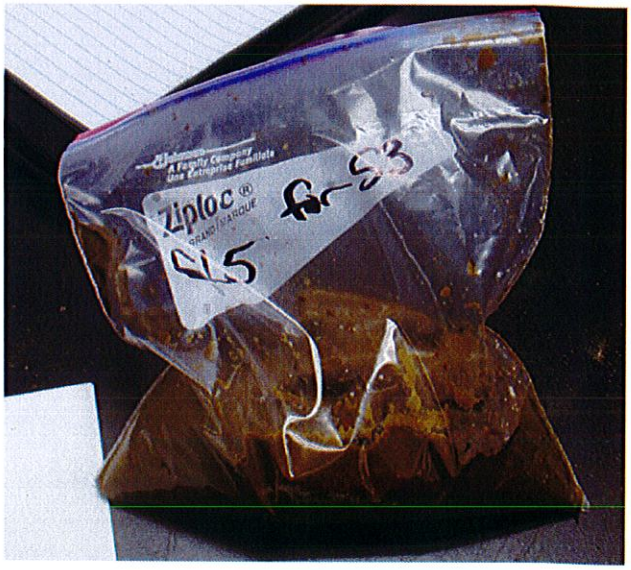
Figure 1: Coring Locations

Appendix B

Core 1

Core 2

Core 3



Core 4

Public Works Committee **5. 4.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Consider Recommendation to City Council to Accept Draft Feasibility Report for Alpine Drive Reconstruction, Improvement Project #17-01

Purpose/Background:

The purpose of this case is to consider providing a recommendation to the City Council for accepting the DRAFT Feasibility Report for Alpine Drive Reconstruction, City Improvement Project #17-01.

Timeframe:

Staff estimates 10 minutes will be required to present this case and respond to questions.

Observations/Alternatives:

Attached is a DRAFT copy of the Feasibility Report. Please note this is a working document still under development.

The draft Feasibility Report will be presented to Council on January 24th.

Once the Feasibility Report is complete, meetings with abutting property owners will be conducted to discuss the proposed project and to gather feedback for future consideration by Council.

Alternatives:

Alternative #1 – Motion recommending City Council acceptance of the recommendations outlined in the draft Feasibility Report for Alpine Drive Reconstruction, City Improvement Project #17-01.

Alternative #2 – Motion denying City Council recommendation at this time.

Funding Source:

Staff proposes to fund the proposed improvements using a combination of street reconstruction bond funds and stormwater utility funds.

Recommendation:

Staff recommends alternative #1.

Action:

Motion to recommend approval of Alternative #1.

Attachments

DRAFT Feas Report

Form Review

Inbox	Reviewed By	Date
Grant Riemer	MaryJo Warner	01/12/2017 03:54 PM

Kurt Ulrich	Kurt Ulrich	01/12/2017 04:30 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 09:08 AM
Final Approval Date: 01/12/2017		

DRAFT FEASIBILITY REPORT

ALPINE DRIVE RECONSTRUCTION

CITY IMPROVEMENT PROJECT NO. 17-01

January 12, 2017

Prepared By:

City of Ramsey
Engineering Department
7550 Alpine Drive
Ramsey, MN 55303
763-433-9820
763-433-9848 (Fax)

January 12, 2017

Honorable Mayor and City Council
City of Ramsey
7550 Alpine Drive
Ramsey, MN 55303

Re: Feasibility Report - City of Ramsey Improvement Project #17-01
Alpine Drive Reconstruction

Dear Mayor and City Council Members:

Transmitted herewith is a Feasibility Report for the proposed Alpine Drive Reconstruction project between Armstrong Boulevard/CSAH 83 and Variolite Street which examines the feasibility of reconstructing the bituminous street section and completing other appurtenant improvements.

This Feasibility Report examines the scope of the proposed improvements, explores estimated costs and available funding sources, defines a preliminary project schedule, and determines the necessity, feasibility and general cost-effectiveness of the proposed improvements, including any alternate designs, as well as whether the improvements would best be completed separately or in conjunction with another project.

I would be happy to discuss this report with you at your convenience. Please feel free to contact me at 763-433-9825 or bwestby@cityoframsey.com with any questions.

Sincerely,
City of Ramsey

Bruce Westby, PE
City Engineer

Enclosure

C: Kurt Ulrich, City Administrator
Diana Lund, Finance Director
Grant Reimer, Public Works Superintendent
Leonard Linton, Civil Engineer IV

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.

Bruce Westby, PE

Date: January 18, 2017 License No. 40116

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Leonard Linton, PE

Date: January 18, 2017 License No. 21112

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

1. EXECUTIVE SUMMARY

City Improvement Project 17-01 proposes to reconstruct Alpine Drive between Armstrong Boulevard/CSAH 83 and Variolite Street which totals approximately 3,600 linear feet (0.68 miles) in length. A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A***.

This segment of Alpine Drive was constructed in 2001 using bituminous pavement between B618 concrete curb and gutter. The street was constructed to a width of 32 feet from face-of-curb to face-of-curb in locations where parking is restricted, and to 38 feet from face-of-curb to face-of-curb in locations where parking is allowed along one side. Alpine Drive is centered within an 80 foot wide right-of-way. A storm sewer system also exists under this segment of Alpine Drive including numerous catch basins which drain runoff from the street to adjacent low-lying areas using concrete storm sewer pipes.

City staff evaluates and rates the condition of pavement sections on all city streets on an annual basis using the Pavement and Surface Evaluation Rating (PASER) system. In the fall of 2016, the pavement section of the above-referenced street segment were rated with a PASER rating of 3 which indicates this street is past the point of applying mill and overlay improvements. The current condition of this street requires City staff to patch the street at least once per year, particularly before winter so the street can be plowed without tearing up the pavement in the process. Pictures of the street are located in ***Appendix A***.

Proposed improvements include removing and replacing damaged sections of concrete curb and gutter and reconstructing the existing bituminous pavement section using a process known as Full Depth Reclamation, or FDR. This process involves milling the top 3 inches of existing bituminous pavement which is then hauled off site, reclaiming (grinding and mixing) the remaining bituminous pavement along with approximately the existing recycled concrete base material, mixing and spreading the reclaimed material on top of the reshaped and compacted subgrade, then placing 3.5 inches of new bituminous pavement on top. This results in a 10-ton pavement design that meets current State Aid standards.

The existing storm sewer system is in good condition and meets all current State Aid standards and is therefore not proposed to be improved. An off-street bike trail exists along the north side Alpine Drive but is not proposed to be improved as part of this project.

Pavement corings, soil borings, and associated pavement reconstruction design recommendations were just recently completed so staff has not yet had an opportunity to discuss the proposed improvements with owners of abutting properties. However, Staff recently mailed letters to the owners of abutting properties for the purpose of explaining the proposed improvements and requesting meetings with impacted and interested parties to discuss the proposed improvements and gather public input.

The engineer's opinion of probable costs for completing the proposed improvements on Alpine Drive as outlined in this report is $463,000. Estimated costs include 23% indirect costs for administrative, engineering, finance and legal costs. A summary of the engineer's opinion of probable costs is included in ***Appendix B***.

No parcels have been identified as receiving special benefit from the improvements so the use of special assessments as a funding source for this project is not proposed.

This improvement project, which is listed in the City's current Capital Improvement Program, is proposed to be funded using a combination of street reconstruction bond proceeds and stormwater utility funds.

This project can best be constructed as a stand-alone project, is necessary, feasible, and cost-effective from an engineering standpoint, and can be constructed as proposed herein.

2. INTRODUCTION

2.1 Authorization

The preparation of this report was authorized by the Ramsey City Council on August 9, 2016. This project has been designated as City Improvement Project No. 17-01.

2.2 Program Overview

In support of the City's long-term Street Maintenance Program, the entire existing bituminous pavement section will be reconstructed using a full-depth reclamation (FDR) process. Damaged concrete curb and gutter sections will also be removed and replaced, plus other appurtenant work will be completed as outlined in this report.

The City's pavement evaluation process involves a visual evaluation of each street's pavement surface based on the type, extent and severity of each pavement distress observed. Numerous types of pavement distresses may exist within a pavement section including, but not limited to, alligator cracking, block cracking, longitudinal cracking, transverse cracking, rutting, raveling, shoving, potholes and patches. This field data is then used to rate the pavement condition.

The City uses the Pavement and Surface Evaluation Rating (PASER) system to rate pavement condition. A PASER rating is a numerical index between 1 and 10 indicating the condition of a pavement based on the various pavement distresses recorded during visual observations. A PASER rating of 10 represents brand new pavement, while a PASER rating of 1 represents a pavement section that has fallen into complete disrepair requiring full reconstruction.

In the fall of 2016, City staff evaluated and rated the condition of the pavement along this segment of Alpine Drive. A PASER rating of 3 was determined for the segment of Alpine Drive between Armstrong Boulevard and Variolite Street.

2.3 Scope

City of Ramsey Improvement Project 17-01 proposes to reconstruct the existing bituminous pavement, to remove and replace damaged concrete curb and gutter sections, and to complete other appurtenant work on Alpine Drive between Armstrong Boulevard and Variolite Street which totals approximately 3,600 linear feet (0.68 miles) in length.

The existing bituminous pavement section is proposed to be reconstructed using the FDR process. This involves reclaiming the entire bituminous pavement section along with the existing recycled concrete base, hauling and disposing of the excess reclaim material off site, mixing and spreading the stabilized reclaimed material on top of the reshaped and compacted subgrade, then placing 3.5 inches of new bituminous pavement on top. This results in a 10-ton pavement design that meets current State Aid standards.

A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A***.

3. EXISTING CONDITIONS

3.1 Existing Pavement and Soil Conditions

The segment of Alpine Drive between Armstrong Boulevard and Variolite Street was constructed in 2001 using bituminous pavement and B618 concrete curb and gutter. The street was constructed to a width of 32 feet from face-of-curb to face-of-curb in locations where parking is restricted, and to 38 feet from face-of-curb to face-of-curb in locations where parking is allowed along one side. The street is centered within an 80 foot right-of-way, and striping is used to delineate the parking lanes. The existing posted speed is 45 mph along the entire segment of Alpine Drive.

The only pavement maintenance treatment that has been applied to this segment of Alpine Drive is spot spray patching on an as-needed basis. In 2016, Staff observed a Pavement and Surface Evaluation Rating (PASER) of 3.

In 2011, MnDOT recorded a traffic volume of 1,100 average annual daily traffic (AADT). While truck counts are not available, Staff believes it is reasonable to assume less than 5 percent of vehicles using this street segment can be classified as truck traffic, and that the percentage of trucks using this corridor will not substantially increase over time.

Northern Technologies, Inc. (NTI) was employed to complete a Geotechnical Exploration and Engineering Review for this project, which included thirteen (13) soil borings that were spaced at approximately 200 feet along Alpine Drive. The locations of the borings are shown in the Boring Location Diagram in Appendix C of NTI's report, attached in ***Appendix C.***

The soil borings provide information on existing bituminous pavement and aggregate base course thicknesses, subsurface soil conditions, existing ground water elevations, and potential issues that may be encountered during construction. Recommendations are also provided for excavations, site preparation, engineered fill and compaction, depths of unsuitable soils to be removed, ground water management, and pavement design parameters. All borings terminated at a nominal depth of 11 feet below the existing ground surface.

Groundwater was observed in two soil borings at depths ranging between 10 and 10.5 feet below the existing ground surface. Based on the work being proposed and the recorded water level depths, groundwater is not anticipated to be a significant issue for work completed with this proposed project.

The soil borings generally indicate that existing bituminous pavement thicknesses range between 3.5 to 5.0 inches. Apparent aggregate base was observed in five boring locations. Previously placed fill soils, generally consisting of poorly graded sand with silt and poorly graded sand with silt and gravel (SP-SM), poorly graded sand with clay (SP-SC), and clayey sand (SC) are present at depths ranging from 3.0 to 9.5 feet below the top of the pavement. Native alluvial soils consisting of poorly graded sand (SP) and poorly graded sand with silt (SP-SM) generally extend to the bottom of the borings.

3.2 Watermain

Watermain does not exist on site.

3.3 Sanitary Sewer

Sanitary sewer does not exist on site.

3.4 Storm Sewer/Drainage

Storm sewer exists along the entire segment of Alpine Drive. Based on design calculations completed by City staff, minor modifications are required to the existing storm sewer system to meet current State Aid standards. This will require the addition of three catch basins and approximately 100 feet of storm sewer pipe. Stormwater runoff is currently conveyed within the concrete curb and gutter along the outside edges of Alpine Drive, where it is then collected in concrete catch basins and routed through concrete storm sewer pipes to existing wetlands, stormwater drainage ditches, and ponding facilities.

3.5 Streets

3.5.1 Existing Typical Sections

Alpine Drive is centered within 80 feet of City-owned right-of-way. The street section varies between 32 feet in locations where parking is restricted, and 38 feet in locations where parking is allowed.

All curb along these streets are B618 concrete curb and gutter. Parking lanes are delineated with striping.

3.5.2 Maintenance History

This segment of Alpine Drive was originally constructed in 2001 and has not received proactive pavement maintenance other than spot patching on an as-needed basis.

3.6 Land Use

Developed properties abutting this segment are zoned residential.

4. PROPOSED IMPROVEMENTS

4.1 Street and Stormwater Improvements

The segment of Alpine Drive between Armstrong Boulevard and Variolite Street is part of the City's Municipal State Aid System (MSAS). The proposed improvements must therefore be designed and constructed in accordance with current Minnesota Department of Transportation (MnDOT) State Aid standards which are generally based on the street's functional classification, projected traffic volume, design speed, lane designations and widths, and proposed pedestrian facilities.

Based on the proposed design, Alpine Drive must be reconstructed in accordance with State Aid Rule 8820.9936 or 8820.9946. This will depend on the percentage of damaged curb and gutter that needs to be removed and replaced, which will be determined during final design.

The scope of the proposed surface improvements is shown in ***Figure 1*** in ***Appendix A***.

4.1.1 Street Improvements

Alpine Drive is proposed to be reconstructed with bituminous pavement matching the existing width. This design will meet current State Aid standards. All damaged B618 concrete curb and gutter is proposed to be removed and replaced in kind. A typical section for the proposed pavement reconstruction improvements is shown in ***Figure 2*** in ***Appendix A.***

The proposed reconstructed pavement design must accommodate a 10-ton design in accordance with State Aid design standards. City staff is proposing a pavement section design of 1.5 inches bituminous wear course, 2 inches bituminous base course, and 6 inches of aggregate base composed of full depth reclamation material. This pavement section would be constructed over the existing subgrade after it is reshaped and compacted.

The proposed pavement design should result in a minimum pavement life of 30 years, assuming that proactive, regular pavement maintenance treatments are performed during the life of the pavement. While staff would typically target a 60-year design life for reconstructed streets, this project is not proposing to remove and replace all curb and gutter due to the good condition of the existing 15 year old curb and gutter. Therefore, it may make sense to replace the pavement section at the time the existing curb and gutter is replaced, which will likely be 30 or more years into the future.

4.1.2 Stormsewer Improvements

The existing storm sewer system is in good condition but will require the addition of three catch basins and 100 feet of storm sewer pipe to meet all current State Aid standards. In addition, several catch basin castings will require minor improvements. No stormwater quality treatment improvements are required for this project since the street is proposed to be reconstructed at its current width.

4.1.3 Geotechnical Considerations

Northern Technologies, Inc. (NTI) was employed to complete a Geotechnical Exploration and Engineering Review for this project, which included thirteen (13) soil borings that were spaced at approximately 200 feet along Alpine Drive. The locations of the borings are shown in the Boring Location Diagram in Appendix C of NTI's report, attached in ***Appendix D.***

4.1.4 Other Considerations

Driveways:
Existing driveway aprons will need to be reconstructed to varying degrees with this project. The limits of construction will vary with each driveway apron based on the elevation of the street abutting the driveway and the driveway pavement type. During design, staff will evaluate the construction limits for each driveway and will incorporate this into the plans, but as with all street reconstruction projects the exact limits of construction will be determined in the field during construction. Right-of-entry forms will be obtained from private property owners if work is required outside City right-of-ways and easements.

Irrigation Systems:
Developed properties along the project corridor may have private irrigation systems. However, impacts to these systems would only occur if the existing curb and gutter is being removed and replaced. In the past, the City has typically repaired private irrigation systems that are damaged as part of a street reconstruction project. However, staff will be requesting Council permission to change this practice on all future projects by instead notifying property owners of pending construction at least 15 business days in advance to allow them time to move their irrigation systems out of harm's way before work begins.

Parking Restrictions:
Parking is currently provided intermittently along one side of the streets and is not currently restricted except for overnight parking per City code. During this project, parking will be restricted during allowable working hours.

4.2 Stormwater Treatment

No stormwater retention and/or treatment improvements will be required as a result of this project.

4.3 Water Main Improvements

No watermain improvements are proposed with this project.

4.4 Sanitary Sewer Improvements

No sanitary sewer improvements are proposed with this project.

4.5 Construction Methods

The existing bituminous pavement section will be reconstructed using the FDR process outlined within this report. See Pavement Evaluations and Recommendations in ***Appendix C*** for additional detail.

4.6 Private Utilities

Staff has not yet met with the telephone, gas, and cable utilities regarding this project. During preparation of plans and specifications, staff will meet with the private utility companies to discuss the proposed improvements as noted in the project schedule within this report. The alignment and footprint of the streets will be considered to minimize impacts to private utilities. No impacts to power poles or street lights are anticipated with this project.

Should any utility companies indicate they wish to upgrade, replace and/or otherwise modify their services during this project, any such upgrades, replacements and/or modifications will be at the sole discretion and cost of the utilities.

4.7 Permits

Permits that are anticipated to be required as part of the proposed improvements include:

- MPCA General Stormwater Permit (NPDES)..... Grading and Storm Water

A stormwater permit from the Lower Rum River Watershed Management Organization will not be required with this project.

4.8 Right-of-Ways/Easements

It is anticipated that all improvements will occur within existing City right-of-ways and/or easements, with the possible exception of tying into private driveways and yards. It is therefore not anticipated that the City will need to acquire additional permanent right-of-way or easements for this project. As such, costs for right-of-way or easement acquisitions are not included in the probable project costs.

If rights of entries will be required from any property owners prior to construction, City staff will obtain the right of entries.

5. FINANCING

5.1 Opinion of Cost

A detailed opinion of probable costs for the proposed improvements can be found in ***Appendix B*** of this report. The opinion of probable costs incorporates anticipated 2017 construction costs for the proposed improvements plus 23% indirect costs for administrative, engineering, financing and legal costs. No construction contingency costs are included in the estimated costs.

City staff prepared the Feasibility Report in-house as part of staff's normal duties.

NTI prepared the Geotechnical Exploration and Engineering Review, included in ***Appendix C***, at a cost of $4,400.

WSB and Associates, Inc. prepared the Pavement Evaluations and Recommendations included in ***Appendix D***, at the not-to-exceed cost of $2,687.50.

5.2 Funding

5.2.1 Assessments

The use of special assessments is not being proposed with this project.

5.2.2 City Contribution

The City will fund this project in its entirety. No funds have been budgeted for this project.

The City's share of eligible project costs related to surface (street) improvements is proposed to come from the previously encumbered 5-year street reconstruction bonds. Stormwater Utility Funds would be utilized for all storm sewer improvements.

Table 1 illustrates the proposed project funding based on the proposed design outlined within this report. This funding program assumes construction will occur in 2017.

TABLE 1
Proposed Project Funding

	ASSESSMENTS	CITY FUNDS	TOTAL
Estimated Costs	**$0**	**$463,000**	**$463,000**

Total Project Cost		**$463,000**
Less Special Assessments	-	$0
Subtotal	**=**	**$463,000**
Less City Bonding Funds	-	$420,065
Subtotal	**=**	**$42,355**
Less Stormwater Utility Funds	-	$42,355
TOTAL Remaining Cost	**=**	**$0**

6. PROJECT SCHEDULE

The proposed project schedule is as follows:

Council Orders Feasibility Report ..... August 9, 2016

Council Accepts Feasibility Report/Authorizes Plans and Specifications ..... January 24, 2017

Public Input Meetings ..... February 1 - 10, 2017

Staff Conducts Private Utility Coordination Meeting ..... February/March, 2017

Council Approves Plans and Specifications/Authorizes Ad for Bids ..... March 28, 2017

Staff Advertises for Bids ..... March 31 & April 7, 2017

Staff Receives Bids ..... April 27, 2017

Council Awards Contract ..... May 9, 2017

Contractor Begins Construction ..... May/June 2017

Contractor Completes Construction ..... September 8, 2017

7. CONCLUSIONS AND RECOMMENDATIONS

City of Ramsey Improvement Project 17-01 proposes to reconstruct the bituminous pavement section, to remove and replace all damaged concrete curb and gutter, and to complete miscellaneous appurtenant work on Alpine Drive between Armstrong Boulevard and Variolite Street. This street segment measures approximately 3,600 linear feet (0.68 miles).

It is the recommendation of City staff that City Project No. 17-01 is feasible, necessary, and cost-effective from an engineering standpoint.

The following staff recommendations related to the proposed project are presented for Council consideration and concurrence:

1. Staff recommends reconstructing this street segment in 2017 as outlined in this report.
2. Staff recommends reconstructing the off-road bike trail along the south side of Alpine Drive at a later date pending adoption of the City's Trail Maintenance Policy / Program.
3. Staff recommends constructing the 10-ton pavement section for Alpine Drive as proposed herein to accommodate State Aid design standards.
4. Staff recommends requiring private property owners to protect and/or restore their own irrigation systems during future street improvement projects.
5. Staff recommends meeting with the owner of each property in early February of 2017 to inform them of the proposed improvements and to gather public input prior to requesting Council approval of plans and specifications on March 28th.

The City Council is asked to act on the following items related to the proposed project:

1. Adopt Resolution #17-01-0XX accepting this Feasibility Report and ordering Plans and Specifications based on the design proposed herein.

APPENDIX A

Figure 1 – Project Scope
Figure 2 – Typical Section
Project Site Pictures

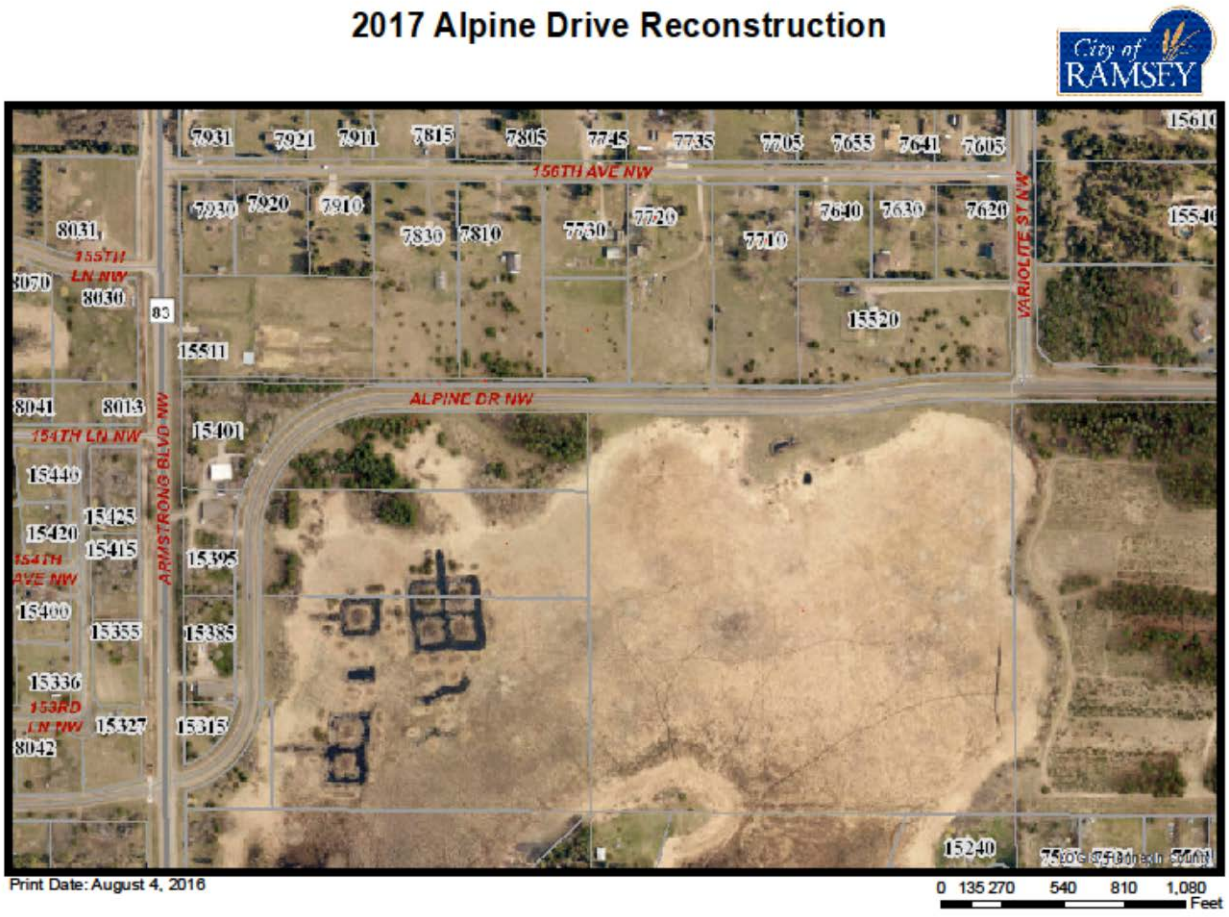


FIGURE 1
PROJECT SCOPE

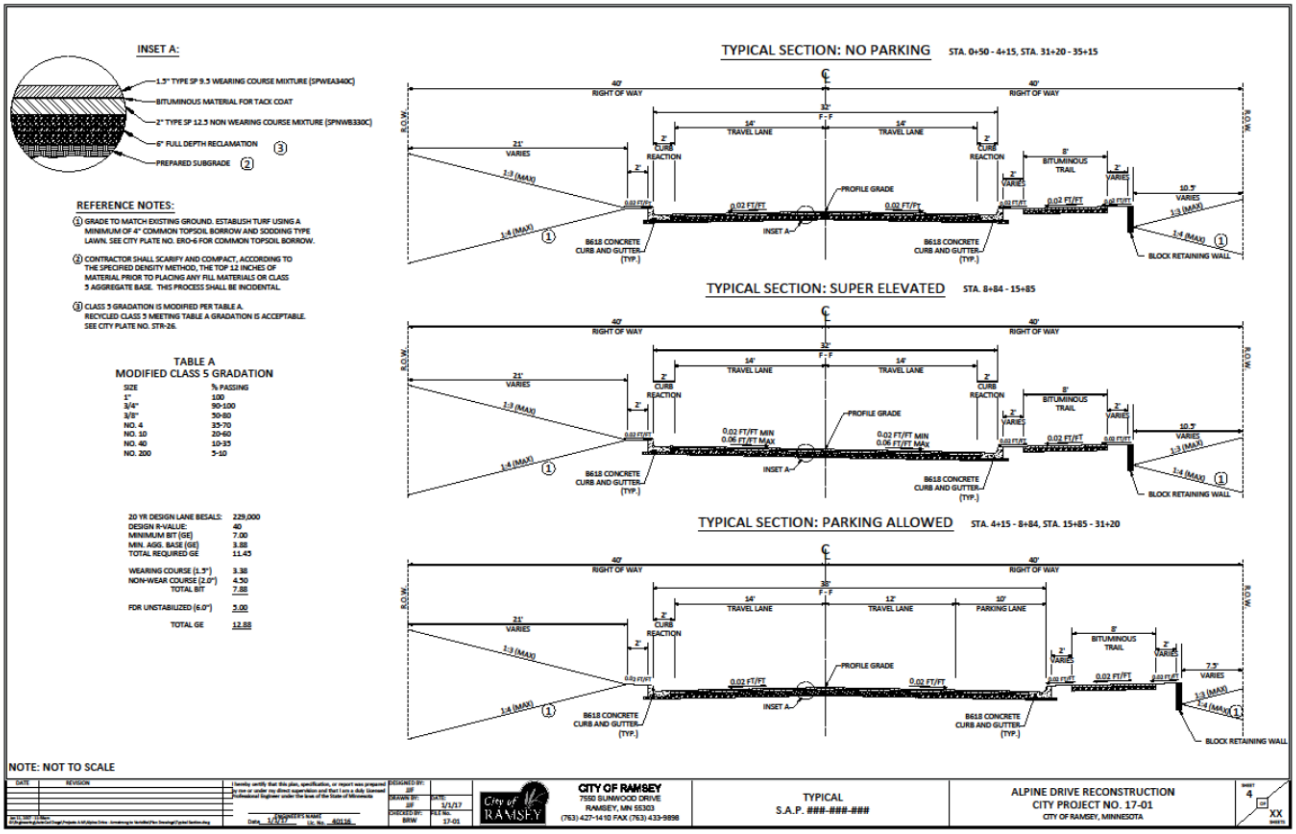


FIGURE 2
TYPICAL SECTION

PROJECT SITE PICTURES

APPENDIX B

Opinion of Probable Costs

17-01 ALPINE DRIVE RECONSTRUCTION: ARMSTRONG BLVD. to VARIOLITE STREET
ENGINEER"S ESTIMATES PER OPTION
1/11/2017

ITEM No.	MNDOT No.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	COST EXTENSION
1	2021.501	MOBILIZATION	LS	1	$ 43,000.00	$ 43,000.00
2	2104.501	REMOVE CONCRETE CURB AND GUTTER	LF	1500	$ 6.00	$ 9,000.00
3	2104.501	REMOVE SEWER PIPE - STORM	LF	10	$ 15.00	$ 150.00
4	2104.503	REMOVE CONCRETE DRIVEWAY PAVEMENT	SF	82	$ 2.50	$ 205.00
5	2104.505	REMOVE BITUMINOUS PAVEMENT	SY	16	$ 4.50	$ 72.00
6	2104.509	REMOVE MANHOLE OR CATCH BASIN	EA	1	$ 500.00	$ 500.00
7	2104.511	SAWING CONCRETE PAVEMENT - FULL DEPTH	LF	64	$ 8.50	$ 544.00
8	2104.513	SAWING BITUMINOUS PAVEMENT - FULL DEPTH	LF	190	$ 5.50	$ 1,045.00
9	2105.522	SELECT GRANULAR BORROW (CV) - (TO POSSIBLY THIN OUT RECLAM)	CY	500	$ 12.50	$ 6,250.00
10	2105.601	UTILITY DEWATERING	LS	1	$ 2,000.00	$ 2,000.00
11	2112.501	SUBGRADE PREPARATION	RDST	36	$ 225.00	$ 8,100.00
12	2130.501	WATER	MGAL	70	$ 32.50	$ 2,275.00
13	*2215.501*	*BITUMINOUS PAVEMENT RECLAMATION (9.5" DEPTH)*	*SY*	*12740*	*$ 2.00*	$ 25,480.00
14	2232.501	MILL BITUMINOUS PAVEMENT (1.5" DEPTH)	SY	40	$ 15.00	$ 600.00
15	2331.607	HAUL BIT PAVEMENT RECLAMATION (LV)	CY	1610	$ 9.00	$ 14,490.00
16	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	892	$ 2.36	$ 2,105.12
17	2360.502	TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340C) (1.5")	TON	1261	$ 65.00	$ 81,965.00
18	2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (SPNWB330C) (2")	TON	1682	$ 61.00	$ 102,602.00
19	2503.541	15" RC PIPE SEWER, DESIGN 3006 CLASS III	LF	161	$ 35.00	$ 5,635.00
20	2503.602	CONNECT TO EXISTING STORM SEWER	EA	2	$ 1,200.00	$ 2,400.00
21	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LF	10	$ 425.00	$ 4,250.00
22	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN 2X3 CATCH BASIN	EA	2	$ 1,500.00	$ 3,000.00
23	2506.516	CASTING ASSEMBLY	EA	4	$ 550.00	$ 2,200.00
24	2506.521	INSTALL CASTING	EA	4	$ 275.00	$ 1,100.00
25	2506.602	GROUT CATCH BASIN	EA	14	$ 300.00	$ 4,200.00
26	2506.602	ADJUST CATCH BASIN CASTING	EA	9	$ 1,000.00	$ 9,000.00
27	2521.501	6" CONCRETE WALK	SF	142	$ 7.00	$ 994.00
28	2531.501	CONCRETE CURB & GUTTER DESIGN B618	LF	1500	$ 13.00	$ 19,500.00
29	2531.507	6" CONCRETE DRIVEWAY PAVEMENT	SY	35	$ 55.00	$ 1,925.00
30	2531.618	TRUNCATED DOMES	SF	16	$ 40.00	$ 640.00
31	2563.601	TRAFFIC CONTROL	LS	1	$ 5,000.00	$ 5,000.00
32	2570.570	HYDRAULIC MATRIX TYPE MULCH	LBS	140	$ 2.00	$ 280.00
33	2573.503	SILT FENCE	LF	800	$ 3.00	$ 2,400.00
34	2573.530	STORM DRAIN INLET PROTECTION	EA	27	$ 200.00	$ 5,400.00
35	2574.508	FERTILIZER TYPE 3	LBS	14	$ 3.00	$ 42.00
36	2575.501	HYDROSEEDING MNDOT MIXTURE 25-131	ACRE	0.07	$ 6,000.00	$ 420.00
37	2575.502	MNDOT SEED MIXTURE 25-131	LBS	15	$ 5.00	$ 75.00
38	2575.525	COMMON TOPSOIL BORROW (LV)	CY	45	$ 30.00	$ 1,350.00
39	2582.502	4" DOUBLE SOLID LINE YELLOW - EPOXY	LF	1384	$ 1.00	$ 1,384.00
40	2582.502	4" BROKEN LINE YELLOW - EPOXY	LF	410	$ 0.50	$ 205.00
41	2582.502	4" SOLID LINE YELLOW - EPOXY	LF	350	$ 0.50	$ 175.00
42	2582.502	4" SOLID LINE WHITE - EPOXY	LF	6777	$ 0.50	$ 3,388.50
43	2582.503	CROSSWALK MARKINGS - EPOXY	SF	90	$ 5.00	$ 450.00

GENERAL BID ITEMS CONSTRUCTION COST	*$ 375,796.62*
23% INDIRECT COST	$ 86,433.22
TOTAL PROJECT COST	**$ 462,229.84**

APPENDIX C

Geotechnical Exploration and Engineering Review (NTI – 34 pages)
Pavement Evaluations and Recommendations (WSB & Associates – 8 pages)

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www.NTIgeo.com

Unearthing confidence™

November 23, 2016

City of Ramsey
Attention: Mr. Bruce Westby, P.E.
7550 Sunwood Drive NW
Ramsey, Minnesota 55303

Subject: Geotechnical Exploration and Engineering Review
Alpine Drive – Street Improvements
Ramsey, Minnesota
NTI Project No. 16.61770.100

Northern Technologies, LLC (NTI) has completed a total of thirteen (13) borings for the Alpine Drive project area in the City of Ramsey, Minnesota.

The scope of services included determining existing bituminous and aggregate base thicknesses, and subsurface conditions, and providing recommendations for site preparation, excavations, engineered fill and compaction, depths of unsuitable soils to be removed, groundwater management, potential difficulties during construction, utility installation, and pavement design.

Our services were performed in accordance with our proposal dated October 25, 2016.

PROJECT AND SITE DESCRIPTION

The project includes street and possibly utility improvements to a section of Alpine Drive between Armstrong Boulevard and Variolite Street in Ramsey, Minnesota.

The pavement sections are proposed to be designed using the average annual daily traffic (AADT) information and based on a 20-year design pavement life. The AADT information noted on the Mn/DOT Traffic Data webpage indicates an AADT of 1000 for the project section of Alpine Drive. NTI was not aware of invert elevations or other design details of the proposed utilities at the time this report was prepared.

SUBSURFACE EXPLORATION SUMMARY

NTI performed the subsurface exploration program on November 7 2016 with a two-person crew using a truck-mounted CME-55 drill rig. Samples were generally collected in accordance with ASTM D 1586 "Standard Test Method for Standard Penetration Testing (SPT) and Split-Barrel Sampling of Soils."

The boring locations and depths were determined by a representative with the City of Ramsey. The boring locations were staked in the field by NTI. The borings terminated at nominal depths 11.0 feet below the existing pavement surface. .

Elevations were not provided to NTI, therefore, NTI has assumed a ground surface elevation of 100.0 feet for each of the boring locations. Please refer to the Boring Location Diagram, the Boring Logs in Appendix C, and the Pavement Core Photographs in Appendix D.

Alpine Drive – (Borings A-1 through A-13)

Bituminous pavement thickness within this roadway area ranged from approximately 3.5 to 5.0 inches at the boring locations. Apparent aggregate base was not observed at the majority of the borings. As exceptions, apparent aggregate base was observed at Boring A-2, A-4, A-5, A-7, and A-10 locations and varied in thickness from approximately 2.5 to 24.0 inches. Occasional cobbles and hard drilling conditions were encountered at Boring A-6, A-7, A-9, A-10, A-12 and A-13 locations.

Previously placed fill soils, generally consisting of poorly graded sand with silt and poorly graded sand with silt and gravel (SP-SM), poorly graded sand with clay (SP-SC) and clayey sand (SC), were encountered extending to depths ranging from approximately 3.0 to 9.5 feet below the top of pavement.

Native alluvial soils consisting of poorly graded sand (SP) and poorly graded sand with silt (SP-SM) were commonly observed extending to the boring termination depths. Varying amounts of gravel were encountered throughout the boring locations.

Groundwater was observed in the boreholes at Borings A-5 and A-9 locations at the time of drilling at depths of 10.0 and 10.5 feet respectively. Please refer to the boring logs included in the appendices.

Table 1 summarizes the encountered subsurface conditions for this project area.

Table 1: Pavement and Subgrade Summary[1]
Alpine Drive

Boring No.	Bituminous Pavement Thickness[2] (inches)	Apparent Aggregate Base Thickness[3] (inches)	Fill Subgrade Material[4]	Native Subgrade Material
A-1	3.5	None	SP-SM	SP-SM
A-2	3.5	20.0	SP-SM	SP-SM
A-3	4.5	None	SP-SM	SP-SM
A-4[5]	4.8	24.0	SP-SM	SP-SM
A-5	4.8	4.5	SP-SC, SC	SP-SM
A-6	4.5	None	SP-SM	SP-SM
A-7	3.8	2.5	SP-SM	SP-SM
A-8	4.0	None	SP-SM	SP
A-9	3.5	None	SP-SM	SP-SM
A-10[5]	5.0	3.0	SP-SM	SP-SM
A-11	4.5	None	SP-SM	SP-SM
A-12	4.5	None	SP-SM	SP-SM
A-13	4.8	None	SP-SM	SP-SM

1. Table summary is a generalization of subsurface conditions at the individual soil boring locations only. They may not reflect variations in subsurface strata occurring on site between boring locations. The general geologic origin of retained soil samples is listed on the boring logs.
2. Measured thickness of the pavement core.
3. Apparent aggregate base thickness, at time of our fieldwork, by visual inspection only and is not meant to confer conformance with DOT specifications.
4. Undocumented fill soils.
5. Pavement core thickness may not be representative due to crumbling during coring process.

GROUNDWATER AND GROUNDWATER CONTROL

Groundwater was observed in the boreholes at Borings A-5 and A-9 locations at the time of drilling at depths of 10.0 and 10.5 feet respectively.

Depending upon elevations of underground utilities, groundwater may be an issue during construction. It should be noted that if excavations are proposed below the groundwater level, the granular nature of the majority of the on-site soils will likely result in significant volumes of water entering the excavations unless proper dewatering measures are implemented. Well points embedded into the underlying sands will likely be the most suitable method for controlling excess water in deeper excavations. If dewatering is needed during construction, we recommend that the groundwater be maintained a minimum of 2 feet below the bottom of the excavation.

LABORATORY TEST PROGRAM

Our analysis and recommendations of this report are based upon our interpretation of the standard penetration test resistance determined while sampling soils, laboratory test results and experience with similar soils from other sites near the project. The results of such tests are summarized on the boring logs or attached laboratory test reports.

UTILITY LINE CONSTRUCTION

The native sand soils observed in soil borings were generally suitable for utility support and utility backfill. Due to the encountered groundwater levels and depending on the installation depth of the utilities, temporary dewatering may be required during the utility trench excavations. Stabilization of the trench subgrade may be required in order to provide a stable platform for construction. Stabilization could consist of a one half to one foot layer of crushed rock or sand with a maximum 5 percent material passing the No. 200 sieve and 50 percent passing the No. 40 sieve.

In addition, as noted above, hard drilling in possible cobbles were encountered within the Alpine Drive project area at select boring locations. Dependent upon the depth of utility installation, pipe bedding may be required to provide a uniform bearing stratum and for protection of the utility piping when bearing upon the underlying gravel laden soils.

The Geotechnical Engineer of Record or their designated representative should observe the project excavations to determine that unsuitable materials have been properly removed and adequate bearing support is provided by the exposed soils. The exposed soil at the base should be compacted to no less than 95 percent standard Proctor maximum dry density (ASTM D698). Such observations and testing should be performed prior to backfilling.

The on-site non-organic soils are anticipated to be suitable for reuse if properly moisture conditioned and compacted. Replacement backfill required in utility trenches should consist of non-organic material similar to the surrounding soil. All import fill should be approved by NTI or the City's representative.

It is especially important that trench backfill for utility construction within paved areas be thoroughly compacted to minimize future pavement damage. We recommend that such soils be compacted in accordance with the recommendations noted in the "Placement and Compaction of Engineered Fill" section in Appendix B of this report.

The stability of embankments along utility excavations is dependent on soil strength, site geometry, moisture content, and any surcharge load for excavated soils and equipment. We present cautionary remarks concerning stability of excavation sideslopes in the "Excavation Stability" section of this report.

The Contractor is solely responsible for assessing the stability of and executing underground utility and project excavations using safe methods. The contractor is also responsible for naming the "competent individual" as per Subpart P of 29 CFR 1926.6 (Federal Register - OSHA).

The Geotechnical Engineer of Record or their designated representative should observe the project excavations to determine that conditions are similar to those encountered in the borings, and that adequate bearing support is provided by the exposed soils.

Excavation Stability

Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations. Excavations may need to be widened and sloped, or temporarily braced, to maintain or develop a safe work environment. Contractors must comply with local, state, and federal safety regulations including current OSHA excavation and trench safety standards. Temporary shoring must be designed in accordance with applicable regulatory requirements.

Excavations that penetrate the groundwater surface will require dewatering with sand points or wells. We recommend that the groundwater surface be maintained a minimum of 2 feet below the bottom of the exposed excavation.

Engineered Fill and Winter Construction

The clayey sand soils on this site will be susceptible to frost action if not provided adequate drainage, insulation or coverage. Frozen soil should not be used as backfill. When the ambient air temperature falls below freezing for an extended period of time, frost forms, and soil near the surface grade expands. Settlement of the fill may occur as the frozen soils thaw.

If frost penetrates the soil prior to paving, soils must be thawed, scarified, and re-compacted as recommended in this report. Subgrade soils should be inspected prior to paving to verify frozen conditions are not present.

PAVEMENT RECOMMENDATIONS

Mill and Overlay Recommendations

Consideration could be made to milling and overlaying the existing pavement. The roadway sections appear to have a sufficiently thick in place pavement section, over a majority of the project alignment, which would lend itself to rehabilitation via mill and overlay techniques.

In general, pavement sections consisting of 3 inches or less of bituminous asphalt can be difficult to effectively mill and overlay as often times the entire pavement section is reclaimed during the attempted partial section milling process. Additionally, in locations where the existing pavement thickness is less than the recommended thickness, a mill and overlay would not be recommended unless a structural overlay were applied to increase the overall thickness.

Pavement Reconstruction

If the pavement section is to be removed and replaced in its entirety, the most conservative method of subgrade preparation would be remove the undocumented fill soils and replace them in their entirety with properly compacted engineered fill. This method of subgrade preparation would provide the most uniform subgrade but would also be the most costly method of construction and would be relatively a-typical method of subgrade preparation for improvements to existing municipal roadways.

If the City is willing to accept some risk in potential long term detrimental performance for the significant upfront savings, the roadway can be reconstructed over the existing fill. NTI recommends that prior to installing the aggregate base, the existing subgrade should be scarified and re-compacted to a depth of at least 12 inches. A proof roll test should then be performed to determine soft or unstable subgrade areas. The proof roll should be performed with a tandem axle dump truck loaded to gross capacity (at least 20 tons). Acceptance criteria of the proof roll shall be limited to rut formation no more than one inch depth (front or rear axles) and no pumping (rolling) observed during the visual inspection. Proof roll tests should be observed by an experienced technician or geotechnical engineer prior to placement of the aggregate base course to verify the subgrade will provide adequate pavement support.

If rutting or localized unstable subgrade areas are observed, those areas should be subcut, moisture-conditioned, and re-compacted or removed to a stable depth.

If imported fill is required in paved areas it should consist of debris free, non-organic, mineral soil similar in composition to the subgrade soils encountered in the surrounding areas. If sand is imported into areas that are underlain by relatively impervious fine grained soils the sand layer must be drained with drain tile in order to prevent frost heave from water trapped within the imported sand layer during freezing temperatures. Individual lifts of engineered fill should be tempered for moisture content, placed and compacted as noted in the "Placement and Compaction of Engineered Fill" section in Appendix B of this report.

The performance of stabilometer or similar tests, were beyond the scope of this report; however, they may be performed, upon request, for an additional fee. Based on the encountered soil conditions, we estimate that a properly prepared poorly graded sand with silt (SP-SM) and poorly graded sand clay (SP-SC) soils will have an average stabilometer R-Value of 40.

For a 20-year design pavement life, Table 3 presents our thickness recommendations for flexible (bituminous) pavement. These recommendations were based upon the encountered subgrade conditions, estimated R-value for the existing subgrade soils, the assumed AADT volumes, and the City of Ramsey's typical pavement section for the respective project area.

Table 3: Flexible Pavement Thickness Design[1]
Alpine Drive

Pavement Section	Calculated Required Pavement Section	City's Typical Pavement Section[2]
Bituminous Wear Course (inches)	1.5	1.5
Bituminous Base Course (inches)	2.0	2.0
Class 5 or 7 Aggregate Base (inches)	6.0	4.0

1. Assumed AADT volume of 1000 and an average R-value of 40.
2. The calculated required section was greater than the City's typical section for residential streets, thus NTI recommends that the Calculated Required Pavement Section be implemented.

Pavement recommendations assume the subgrade soils and aggregate section below paved surfaces will drain to subsurface piping for eventual discharge into storm sewer, or above grade to ditching, or similar acceptable systems. Lack of surface and subsurface drainage will significantly reduce the capacity and longevity of the pavement systems indicated above.

We recommend pavements receive annual maintenance, as a minimum, to correct damages to the pavement structure, clean and infill cracks which develop, and repair or resurface areas which exhibit reduced subgrade performance. The lack of maintenance can lead to moisture infiltration of the pavement structure and softening of the subgrade soils. This, in turn, can degrade the performance of the pavement system and result in poorly performing pavements with shortened life expectancy.

CLOSURE

As the widely spaced, small diameter borings provide only a limited amount of data regarding the existing fill, the existing fill may contain soft zones, debris or significantly greater amounts of unsuitable materials than could be reasonably inferred from the boring information. Unsuitable materials may not be discovered during construction and may remain buried within the fill below the slabs and pavements, resulting in greater than anticipated settlements of the slabs and pavements. These risks cannot be eliminated without completely removing the fill, but can be reduced by thorough exploration and testing during site preparation and construction.

Our conclusions and recommendations are predicated on observation and testing of the earthwork directed by Geotechnical Engineer of Record. Our opinions are based on data assumed representative of the site. However, the area coverage of borings in relation to the entire project is very small. For this and other reasons, we do not warrant conditions below the depth of our borings, or that the strata logged from our borings are necessarily typical of the site. Deviations from our recommendations by plans, written specifications, or field applications shall relieve us of responsibility unless our written concurrence with such deviations has been established.

The scope of services for this project does not include either specifically or by implication any environmental or biological assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of The City of Ramsey and its agents for specific application to the proposed Alpine Drive – Street Improvements project in the City of Ramsey, Minnesota. Northern Technologies, LLC has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Northern Technologies, LLC makes no other warranty, express or implied.

Northern Technologies, LLC

Debra A. Schroeder, P.E.
Senior Engineer

Steven D. Gerber, P.E.
Senior Engineer

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.

Debra A. Schroeder
Date: 11/23/2016 Reg. No. 52743

Attachments
Appendix A - General Notes
Appendix B - Groundwater Issues, Compaction and Placement of Fill
Appendix C - Attachments: Boring Location Diagram (1), Soil Boring Logs (13)
Appendix D - Photographs (13 cores)

APPENDIX A

GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

FIELD EXPLORATION PROCEDURES

GENERAL NOTES

WATER LEVEL SYMBOL

DESCRIPTIVE TERMINOLOGY

RELATIVE PROPORTIONS

PARTICLE SIZES

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

We visually examined recovered soil samples to estimate distribution of grain sizes, plasticity, consistency, moisture condition, color, presence of lenses and seams, and apparent geologic origin. We then classified the soils according using the Unified Soil Classification System (ASTM D2488). A chart describing this classification system and general notes explaining soil sampling procedures are presented within appendices attachments.

The stratification depth lines between soil types on the logs are estimated based on the available data. In-situ, the transition between type(s) may be distinct or gradual in either the horizontal or vertical directions. The soil conditions have been established at our specific boring locations only. Variations in the soil stratigraphy may occur between and around the borings, with the nature and extent of such change not readily evident until exposed by excavation. These variations must be properly assessed when utilizing information presented on the boring logs.

We request that you, your design team or contractors contact NTI immediately if local conditions differ from those assumed by this report, as we would need to review how such changes impact our recommendations. Such contact would also allow us to revise our recommendations as necessary to account for the changed site conditions.

FIELD EXPLORATION PROCEDURES

Soil Sampling – Standard Penetration Boring:

Soil sampling was performed according to the procedures described by ASTM D-1586. Using this procedure, a 2 inch O.D. split barrel sampler is driven into the soil by a 140 pound weight falling 30 inches. After an initial set of six inches, the number of blows required to drive the sampler an additional 12 inches is recorded (known as the penetration resistance (i.e. “N-value”) of the soil at the point of sampling. The N-value is an index of the relative density of cohesionless soils and an approximation of the consistency of cohesive soils.

Soil Sampling – Power Auger Boring:

The boring(s) was/were advanced with a 6 inch nominal diameter continuous flight auger. As a result, samples recovered from the boring are disturbed, and our determination of the depth, extend of various stratum and layers, and relative density or consistency of the soils is approximate.

Soil Classification:

Soil samples were visually and manually classified in general conformance with ASTM D-2488 as they were removed from the sampler(s). Representative fractions of soil samples were then sealed within respective containers and returned to the laboratory for further examination and verification of the field classification. In addition, select samples were submitted for laboratory tests. Individual sample information, identification of sampling methods, method of advancement of the samples and other pertinent information concerning the soil samples are presented on boring logs and related report attachments.

GENERAL NOTES

DRILLING and SAMPLING SYMBOLS		*LABORATORY TEST SYMBOLS*	
SYMBOL	**DEFINITION**	**SYMBOL**	**DEFINITION**
C.S.	Continuous Sampling	W	Moisture content-percent of dry weight
P.D.	2-3/8" Pipe Drill	D	Dry Density-pounds per cubic foot
C.O.	Cleanout Tube	LL, PL	Liquid and plastic limits determined in accordance with ASTM D 423 and D 424
3 HSA	3 ¼" I.D. Hollow Stem Auger	Q_U	Unconfined compressive strength-pounds per square foot in accordance with ASTM D 2166-66
4 FA	4" Diameter Flight Auger		
6 FA	6" Diameter Flight Auger		
2 ½ C	2 ½" Casing		
4 C	4" Casing		
D.M.	Drilling Mud	Pq	Penetrometer reading-tons/square foot
J.W.	Jet Water	S	Torvane reading-tons/square foot
H.A.	Hand Auger	G	Specific Gravity – ASTM D 854-58
NXC	Size NX Casing	SL	Shrinkage limit – ASTM 427-61
BXC	Size BX Casing	Ph	Hydrogen ion content-meter method
AXC	Size AX casing	O	Organic content-combustion method
SS	2" O.D. Split Spoon Sample	M.A.	Grain size analysis
2T	2" Thin Wall Tube Sample	C*	One dimensional consolidation
3T	3" Thin Wall Tube Sample	Q_C	Triaxial Compression
		* See attached data Sheet and/or graph	

WATER LEVEL SYMBOL

Water levels shown on the boring logs were determined at the time and under the conditions indicated. In sand, the indicated levels can be considered relatively reliable for most site conditions. In clay soils, it is not possible to determine the ground water level within the normal scope of a test boring investigation, except where lenses or layers of more pervious water bearing soil are present; and then a long period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed soils may not indicate the true level of the ground water table. The available water level information is given at the bottom of the log sheet.

DESCRIPTIVE TERMINOLOGY

RELATIVE DENSITY		*CONSISTENCY*	
TERM	**N_{60} Value** (corrected)	**TERM**	**N_{60} Value** (corrected)
Very Loose	0 – 4	Soft	0 – 4
Loose	5 – 8	Medium	5 – 8
Medium Dense	9 – 16	Rather Stiff	9 – 15
Dense	16 – 30	Stiff	16 – 30
Very Dense	Over 30	Very Stiff	Over 30

RELATIVE PROPORTIONS

TERMS	**RANGE**
Trace	0 – 5%
A little	5 – 15%
Some	15 – 30%

PARTICLE SIZES

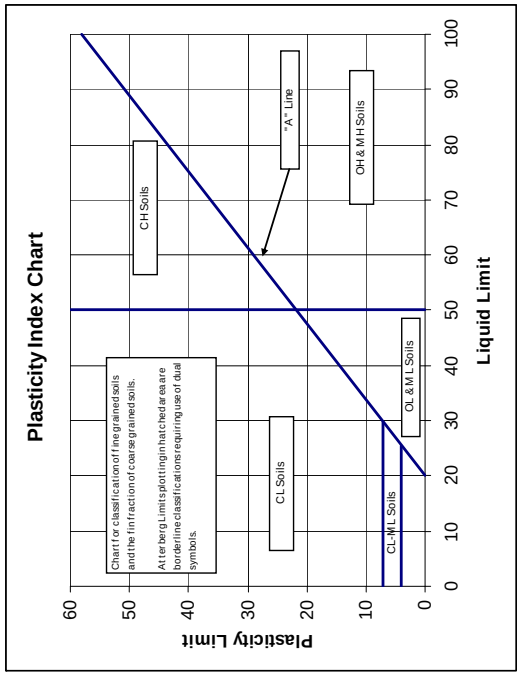
MATERIAL	**DESCRIPTION**	**U.S. SIEVE SIZE**
Boulders		Over 3"
Gravel	Coarse	3" to ¾"
	Medium	¾" to #4
Sand	Coarse	#4 to #10
	Medium	#10 to #40
	Fine	#40 to #200
Silt and Clay	Determined by Hydrometer Test	

CLASSIFICATION of SOILS for ENGINEERING PURPOSES

ASTM Designation D-2487 and D2488 (Unified Soil Classification System)

Major Divisions			Group Symbol	Typical Name	Classification Criteria
Course Grained Soils More than 50% retained on No. 200 sieve *	Gravels 50% or more of coarse fraction retained on No. 4 sieve.	Clean Gravels	GW	Well –graded gravels and gravel-sand mixtures, little or no fines.	Cu = D60 / D10 greater than 4. Cz = (D30)2 / (D10 x D60) between 1 & 3.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines.	Not meeting both criteria for GW materials.
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures.	Atterberg limits below "A" line, or P.I. less than 4. / Atterberg limits above "A" line with P.I. greater than 7. — Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols.
			GC	Clayey gravels, gravel-sand-clay mixtures.	
	Sands More than 50% of coarse fraction passes No 4 sieve.	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines.	Cu = D60 / D10 greater than 6. Cz = (D30)2 / (D10 x D60) between 1 & 3.
			SP	Poorly-graded sands and gravelly sands, little or no fines.	Not meeting both criteria for SW materials.
		Sands with Fines	SM	Silty sands, sand-silt mixtures.	Atterberg limits below "A" line, or P.I. less than 4. / Atterberg limits above "A" line with P.I. > 7. — Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures.	
Fine Grained Soils More than 50% passes No. 200 sieve *	Silts and Clays Liquid Limit of 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands.	
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
			OL	Organic silts and organic silty clays of low plasticity.	
	Silts and Clays Liquid Limit greater than 50%.		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts.	
			CH	Inorganic clays of high plasticity, fat clays.	
			OH	Organic clays of medium to high plasticity.	
	Highly Organic Soils		Pt	Peat, muck and other highly organic soils.	

Classification on basis of percentage of fines.
Less than 5% passing No. 200 Sieve: GW, GP, SW, SP
More than 12% passing No. 200 Sieve: GM, GC, SM, SC
From 5% to 12% passing No. 200 Sieve: Borderline Classification requiring use of duel symbols.



APPENDIX B

GROUNDWATER ISSUES

PLACEMENT and COMPACTION OF ENGINEERED FILL

GROUNDWATER ISSUES

The following presents additional comment and soil specific issues related to measurement of groundwater conditions at your project site.

Note that our groundwater measurements, or lack thereof, will vary depending on the time allowed for equilibrium to occur in the borings. Extended observation time was not available during the scope of the field exploration program and, therefore, groundwater measurements as noted on the borings logs may or may not accurately reflect actual conditions at your site.

Seasonal and yearly fluctuations of the ground water level, if any, occur. Perched groundwater may be present within sand and silt lenses bedded within cohesive soil formations. Groundwater typically exists at depth within cohesive and cohesionless soils.

We anticipate that a system of sump pits and pumps located outside of the excavation areas would be suitable for control if groundwater were to be encountered. However, a well point system would be more suitable for control of groundwater if excavations were to be advanced into the ground water table at depth in free draining granular soils. Additionally, we caution such seepage from such formations and any water entry from excavations below the groundwater table may be heavy and will vary based on seasonal and annual precipitation, and ground related impacts in the vicinity of the project. The groundwater surface should be maintained a minimum of 2 feet below the bottom of the excavation at all times.

PLACEMENT and COMPACTION OF ENGINEERED FILL

Unless otherwise superseded within the body of the Geotechnical Exploration Report, the following criteria shall be utilized for placement of engineered fill on project. This includes, but is not limited to earthen fill placement to improve site grades, fill placed below structural footings, fill placed interior of structure, and fill placed as backfill of foundations.

Engineered fill placed for construction, if necessary should consist of natural, non-organic, competent soils native to the project area. Such soils may include, but are not limited to gravel, sand, or clays with Unified Soil Classification System (ASTM D2488) classifications of GW, SP, or SM. Use of silt or clayey silt as project fill will require additional review and approval of project Geotechnical Engineer of Record. Such soils have USCS classifications of ML, MH, ML-CL, MH-CH. Use of topsoil, marl, peat, other organic soils construction debris and/or other unsuitable materials as fill is not allowed. Such soils have USCS classifications of OL, OH, Pt.

Engineered fill, classified as clay, should be tempered such that the moisture content at the time of placement is equal to and no more than 3 percent above the optimum content for as defined by the appropriate proctor test. Likewise, engineered fill classified as gravel or sand should be tempered such that the moisture content at the time of placement is within 3 percent of the optimum content.

All engineered fill for construction should be placed in individual 8 inch maximum depth lifts. Each lift of fill should be compacted by large vibratory equipment until the in-place soil density is equal to or greater than the criteria established within the following tabulation.

	Compaction Criteria (% respective Proctor)[1]	
Type of Construction	**Clay**	**Sand or Gravel**
General Embankment Fill	Min. 95	Min. 95
Engineered Fill below Foundations	NA	Min. 98
Engineered Fill below Floor Slabs	NA	Min. 98
Engineered Fill placed as Pavement Aggregate Base	NA	Min. 100
Engineered Fill placed to within 3 feet of pavement aggregate base	Min. 95	Min. 95
Engineered Fill placed within 3 feet of pavement aggregate base	Min. 100	Min. 100

1 Unless otherwise required, compaction shall be based on the Standard Proctor Test (ASTM D698).

Density tests should be taken during engineered fill placement to document earthwork has achieved necessary compaction of the material(s). Recommendations for interior fill placement and backfill of foundation walls are presented within other sections of this report.

APPENDIX C

BORING LOCATION DIAGRAM

SOIL BORING LOGS

N

Boring Location Diagram

Completed Soil Borings:

Alpine and Sunwood Drive – Street Improvements – Alpine Drive

Ramsey, Minnesota

NTI Project #: 16.61770.100

NOTE: Boring locations are approximate.

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BORING NUMBER A-1

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) --- **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.3 BITUMINOUS PAVEMENT (3.5 inches) 99.7	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, moist, little gravel (Fill) NOTE: Brown to dark brown below 2.0 feet.	SS 2	100	15-20-16 (36)			6				8
5			SS 3	100	25-16-15 (31)							
		7.0 93.0 POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, medium dense, trace gravel (Alluvial)	SS 4	100	11-7-7 (14)							
10			SS 5	83	7-5-4 (9)							
		11.0 89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-2

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.3 BITUMINOUS PAVEMENT (3.5 Inches) 99.7 APPARENT AGGREGATE BASE (20.0 Inches) 2.0 98.1	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, moist, trace gravel, occasional cobbles (Fill)	SS 2	100	24-22-18 (40)			6				
5			SS 3	100	21-25-28 (53)							
		NOTE: Dark brown below 7.0 feet.	SS 4	100	15-16-18 (34)							
		9.5 90.5										
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, loose, trace gravel (Alluvial) 11.0 89.0	SS 5	100	7-4-3 (7)							

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-3

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) dark brown to black, fine to medium grained, moist, trace gravel (Fill)	SS 2	89	4-4-4 (8)							
5			SS 3	83	4-5-6 (11)			11				12
		8.0 92.0	SS 4	94	3-3-4 (7)							
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, loose, trace gravel (Alluvial)	SS 5	83	3-3-4 (7)							
		11.0 89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-4

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.3 BITUMINOUS PAVEMENT (4.8 Inches) 99.7 APPARENT AGGREGATE BASE (24.0 Inches) 2.3 97.7	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to dark brown, fine to medium grained, moist, trace gravel (Fill)	SS 2	89	8-9-9 (18)			7				
5			SS 3	100	7-6-6 (12)							
		7.0 93.0 POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, medium dense to loose, trace gravel (Alluvial)	SS 4	100	4-5-6 (11)							
10			SS 5	100	4-3-4 (7)							
		11.0 89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-5

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/8/16 **COMPLETED** 11/8/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 10.00 ft / Elev 90.00 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 6 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.8 Inches)	99.6	AU 1									
		0.8 APPARENT AGGREGATE BASE (4.5 Inches)	99.2										
		POORLY GRADED SAND WITH CLAY, (SP-SC) brown to dark brown, fine to medium grained, moist, trace gravel (Fill)		SS 2	89	5-5-6 (11)			7				9
		4.5	95.5										
5		CLAYEY SAND, (SC) dark brown to black, fine to medium grained, moist, trace gravel, occasional bituminous debris, trace organics (Fill)		SS 3	78	8-11-14 (25)			8				15
		7.0 NOTE: Organic content at 4.5 feet = 1.5%.	93.0	SS 4	67	6-5-5 (10)							
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown to, fine to medium grained, moist to saturated, medium dense to loose, trace gravel ▽ (Alluvial)		SS 5	89	3-4-3 (7)							
		11.0	89.0										

Bottom of borehole at 11.0 feet.

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Inver Grove Heights, MN 55076
P: 651-389-4191
www.NTIgeo.com

BORING NUMBER A-6

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 3.5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel, possible cobbles (Fill)	SS 2	94	6-8-7 (15)			7				
5		NOTE: Brown to dark brown below 4.5 feet.	SS 3	89	7-8-10 (18)							
			SS 4	100	14-22-10 (32)							
		9.5 90.5										
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, dense, trace gravel (Alluvial) 11.0 89.0	SS 5	89	12-11-14 (25)							

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-7

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4.5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.3 BITUMINOUS PAVEMENT (3.8 Inches)	99.7	AU 1									
		0.5 APPARENT AGGREGATE BASE (2.5 Inches)	99.5										
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel, possible cobbles (Fill) NOTE: Occasional bituminous debris below 2.0 feet. NOTE: Brown to dark brown below 4.5 feet.		SS 2	50	7-9-8 (17)							
5				SS 3	72	7-6-7 (13)			8				
				SS 4	67	11-17-20 (37)							
		9.5	90.5										
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, medium dense, trace gravel (Alluvial)		SS 5	83	8-5-6 (11)							
		11.0	89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-8

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.3 BITUMINOUS PAVEMENT (4.0 Inches) 99.7	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown to light brown, fine to medium grained, moist, trace gravel (Fill) 2.0 98.0	SS 2	89	7-8-9 (17)			3				2
5		POORLY GRADED SAND, (SP) brown to light brown, fine to medium grained, moist, loose to dense, trace gravel (Alluvial)	SS 3	100	6-4-4 (8)							
			SS 4	100	6-5-5 (10)							
10		11.0 89.0	SS 5	89	6-8-10 (18)							

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-9

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
▽ **AT TIME OF DRILLING** 10.50 ft / Elev 89.50 ft
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) --- **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.3 BITUMINOUS PAVEMENT (3.8 Inches) 99.7	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) light brown to dark brown, fine to medium grained, moist, trace gravel, possible cobbles (Fill)	SS 2	22	8-5-4 (9)							
5		NOTE: Brown to dark brown with occasional bituminous debris below 4.5 feet.	SS 3	89	13-12-12 (24)							
		7.0 93.0 POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist to saturated, loose to medium dense, trace gravel (Alluvial)	SS 4	100	5-5-3 (8)			6				5
10		11.0 ▽ 89.0	SS 5	78	5-4-6 (10)							

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-10

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 3.5 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (5.0 Inches)	99.6	AU 1									
		0.7 APPARENT AGGREGATE BASE (3.0 Inches)	99.3										
		POORLY GRADED SAND WITH SILT, (SP-SM) light brown, fine to medium grained, moist, trace gravel, possible cobbles (Fill)		SS 2	83	14-20-18 (38)			7				
		4.5 NOTE: Brown to dark brown below 2.0 feet.	95.5										
5		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, dense to medium dense, trace gravel (Alluvial)		SS 3	100	6-8-12 (20)							
				SS 4	100	4-5-4 (9)							
10				SS 5	100	4-5-5 (10)							
		11.0	89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-11

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, trace gravel (Fill)	SS 2	89	12-5-8 (13)							
		3.0 97.0										
5		POORLY GRADED SAND, (SP) light brown, fine to medium grained, moist, loose, trace gravel (Alluvial)	SS 3	94	3-4-4 (8)							
			SS 4	100	4-3-3 (6)							
10			SS 5	100	4-3-4 (7)			6				2
		11.0 89.0										

Bottom of borehole at 11.0 feet.

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BORING NUMBER A-12

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.5 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT, (SP-SM) dark brown, fine to medium grained, moist, trace gravel, possible cobbles (Fill) NOTE Brown to dark brown below 2.0 feet.	SS 2	67	13-15-16 (31)							
5			SS 3	89	8-15-24 (39)							
			SS 4	100	15-18-22 (40)			6				10
10		9.5 90.5 POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to medium grained, moist, medium dense, trace gravel (Alluvial) 11.0 89.0	SS 5	100	5-5-8 (13)							

Bottom of borehole at 11.0 feet.

NTI NORTHERN TECHNOLOGIES, LLC

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Inver Grove Heights, MN 55076
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BORING NUMBER A-13

CLIENT City of Ramsey
PROJECT NAME Alpine and Sunwood Drive - Street Improvements
PROJECT NUMBER 16.61770.100
PROJECT LOCATION Ramsey, MN
DATE STARTED 11/7/16 **COMPLETED** 11/7/16
GROUND ELEVATION 100 ft **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Observed.
LOGGED BY Robert Hawkins **CHECKED BY** DAS
AT END OF DRILLING ---
CAVE IN (ft) 4 **FROST DEPTH (ft)** ---
AFTER DRILLING ---
NOTES Elevation assumed 100.0 Feet.

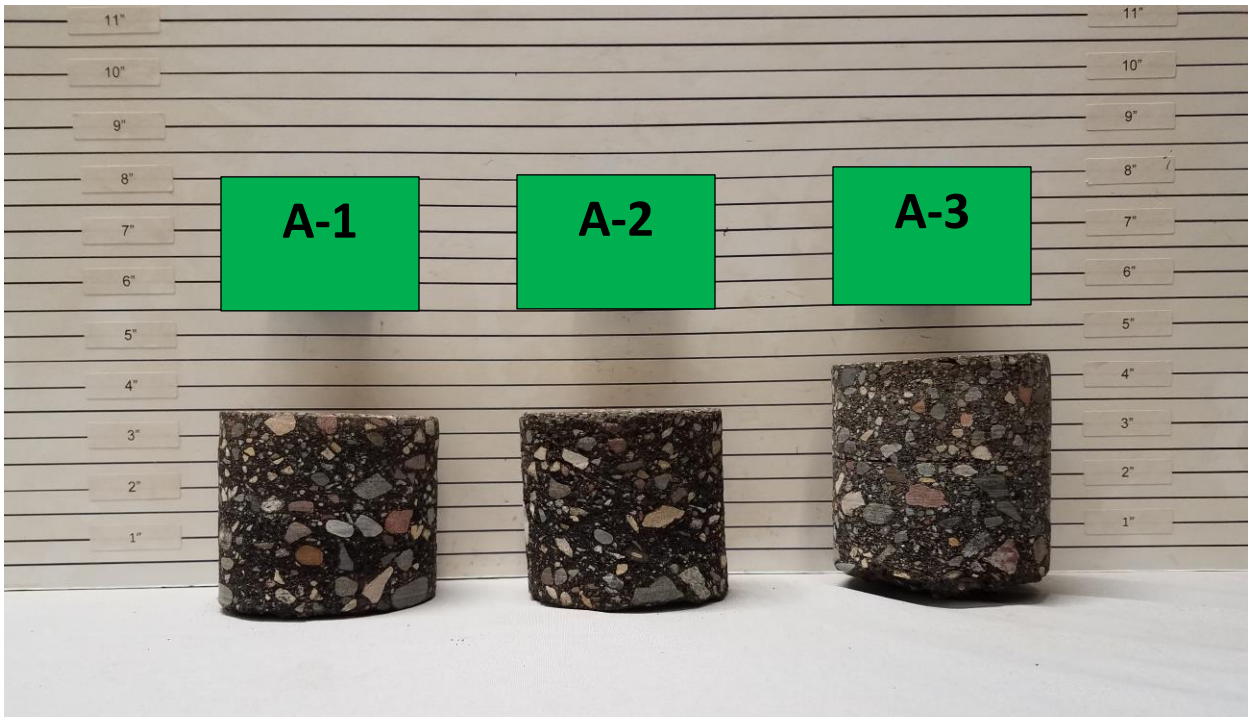
DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		0.4 BITUMINOUS PAVEMENT (4.8 Inches) 99.6	AU 1									
		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) brown to dark brown, fine to medium grained, moist, possible cobbles (Fill)	SS 2	83	12-15-20 (35)							
5			SS 3	100	15-24-32 (56)			6				7
		NOTE: Occasional bituminous debris below 7.0 feet.	SS 4	100	13-22-16 (38)							
		9.5 90.5										
10		POORLY GRADED SAND WITH SILT, (SP-SM) dark brown, fine to medium grained, moist, medium dense, trace gravel (Alluvial) 11.0 89.0	SS 5	100	4-4-5 (9)							

Bottom of borehole at 11.0 feet.

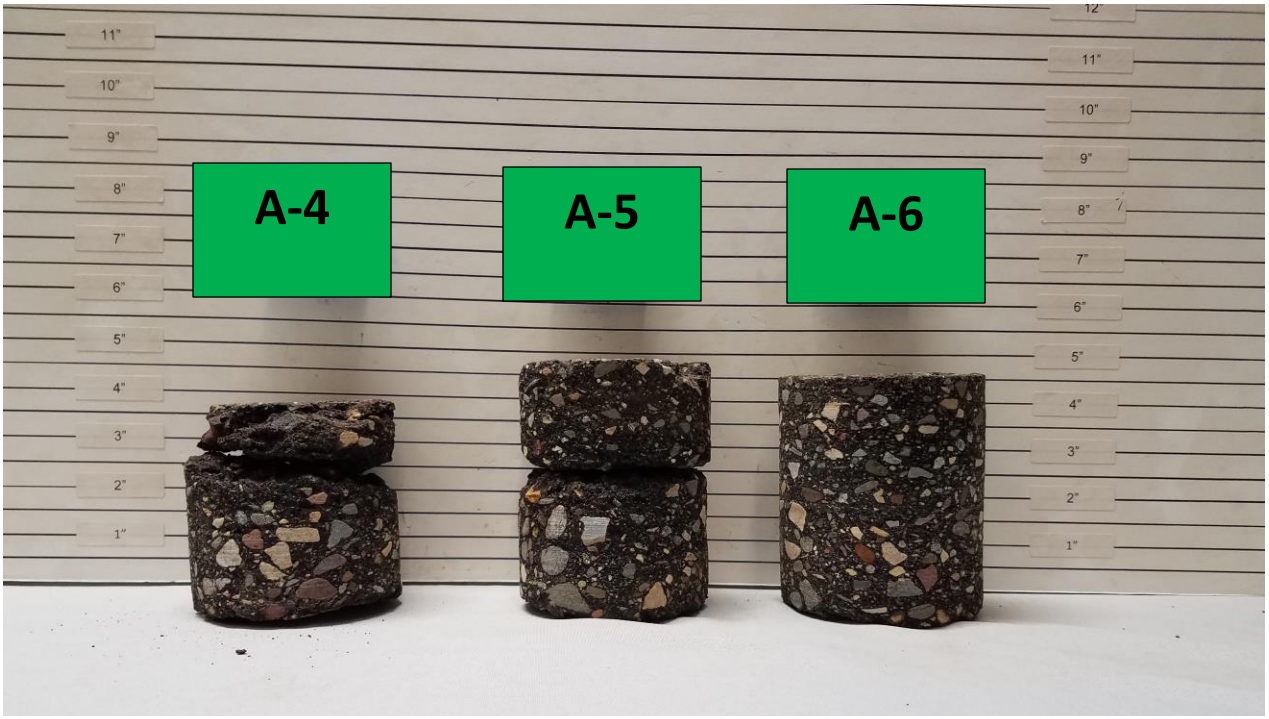
APPENDIX D

PAVEMENT CORE PHOTOGRAPHS

Bituminous Pavement Cores, A-1: 3 ½ Inches, A-2: 3 ½ Inches, A-3: 4 ½ Inches.

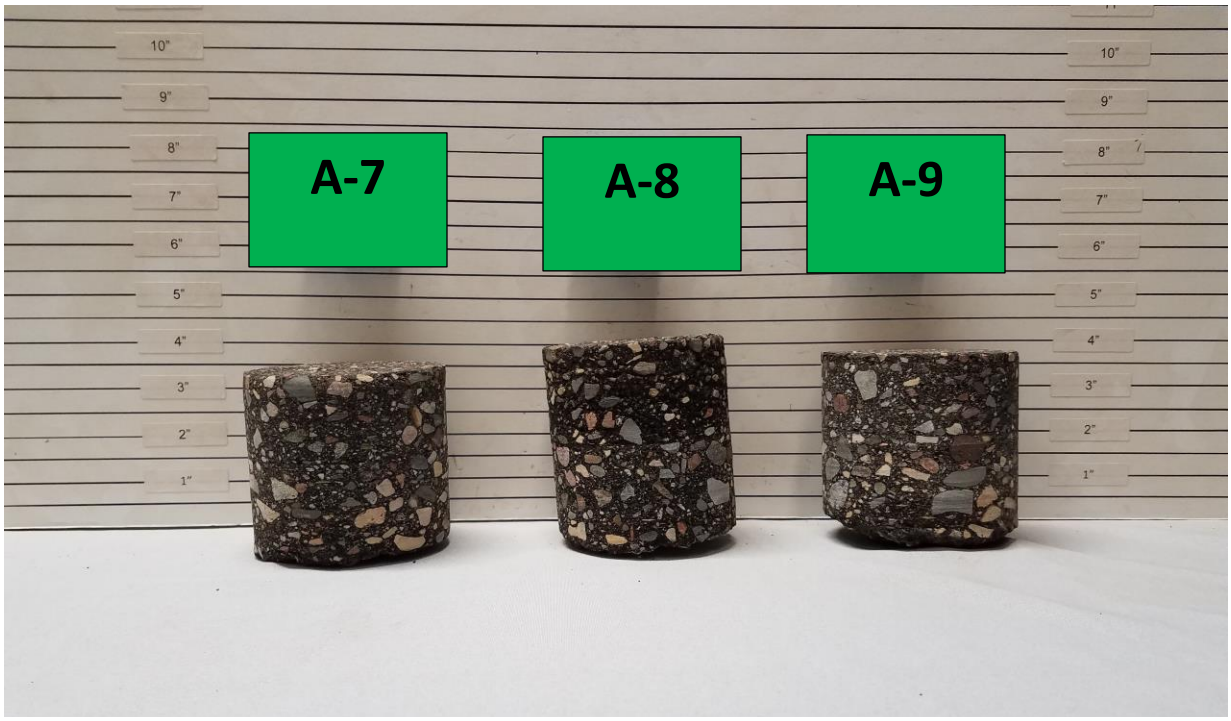


Bituminous Pavement Cores, A-4: 3 ¾ Inches*, A-5: 4 ¾ Inches*, A-6: 4 ½ Inches.

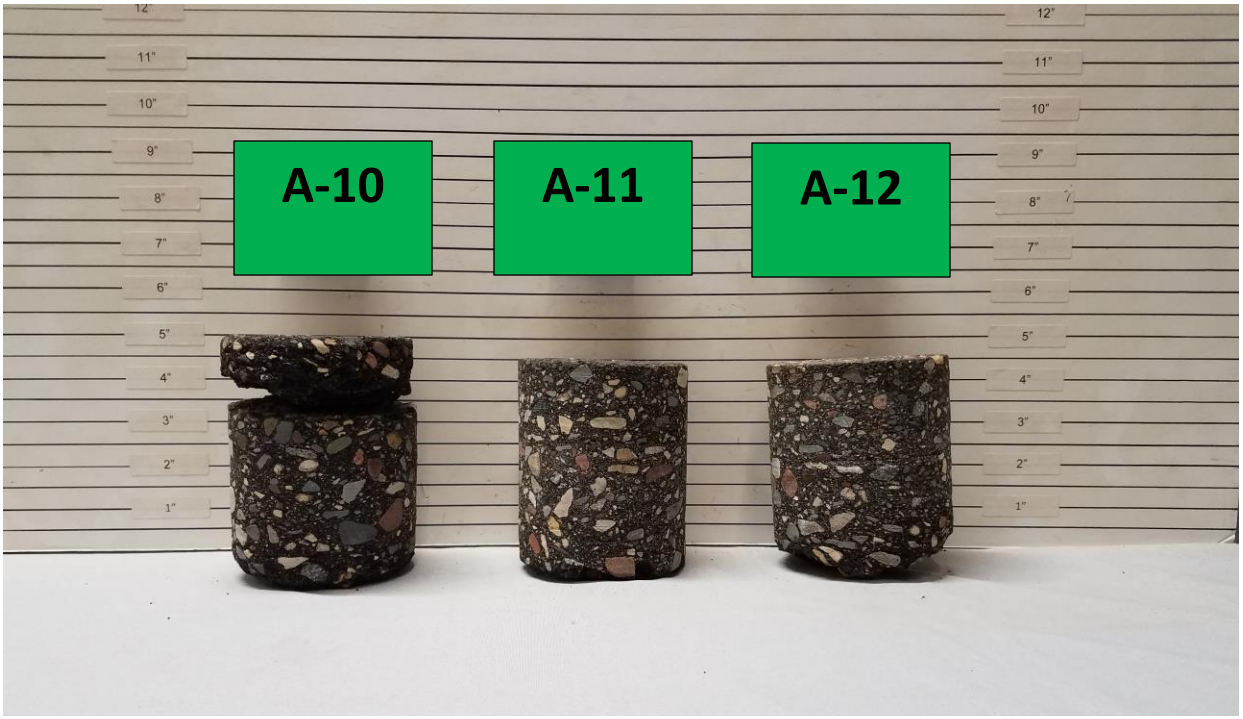


*Core height not representative due to crumbling during coring process.

Bituminous Pavement Cores, A-7: 3 ¾ Inches, A-8: 4 Inches, A-9: 3 ¾ Inches.



Bituminous Pavement Cores, A-10: 5 Inches*, A-11: 4 ½ Inches, A-12: 4 ½ Inches.



*Core height not representative due to crumbling during coring process.

Bituminous Pavement Cores, A-13: 4 ¾ Inches.

701 Xenia Avenue South | Suite 300 | Minneapolis, MN 55416 | (763) 541-4800

December 27, 2016

Mr. Bruce Westby P.E.
City Engineer
7550 Sunwood Drive NW.
Ramsey, MN 55303

Re: Pavement Evaluations and Recommendations for City of Ramsey Improvement Project #17-01
2017 Alpine Drive Reconstruction

Observation: On December 20, 2016 WSB & Associates cored Alpine Drive from Variolite Street to Armstrong Blvd in the City of Ramsey, MN. This pavement was constructed in the early 1990s and suffers from severe cracking and tenting during cold weather. A geotechnical report had been completed earlier and did not clearly define the cause of the cracking and tenting. The goal of the additional coring was to try to determine why the pavement cracked and tents so severely and to make recommendations on what to do to reconstruct the pavement. As we cut thru the hot mix asphalt (HMA) at the first core site we observed a white to cream color slurry coming out of the core hole. Once the core was removed we observed in the bottom of the core hole what appeared to be concrete material. We were able to core another 4 inches deeper and remove an intact core out of the base aggregate material. This material seemed like a lean concrete material. Photos of the cores are provided in Appendix B of this report. Base on the finding of the first core location we move to an area that the City personnel stated tented the worst and cut another core. We observed similar results to the first core location. We then cored two more locations evenly spaced to make sure that similar materials were used the length of the project. All the cores taken had similar base materials observed under the HMA.

It appears that when the pavement was originally constructed the contractor used crushed recycled concrete for the Class 5 base materials. Based on observations, it appears that not enough sand was blended into the recycled concrete to keep it from rehydrating and forming a weak concrete pavement. This type of material can be prone to swelling when permeated with water causing abnormal cracking and a very rough driving surface when below freezing.

All of the Hot Mix Asphalt (HMA) cored were approximately 4 inches in thickness.

Recommendations: Based on the information above, our recommendation would be to do full depth reclamation (FDR) of all the HMA pavement into the Class 5 recycled concrete material to lean out the existing recycled concrete materials to make it less prone to cracking and swelling. Once the FDR has been completed then 4 or 5 inches of the newly reclaimed materials would be removed and hauled off to make room to repave the HMA over newly compacted recycled aggregate base materials. Based on the traffic levels we would recommend paving it with 4 to 5 inches of SPWEA340C Super Pave. We would recommend priming the reclaimed materials with penetration emulsion prime to help reduce water infiltration into HMA.

Please let me know if you have any other questions of comments regarding this report.

Sincerely,

WSB & Associates, Inc.

Thomas J. Wood
Project Manager

Appendix A

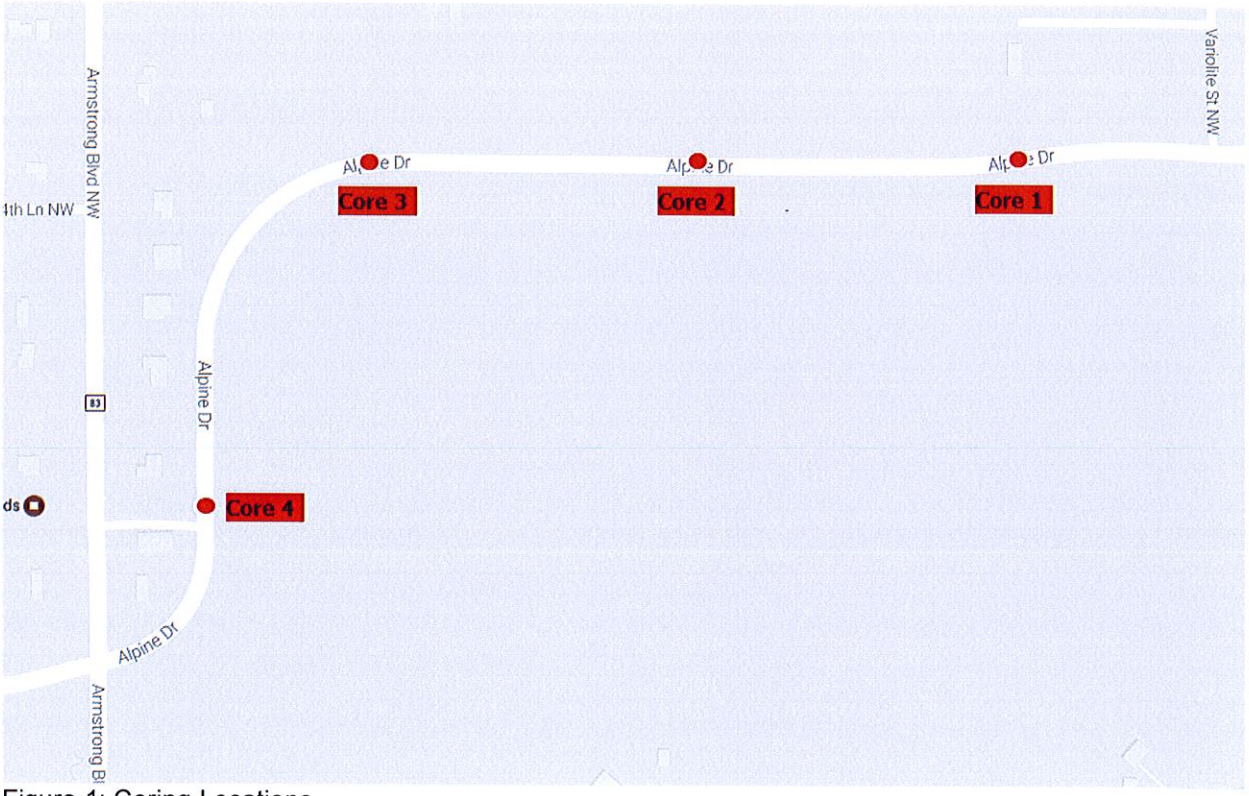
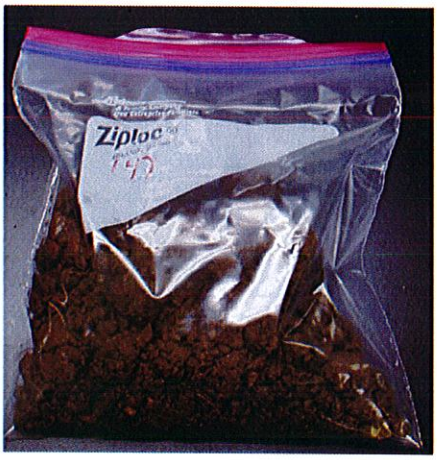


Figure 1: Coring Locations

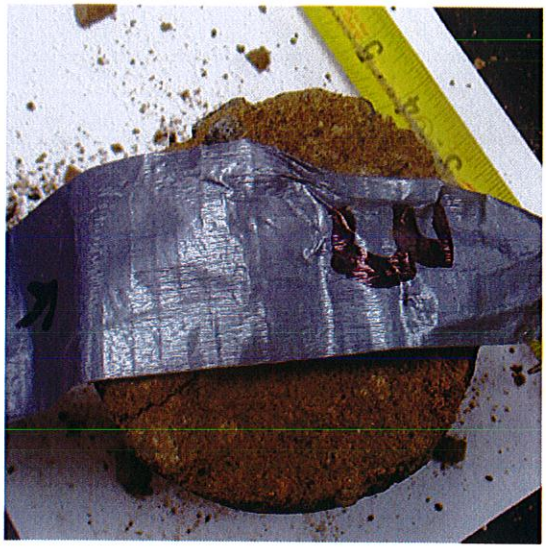
Appendix B

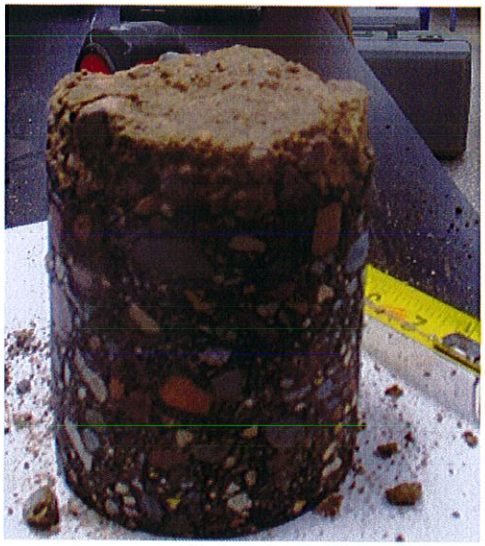
Core 1

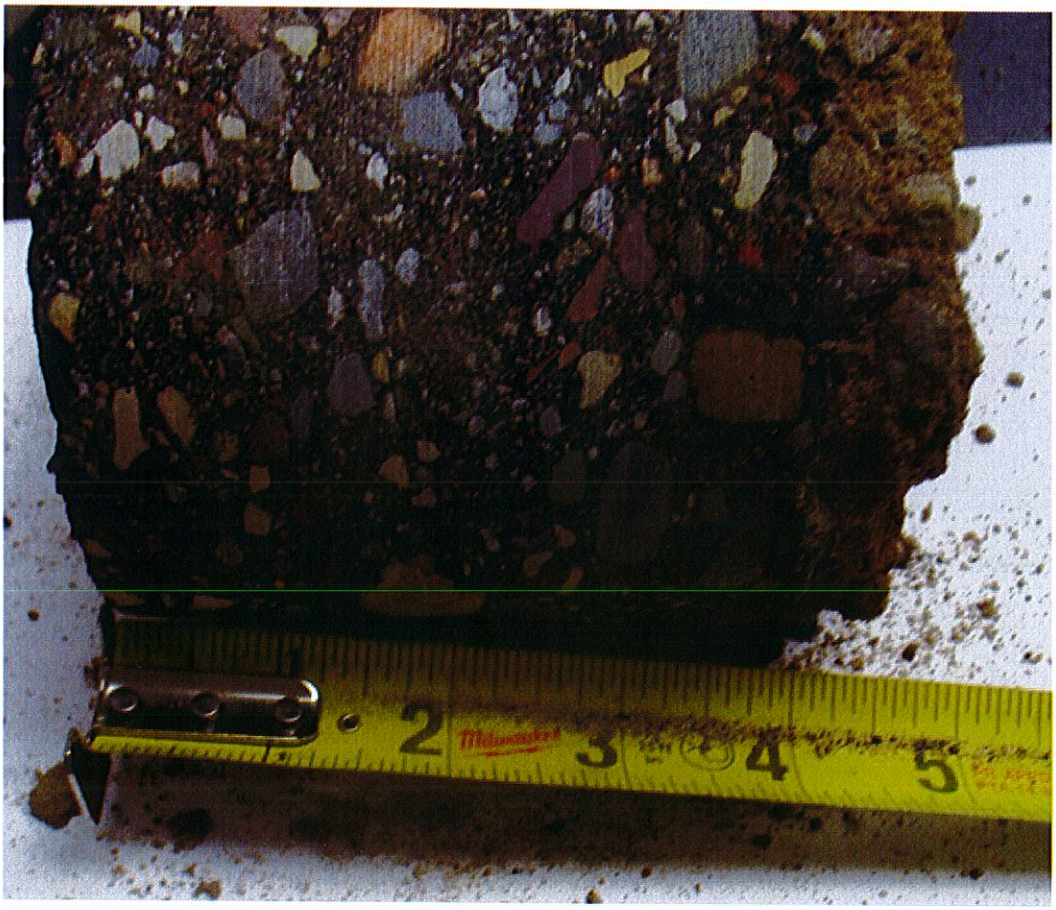


Core 2

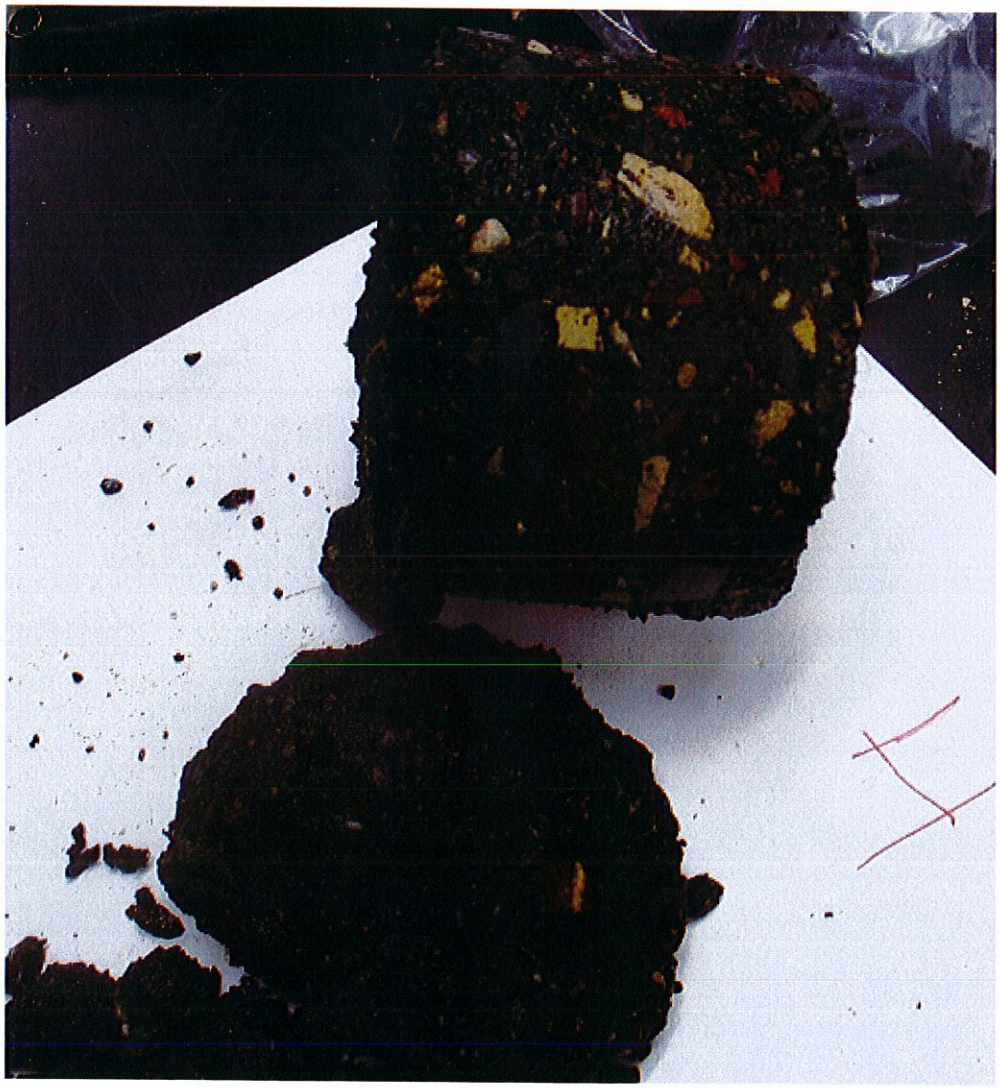
Core 3







Core 4



Public Works Committee **5. 5.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Consider Recommendation to City Council to Accept Draft Feasibility Report for Rivers Bend Street Reconstructions, Improvement Project #17-02

Purpose/Background:

The purpose of this case is to consider providing a recommendation to the City Council for accepting the DRAFT Feasibility Report for Rivers Bend Street Reconstruction, City Improvement Project #17-02.

Timeframe:

Staff estimates 15 minutes will be required to present this case and respond to questions.

Observations/Alternatives:

This project was recently changed from a mill and overlay to a street reconstruction project. As such, Staff was not able to complete a draft copy of the Feasibility Report in time for publishing with this case. However, Staff will complete a draft feasibility report prior to the Public Works Committee meeting and, depending on the timing, will either take this case off-line on Friday or Monday to attach a copy, or hard copies will be provided to Committee members at the meeting along with a summary of Staff's recommendations.

Staff proposes to present the draft Feasibility Report to the City Council on January 24th.

Once the Feasibility Report is complete, and assuming the project is recommended for 2017 construction, meetings with individual property owners will be conducted to discuss the proposed project, the preliminary assessment, and to gather feedback for future consideration by Council.

Alternatives:

Alternative #1 – Motion recommending City Council acceptance of the recommendations outlined in the draft Feasibility Report for Rivers Bend Street Reconstruction, City Improvement Project #17-02.

Alternative #2 – Motion recommending City Council acceptance of the recommendations outlined in the draft Feasibility Report for Rivers Bend Street Reconstruction, City Improvement Project #17-02, with minor modifications as follows; _____.

Alternative #3 – Motion denying City Council recommendation at this time.

Funding Source:

Staff proposes to fund the proposed improvements using a combination of special assessments, street reconstruction bond funds, and stormwater utility funds.

Recommendation:

Staff recommends alternative #1.

Action:

Motion to recommend approval of Alternative #1.

Attachments

No file(s) attached.

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	01/12/2017 03:08 PM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:31 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 09:09 AM
Final Approval Date: 01/12/2017		

Public Works Committee **6. 1.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Updates on Corridor Studies for Trunk Highway 47, County State Aid Highway 5, and County State Aid Highway 83.

Purpose/Background:

The purpose of this case is to provide a brief update to the Public Works Committee on the status of the three corridor studies that are identified in the attached three-year Strategic Action Plan. The three corridors include Trunk Highway 47, CSAH 5 / Nowthen Boulevard, and Armstrong Boulevard / CSAH 83.

Timeframe:

Staff estimates this case will take 15 minutes to present and respond to questions.

Observations/Alternatives:

City Staff is coordinating these work efforts with Anoka County on all three corridors, along with MnDOT and the City of Anoka on the Trunk Highway 47 corridor.

All three corridor studies are identified for completion in 2017, and at least one high priority improvement project is to be commenced by 2018 on each corridor.

Funding Source:

N/A

Recommendation:

N/A

Action:

This case is being presented for informational purposes only. No action is required at this time.

Attachments

Strategic Action Plan

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	01/12/2017 08:55 AM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:29 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 09:00 AM
Final Approval Date: 01/12/2017		

Strategic Action Plan 2015 – 2018
06/23/15

MISSION

To work together to responsibly grow our community, and to provide quality, cost-effective, and efficient government services

Strategic Imperative I: Financial Stability

Ensure strategic economic development that complements the city's desired quality of life and builds a stable tax base, all while maintaining a low tax levy.

Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve budget preparation to identify operational efficiencies and cost-savings	Finance	1) An all-inclusive integrated budget document developed that will incorporate Strategic Planning items, adopted budgets, CIP, metrics, and trend information.	June 2015	December 2015	None	None	D. Lund	• Integrated budget completed for 2016 • Distinguished Budget Award received
Increase economic growth and development	Administration	2) Sale of City-Owned Parcels that are listed for sale for economic development.	Summer 2015	Summer 2018	Shovel ready certification will cost between $10,000 and $35,000 per certification (six total) in third-party professional consulting fees (legal/ title, environmental, engineering, etc.). Standard transaction fees will apply to each sale Staff will propose use of existing dollars from TIF Account #1.	NA	P. Brama	• City owned land will be positioned: "as-competitive-as-possible" in today's real estate market. • Removed development "unknowns" for prospects and significantly improved project timelines. • 100 % properties shovel-ready certified. • Land sale closings above previous three year term.

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Increase economic growth and development (cont.)	Administration	3) Recruit new industry and market-ready major retail businesses to Ramsey	Ongoing	Fall 2017	No additional in-house human resources required. Staff will continue to market properties with CBRE; and attain shovel ready status.		P. Brama	• Secured two (2) new 30,000+ square foot retail facilities. • Secured two (2) new 30,000+ square foot industrial facilities.
	Administration	4) Establish new Business Park, west of Armstrong Boulevard	Spring 2016	Summer 2016	Shovel ready certification will cost between $10,000 and $25,000 per certification (two total) in third-party professional consulting fees (legal/ title, environmental, engineering, etc.). Future policy direction related to construction of infrastructure, site improvements, and level city involvement will directly affect required additional resources. Staff will propose use of existing dollars from TIF Account #1.	NA	P. Brama	• Business Park will be positioned: "as-competitive-as-possible" in today's real estate market. • Removed development "unknowns" for prospects and significantly improved project timelines. • Attain State of Minnesota *Shovel-Ready* Status for Business Park land parcels.

Strategic Action Plan 2015 – 2018
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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Increase economic growth and development (cont.)	Engineering	5) Develop and plan for key infrastructure improvements (AUAR improvements, extensions of municipal utilities, and major transportation corridors.	April 2015	December 2017	Anoka County coordination Consultant expenses Project Funding Sources – development driven tax increment funding, utility funds, grants, and funding partnerships.	Update traffic and turning movement volumes Update estimated project costs and complete feasibility analysis	B. Westby	• Meet the COR AUAR milestones • Scheduled prioritized projects in CIP • Revised JPA construction schedule - Meet the scheduled milestones. • Reviewed possible extension of sewer and water to 167th and Hwy 47 area • Mobility improvements made to major highway corridors (i.e. US Hwy 10, Hwy 47 and CR 5)
Leverage outside funding sources	Administration	6) Optimize use of non-city funding through joint projects, grants and partnerships	2015	2018	TBD	None	K. Ulrich	• Increased grant awards • Reduced reliance on the general fund. • Effective grant administration • Increased public and private partnerships

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Strategic Imperative II: A Connected Community

Ensure that the city is a connected city that is part of a comprehensive regional transportation system that enables all citizens to easily navigate the community and attracts business development.

Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve the safety and mobility of major road corridors	Administration	7) Actively lobby State Legislature and Federal Congressional Delegation for $120M to construct the identified Highway 10 corridor priorities	March 2015	December 2018	$30-60K annually in Legislative liaison consultant expenses, $5-10K travel expenses	None	K. Ulrich	• State and federal funding secured for high priority TH Highway 10 projects.
	Administration	8) Introduce legislation requesting state funding for highway-rail separation at Ramsey and Sunfish Lake Blvd. rail intersections.	March 2015	May 2015	State bonding and work with City legislative liaison	None	K. Ulrich	• Allocation of up to $10 M in state bonding for projects.
	Administration	9) Initiate a regional effort to complete Preliminary Engineering and Environmental Review for all projects of the Highway 10 Study	March 2015	December 2018	State bonding and other outside funding.	None	K. Ulrich	• Preliminary Design and Engineering in regard to MNDOT TH10 Access Planning Study projects are commenced.

Strategic Action Plan 2015 – 2018
06/23/15

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve the safety and mobility of major road corridors (cont.)	Administration	10) Develop a communications strategy in regard to Highway 10 improvements	Summer 2015	Summer 2015	No additional resources required.	This tactic will be included in the City's adopted communications plan.	P. Brama	• 1-2 page flyer (marketing material) summary of Highway 10 • Created project webpage on City website. • "Support network" of businesses and land owners willing to assist in lobbying established. • "Lobbying List" outlining an inventory of people the City should be communicating with (lobbying) established.
	Engineering	11) Conduct CASH 5 Corridor Study (land use and traffic integrate in cooperation with the County	April 2015	October 2018	Professional services - $50,000 (PIR) Anoka County Coordination Construction funds		B. Westby	• Corridor study completion in 2017 • At least one high priority improvement project commenced by 2018

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve the safety and mobility of major road corridors (cont.)	Engineering	12) Conduct MN State Hwy 47 Study in cooperation with MNDOT and City of Anoka	April 2015	October 2018	Anoka County & MNDOT coordination Construction Funds			• Corridor study completion in 2017 • At least one high priority improvement project commenced by 2018
	Engineering	13) Conduct Armstrong Blvd traffic study in cooperation with the County	July 2015	October 2018	Anoka County Coordination			• Corridor study completion in 2017 • At least one high priority improvement project commenced by 2018
Create a diverse and robust offering of recreational opportunities	Public Works	14) Develop a comprehensive recreation plan that inventories existing recreation programs, services, and infrastructure at the local, regional, and national level	5/2015	10/2016	Citizen Survey (2016 - $15,000) - recreation staffing as identified -park capital costs as identified by district	None	G. Riemer	• Present findings and recommendations in 2017 as part of budget development for 2018 implementation
	Community Development	15) Develop Plan for future parks, trails, and open space capital improvements	2015	2016	TBD		T. Gladhill	• Completed Master Park and Trail Plan Update • CIP Aligned with Parks Plan

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Strategic Imperative III: Smart, Citizen-Focused Government

Continue the delivery of quality services to ensure the city will have safe and thriving neighborhoods and business districts, and a clean environment.

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve and maintain the safety of the community	**Police**	16) Reduce illegal drug activity in the community	June 2015	January 2016	Request 1 FTE Police Officer in 2016 budget to allocate to Anoka Hennepin Drug Task Force (AHDTF)	Council approval of JPA with AHDTF	J Katers	• Increased number of arrests for drug crimes • Maximized collaboration of Anoka Hennepin Drug Task Force by allocating staff to task force • Increased intelligence on drug activity • Reduced criminal activity in community related to drug use • Increased community awareness of illegal drug activity
	Administration	17) Provide adequate public safety staffing based on City's growth factors	June 2015	September 2015	None	None	K. Ulrich	• Metrics developed to support 2016 and future public safety staffing requests

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve and maintain safety of the community (cont.)	Police	18)Consider security cameras to enhance safety and security	June 2015	February 2016	Data connections Software licenses. Cameras (2016 Budget)		J. Katers	• Visible deterrent to criminal activity • Reduction of Vandalism to city owned property by 10 % • Assisted in identification of criminal suspects • Provided increased sense of security in public spaces.
	Fire	19) Expand and improve residential rental licensing program	April 2015	July 2015	None	None	D. Kapler	• Cost Benefit analysis completed • Improved property maintenance • Improved landlord/tenant relationships • Improved public safety response

Strategic Action Plan 2015 – 2018
06/23/15

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Create a strong positive image for residential neighborhoods and business districts	Community Development	20) Meet or exceed community expectations in regard to response times for code complaints	2016	2016	Add a Code Enforcement Specialist for public nuisance code enforcement	None	T. Gladhill	• Centralized enforcement program with consistent metrics • Improved communication of notices of violation • Response times of 14-30 days • Enhanced focus on key corridors (Highway 10 and Highway 47) • Eliminate duplication in data
Enhance Community Engagement	Administration	21) Create a program for citizen recognition.	June 2015	December 2015	None	None	K. Ulrich	• Implemented citizen recognition program
	Administration	22) Identify opportunities for community volunteer work	June 2015	December 2015	Volunteer Coordination	None	K. Ulrich	• Increased citizen volunteer hours

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Enhance Community Engagement (cont.)	Community Development	23) Increase engagement opportunities in future land use decisions	2015	2018	TBD		T. Gladhill	• Adopt a citizen engagement framework for 2040 Comprehensive Plan update • Determine appropriate scale of update to the City's Comprehensive Plan • Complete required 2040 Comprehensive Plan update • Clarified vision for the COR
Enhance the level of customer service	Community Development	24) Evaluate staffing deployment and process effectiveness	2015	2016	Re-class PT to FT Position ($ impact TBD) $25 – 50,000 for software improvements	$2,000 for hardware	T. Gladhill	• 10 Business Day Building Permit Plan Review • 48 Hour Inspection Window • Centralized Permits and Licenses Division • Improved management and ensured equity of enforcement of City-Owned properties • Improved support to Environmental Policy Board (EPB)

Strategic Action Plan 2015 – 2018
06/23/15

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Define and promote Ramsey Brand	Administration	25) Develop strategy with Ramsey Brand as umbrella while still promoting sub-areas of the community (The COR, 167th Avenue, Future Business Park, etc.)	Spring 2015	Summer 2016 Final completion tied to tactic below.	None	This tactic will be included in the City's adopted communications plan	P. Brama	• Unified marketing/ communications with consistent use of Ramsey Brand (refreshed materials and policy). • Implementation of Ramsey logo in future COR materials and signage (same for other sub-districts)
	Administration	26) Acquire a ZIP Code for Ramsey	Spring 2015	December 2017	None	None	P. Brama	• New and unique ZIP Code assigned to Ramsey
	Community Development	27) Create a community sign plan that focuses on community gateways and focal points.	2015	2016	None	Adobe Creative Suite ($2,000)	T. Gladhill	• Revised zoning code • Monument signage plan for the City completed • Tenant panel distribution policy completed • Funding and Priority Plan
Improve the image of key corridors (Highway 10, CR5, and Highway 47)	Community Development	28) Use property-owner/ citizen engagement strategies	2016	2016			T. Gladhill	• Adopted Statement of Goals

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Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve the image of key corridors (Highway 10, CR5 and Highway 47 (cont.)	Community Development	29) Proactively Implement Corridor Improvements through public investment and code compliance initiatives	2016	2018	0.5 FTE (Covered in Code Enforcement Section)		T. Gladhill	• 30% of targeted property clean-up per year of plan
Ensure long-term sustainability of Public Water System	Engineering	30) Work with neighboring cities and regulating agencies to identify regional solution(s) for sustainable water supply/water treatment facility	2015	2018	None	TBD	B. Westby	• Commitment to regional solution for long-term water supply • Active participation of neighboring cities/regulating agencies
	Engineering	31) Develop a Comprehensive Plan for City long-term water supply	2015	2016	None	TBD	B. Westby	• Updated Comprehensive Water Supply Study

Strategic Action Plan 2015 – 2018
06/23/15

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Strategic Imperative IV: An Effective Organization

Maintain a highly functional staff, citizen volunteers, and elected officials and governance structure that meet the increasingly ever-changing needs of the organization

.

Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve City communications with the community	Administration	32) Adopt a Formalized Communications Plan	Winter 2015	Early 2016	No additional resources required for creation of plan. Implementation of plan may require additional resources. The adopted plan will outline if/ when additional resources are needed, and for what.	Requires completion of communications survey.	P. Brama	• Council adopted communications plan. • The adopted plan outlines specific outcome for each specific tactic.
Improve and sustain high employee morale	Administration	33) Develop a Staff recognition program	April 22, 2015 Kick-off	Ongoing			C. Lasher	• Formal Staff Recognition Program Developed and Implemented • Staff feeling recognized and valued by peers • Staff promoting positive accountability to our core values by peers • Promoted teamwork and brand • Sustained or improved morale

Strategic Action Plan 2015 – 2018
06/23/15

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Strategic Imperative IV: An Effective Organization

Maintain a highly functional staff, citizen volunteers, and elected officials and governance structure that meet the increasingly ever-changing needs of the organization

.

Strategic Initiative	Department	Tactics	Initiation Date	Completion Date	Additional Resources Required	Additional Tools Required	Responsible Party	Key Outcome Indicators/Metrics
Improve and sustain high employee morale (cont.)	Administration	34) Initiate a strategy to highlight City Employees and job duties (put a face to a name and highlight their contribution to the community)	July/Aug. 2015	Ongoing (monthly) RR Publications as scheduled	None	None	C. Lasher	• Increased awareness of Dept. Functions. / increased staff recognition • Increased awareness of specific roles and specific current events / increased staff recognition. • Promoted Ramsey Brand / increased staff recognition.
Continue to implement process improvement initiatives	Administration	35) Review existing events and consider the value to the City	June 2015	September 2015	None	None	K. Ulrich	• Status of each City event (i.e., include or not) in 2016 budget determined
Plan for public facilities to meet City's growth	Finance	36) Identify capital cost of PW facility based upon space needs study. Create funding and implementation plan for a new public works campus	2015	2016	None	None	D. Lund	• Decision by Council on timing and amount of debt for the new Public Works facility

Public Works Committee **6. 2.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Review 2017 Capital Improvement Program Projects

Purpose/Background:

The purpose of this case it to review notable City improvement projects proposed to be completed in 2017.

Timeframe:

Staff estimates 15 minutes will be needed to present this case and respond to any questions.

Observations/Alternatives:

Attached is an abbreviated copy of the 2017 - 2026 CIP recently approved by the City Council which includes many of the more notable City improvement projects proposed to be completed in 2017. Staff will briefly discuss the purpose and costs associated with each of these projects.

Funding Source:

Funding amounts and sources will be discussed in detail with the Committee as each project is presented. It is worth noting that many of these projects have not yet received formal City Council approval to move forward.

Recommendation:

N/A

Action:

This item is for informational purposes only.

Attachments

2017 CIP Projects

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	01/12/2017 08:16 AM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:29 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 08:54 AM
Final Approval Date: 01/12/2017		

CITY OF RAMSEY
CAPITAL IMPROVEMENT PROGRAM
2017-2026

The Capital Improvement Program document is a planning tool maintained by the city to identify future projects, related expenditures, and funding sources. All projects designated in the Capital Improvement Program are contingent upon availability of resources during the planned year. The total expenditure of projects includes city-funded sources as well as other resources such as grants, fees, bonding, etc.

CITY OF RAMSEY
2017-2026
CAPITAL IMPROVEMENT PLAN

TABLE OF CONTENTS

INTRODUCTORY SECTION

CITY OF RAMSEY

CAPITAL IMPROVEMENT/CAPITAL OUTLAY PLAN

2017-2026

Enclosed is the Ramsey Capital Improvements/Capital Outlay Plan (CIP) for the years 2017-2026. It has been prepared in an attempt to anticipate major capital expenditures in advance of the year in which they are budget requests. Further, several projects may interrelate or require other improvements prior to initiation, which would cause delays without prior planning. Additionally, projects may require budgeting over several years or receipt of funds from other sources (i.e. grants) requiring planning completion prior to the funding year. Finally, the plan enables a snapshot of the identified capital needs of the community allowing for continual prioritization of these needs.

The process for completing the 2017-2026 CIP was much the same as the process for the 2017 General Fund Budget. Project requests were submitted by all divisions and reviewed by the Management Team and appropriate supervisors to establish the feasibility and priority of the projects and match with available financing.

CAPITAL IMPROVEMENT PLAN GOALS
ACKNOWLEDGE AND COMMUNICATE PUBLIC INFRASTRUCTURE PRIORITIES AND DYNAMICS
ENSURE APPROPRIATE RESPONSES TO CHANGING INFRASTRUCTURE NEEDS AND DEMANDS
DEVELOP A FINANCIAL ASSESSMENT OF CAPITAL RESOURCES AVAILABLE TO MEET FUTURE CAPITAL PROJECT NEEDS
ENCOMPASS THE CITY'S STRATEGIC PLAN'S INITIATIVES: FINANCIAL STABILITY; A CONNECTED COMMUNITY; SMART, CITIZEN-FOCUSED GOVERNMENT; AN EFFECTIVE ORGANIZATION

Approval of the CIP by Council does not authorize spending or initiation of a given project. It does, however, provide a guide for the community for a whole array of private and public decision-making, impacted by public capital expenditures. Therefore, the CIP should receive ratification only if the Council perceives actions contemplated within the plan as reasonable and planned within justified time frames. It shall further be noted that initial project design of public infrastructure projects identified within this plan often begins two years or more prior to the date of construction.

The CIP is not intended to provide for precise budgeting. Capital costs are projected as estimates. Upon each update of the plan, deletions, additions, delays, or other revisions may occur, reflecting changing community needs. These changes allow for budget refinements as a particular project nears actual construction.

Capital improvements are improvements to land, streets, parks, utilities and buildings. This plan shows improvements with revenues projected from various funding sources. Improvements from the General Fund are those requiring a tax levy, referendum or similar other authority resulting in listed projects being less than certain. The other funding sources (except for intergovernmental revenue - grant funds) have increased stability over the general fund projects.

Specific information on the funding sources for each project is shown under the individual project. Cash flow projections are completed to examine the long-term stability of each fund and its ability to provide for planned expenditures.

Potential funding sources for capital improvement expenditures may include:

- General Funds
- Capital Equipment Certificates
- General Obligation Bonds
- CIP General Obligation Bonds*
- Tax Increment Financing
- Economic Development Authority Levy
- Developer Fees
- Grants/Outside Sources
- Utility Funds (Water, Sewer, Recycling, Street Lights, Storm Water)
- Special Revenue Funds (Equipment Revolving, Lawful Gambling, Storm Water Management)
- Capital Project Funds (Facility, Landfill, MSA, Park Improvement)
- Special Assessments

**Only City Hall, Public Works facilities and Public Safety facilities may be financed with CIP General Obligation bonds under the CIP Act (Minnesota Statutes Chapter 475). Other capital improvements described in this plan as being financed under General Obligation Bonds may be financed with special assessment bonds under Minnesota Statutes, Chapter 429 and utility revenue bonds under Minnesota Statutes, Chapter 444.*

For a City to use its authority to finance expenditures under the CIP Act, it must meet the requirements provided therein. Specifically, the City Council must approve the sale of capital improvement bonds by a two-thirds vote of its membership. In addition, it must hold a public hearing for public input. Notice of such hearing must be published in the official newspaper of the City at least fourteen, but not more that twenty-eight days prior to the date of the public hearing. The City Council approves the CIP following the public hearing.

The bonds are not subject to referendum unless, within 30 days after the hearing, a petition is filed with the City Administrator signed by voters equal to at least five percent of the votes cast in the last general City election. In that event, the bonds are subject to a referendum, and may be issued only if approved by a majority of voters who vote on that question. If the referendum passes, the taxes to pay the debt service on the bonds would be levied on market value rather than tax capacity. However, if no timely petition is filed, the taxes to pay debt service are levied on tax capacity.

The CIP Act has established certain criteria that must be met. In accordance with these criteria, the City has considered the following eight points:

1. Condition of the City's infrastructure and need for the project
2. Demand for the improvement
3. Cost of the improvement
4. Availability of public resources
5. Level of overlapping debt
6. Const/benefits of alternative uses of funds
7. Operating costs of the proposed improvements
8. Options for shared facilities with other cities or local governments.

OVERVIEW SECTION

City of Ramsey, Minnesota

Capital Improvement Program

2017 thru **2026**

CATEGORY SUMMARY

Category	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Capital Improvement Bonding Projects		13,906,500									*13,906,500*
Eqpt Replacement	354,106	1,391,500	660,800	845,000	738,000	1,257,485	300,600	556,100	280,000	304,600	*6,688,191*
Municipal Building				25,000						20,221,300	*20,246,300*
Park Improvement	3,192,200	193,000		405,000		450,000	76,000	125,000	750,000	330,000	*5,521,200*
Sewer Utility Improvement				457,000							*457,000*
Storm Water Utility Improvement	1,104,120		350,000	530,000						330,000	*2,314,120*
Street Improvement	2,339,305	24,503,700	8,412,600	15,642,400	5,242,000	3,704,000	1,929,000	2,613,000	3,323,000	3,985,000	*71,694,005*
Street Light Utility Improvement	275,000										*275,000*
Water Utility Improvement	1,544,250	760,000		940,000			1,700,000				*4,944,250*
TOTAL	**8,808,981**	**40,754,700**	**9,423,400**	**18,844,400**	**5,980,000**	**5,411,485**	**4,005,600**	**3,294,100**	**4,353,000**	**25,170,900**	***126,046,566***

City of Ramsey, Minnesota

Capital Improvement Program

2017 thru **2026**

FUNDING SOURCE SUMMARY

Source	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Capital Equipment Certificates	151,203	540,750	308,900	390,000	369,000						*1,759,853*
City of Anoka				25,000							*25,000*
City of Nowthen				20,000							*20,000*
Equipment Revolving Fund	151,203	540,750	308,900	390,000	369,000	232,000		164,000		90,000	*2,245,853*
Facility Fund		1,000,000		25,000							*1,025,000*
Fleet Vehicles		58,000									*58,000*
General Fund						1,025,485	300,600	392,100	280,000	214,600	*2,212,785*
GO Bonding (Road Funding)	976,950	1,479,575	882,750	3,059,300	2,304,000	2,403,000	1,446,750	1,959,750	2,492,250	2,947,500	*19,951,825*
GO CIP Bonding		9,275,000									*9,275,000*
Grants/Outside Sources	1,068,200	20,070,000	6,355,000	7,185,000	700,000	50,000					*35,428,200*
Landfill Trust Fund		38,000									*38,000*
Lawful Gambling Fund		60,000		85,000		150,000					*295,000*
MSA	1,111,905	2,000,000			850,000	500,000					*4,461,905*
Park Improvement Trust Fund	2,114,000	25,000		275,000		250,000	76,000	125,000	750,000	330,000	*3,945,000*
Public Improvement Revolving Fund	80,000		665,000	715,000						55,000	*1,515,000*
Recycling Utility Fund		200,000									*200,000*
Sewer Utility Fund	25,000	1,739,250		457,000							*2,221,250*
Special Assessment - Bonded	88,450	625,925	348,150	1,023,100	823,000	801,000	482,250	653,250	830,750	982,500	*6,658,375*
Storm Water Management Fund	493,000										*493,000*
Storm Water Utility Fund	703,120	603,200	511,700	605,000	165,000					330,000	*2,918,020*
Street Light Utility Fund	275,000										*275,000*
Tax Increment Fund #2				3,650,000	400,000						*4,050,000*
To Be Determined										20,221,300	*20,221,300*
Water Utility Fund	1,570,950	2,499,250	43,000	940,000			1,700,000				*6,753,200*
GRAND TOTAL	**8,808,981**	**40,754,700**	**9,423,400**	**18,844,400**	**5,980,000**	**5,411,485**	**4,005,600**	**3,294,100**	**4,353,000**	**25,170,900**	***126,046,566***

Capital Improvement Plan - Priority Codes & Definitions

Priority

1 **Existing Obligations - High Priority: Year 2017 or 2018**

Projects under this priority are previously committed to or are replacements

Example: Road reconstructions, equipment replacement

2 **New Addition - High Priority: Year 2017 or 2018**

Projects under this priority are needed, but have no previous commitments

Example: Road extensions, additional park amenities

3 **Existing Obligations - Medium Priority: Year 2019-2026**

Projects under this priority are previously committed to or are replacements but not as urgent to fulfull as those in priority 1

Example: 4th year forward of road reconstructions; equipment replacement

4 **New Addition - Medium Priority: Year 2019-2026**

Projects under this priority are needed, but have no previous commitments but need is not as great as those listed in priority 2

Example: Public Works Campus; new capital equipment

5 **Opportunity Driven/Unfunded/Placeholder**

Projects under this priority are development driven and/or have outside funding capacities such as grants and/or placeholders for projects that may occur after year 2020.

Full funding on these projects have not been determined.

Example: Highway 10 improvements; Community Center

City of Ramsey, Minnesota

Capital Improvement Program

2017 thru **2026**

PROJECTS BY YEAR & PRIORITY

Project Name	Department	Project #	Priority	Project Cost
2017				
Priority 1-Existing Obligation (High)				
Replace File Server	Eqpt Replacement	*15-IT-001*	1	7,500
800 MHZ Radio Replacements	Eqpt Replacement	*FIRE-551*	1	56,900
Replace Duty Officer Truck (563)	Eqpt Replacement	*FIRE-567*	1	40,000
Replace Fire Chief Vehicle (564)	Eqpt Replacement	*FIRE-569*	1	50,000
2017 Chev Caprice Replace 2012 Chev Caprice #323	Eqpt Replacement	*POL-323*	1	29,000
2017 Chev Tahoe to Replace 2013 Chev Tahoe #333	Eqpt Replacement	*POL-333*	1	34,000
800 MHZ Radio Replacement	Eqpt Replacement	*POL-355*	1	51,906
2017 Chevy Impala Replace 2007 Chevy Impala #375	Eqpt Replacement	*POL-375*	1	28,000
800 MHZ Radio Replacement	Eqpt Replacement	*PW-659*	1	6,800
Mississippi River Trail -West End	Park Improvements	*08-PARK-002*	1	1,519,200
Alpine Park - Replace Fencing & Add Dugouts	Park Improvements	*17-PARK-001*	1	125,000
Alpine Drive Reconstruction	Street Improvements	*15-STR-007*	1	793,600
2017 Overlay Projects	Street Improvements	*15-STR-010*	1	353,800
COR Pavement Striping	Street Improvements	*17-STR-015*	1	80,000
Refurbish Water Tower #2	Water Utility	*14-WTR-001*	1	1,300,000
Emergency Power Supply for Well #3	Water Utility	*16-WTR-001*	1	115,000
			Total for: Priority 1	4,590,706
Priority 2-New Addition (High)				
Elmcrest Park & The Draw Park Entrance & Signage	Park Improvements	*04-PARK-003*	2	80,000
Drinking Fountains/Misting Station	Park Improvements	*06-PARK-002*	2	8,000
Park Development in the COR	Park Improvements	*08-PARK-005*	2	1,200,000
The Draw Grates	Park Improvements	*12-PARK-006*	2	10,000
COR Regional Infiltration Basin	Stormwater Utility	*16-STM-002*	2	986,000
Riverdale Drive Extension Traprock-Ramsey Blvd	Stormwater Utility	*16-STM-003*	2	118,120
Riverdale Drive Extension: Traprock to Ramsey Blvd	Street Improvements	*15-STR-001*	2	1,111,905
Riverdale Drive Extension Lighting	Street Light Utility	*16-STLT-001*	2	275,000
Watermain Looping: (Ramsey Blvd to Traprock St.)	Water Utility	*04-WTR-018*	2	129,250
			Total for: Priority 2	3,918,275
Priority 3-Existing Obligation (Med)				
Replace 2005 Utility Truck: Unit #652	Eqpt Replacement	*PW-652*	3	50,000
			Total for: Priority 3	50,000
Priority 5-Opportunity/Unfunded/Placeholder				
Trail Connections	Park Improvements	*06-PARK-019*	5	250,000
			Total for: Priority 5	250,000
	Total for 2017			**8,808,981**

Project Name	Department	Project #	Priority	Project Cost
2018				
Priority 1-Existing Obligation (High)				
2018 Chev Caprice - Replace 2013 Chev Caprice #331	Eqpt Replacement	*POL-331*	1	30,000
2018 Chev Tahoe to Replace 2013 Chev Tahoe #332	Eqpt Replacement	*POL-332*	1	35,000
Replace Fencing & Dugouts (#5-7)-Central Park	Park Improvements	*17-PARK-004*	1	75,000
			Total for: Priority 1	140,000
Priority 2-New Addition (High)				
Dog Park Shelter-Alpine Park	Park Improvements	*17-PARK-005*	2	58,000
			Total for: Priority 2	58,000
Priority 3-Existing Obligation (Med)				
Replace Email Server	Eqpt Replacement	*15-IT-003*	3	7,500
Replace Ford Taurus - 403	Eqpt Replacement	*ADMIN-403*	3	29,000
Replace 2006 Ford Taurus	Eqpt Replacement	*ADMIN-404*	3	29,000
Replace 2006 Ford Taurus	Eqpt Replacement	*BUILD-405*	3	29,000
Replace Grass 21 (504)	Eqpt Replacement	*FIRE-504*	3	45,000
Replacement of all SCBA's	Eqpt Replacement	*FIRE-566*	3	100,000
Replace 1998 Mule: Unit #622	Eqpt Replacement	*PW-622*	3	18,000
Replace-2002 Snowplow Truck: Unit #636	Eqpt Replacement	*PW-636*	3	191,000
Replace 2002 3/4 Ton Truck 4x4: Unit #637	Eqpt Replacement	*PW-637*	3	45,000
Replace 2003 Kawasaki: Unit #639	Eqpt Replacement	*PW-639*	3	18,000
Replace Elgin Sweeper: Unit #642 (Storm Wtr)	Eqpt Replacement	*PW-642*	3	205,000
Replace-2004 Snowplow Truck: Unit #644	Eqpt Replacement	*PW-644*	3	191,000
Replace 2005 3/4 Ton Truck 4x4 W/Plow Unit # 651	Eqpt Replacement	*PW-651*	3	47,000
Replace 3/4 Ton 4x4 Truck; Unit #653	Eqpt Replacement	*PW-653*	3	43,000
Replace Zero Turn Mower: Unit #670	Eqpt Replacement	*PW-670*	3	12,000
Reconstruction Streets Stanhope Terr & North Forty	Street Improvements	*15-STR-008*	3	1,750,000
2018 Overlay Projects	Street Improvements	*15-STR-011*	3	753,700
Complete Pump House 3	Water Utility	*04-WTR-005*	3	60,000
Refurbish Water Tower #1	Water Utility	*14-WTR-002*	3	700,000
			Total for: Priority 3	4,273,200
Priority 4-New Addition (Med)				
Public Works Campus Building Improvements	Capital Impr Bonding Projects	*06-BLDG-001*	4	13,906,500
New Velocity Patcher	Eqpt Replacement	*PW-700*	4	250,000
New 1-Ton Pickup with Box and Plow	Eqpt Replacement	*PW-701*	4	48,000
New Programmable Message Board	Eqpt Replacement	*TE-001*	4	19,000
Observation boardwalk - Lake Itasca	Park Improvements	*06-PARK-011*	4	60,000
			Total for: Priority 4	14,283,500
Priority 5-Opportunity/Unfunded/Placeholder				
Ramsey Blvd RR Underpass	Street Improvements	*16-STR-002*	5	22,000,000
			Total for: Priority 5	22,000,000
	Total for 2018			**40,754,700**
2019				
Priority 3-Existing Obligation (Med)				
Replace 2005 Chevy Colorado	Eqpt Replacement	*BUILD-401*	3	23,000
Replace 2006 Ford Taurus	Eqpt Replacement	*BUILD-406*	3	29,000
Replace Fire Prevention Vehicle (566)	Eqpt Replacement	*FIRE-506*	3	40,000
Replacement of all SCBA's	Eqpt Replacement	*FIRE-566*	3	100,000

Project Name	Department	Project #	Priority	Project Cost
2019 Chev Caprice to Replac 2014 Chev Caprice #341	Eqpt Replacement	*POL-341*	3	31,000
2019 Chev Caprice to Replac 2014 Chev Caprice #342	Eqpt Replacement	*POL-342*	3	31,000
2019 Chev Tahoe to Replace Chev Tahoe #343	Eqpt Replacement	*POL-343*	3	36,000
2019 Chev Impala to Replace 2007 Lincoln #376	Eqpt Replacement	*POL-376*	3	29,000
Replace Mobile Air Compressor	Eqpt Replacement	*PW-016*	3	65,000
Replace Engr Veh #402 With 2017 GMC Sierra	Eqpt Replacement	*PW-402*	3	35,000
Replace 2001 Case Backhoe: Unit #634	Eqpt Replacement	*PW-634*	3	78,000
Replace 2007 3/4 Ton Pick-Up: Unit #667	Eqpt Replacement	*PW-667*	3	43,000
Replace 2008 Bobcat Skidster: Unit #671	Eqpt Replacement	*PW-671*	3	48,000
Replace 2014 Ex Mark Mower: Unit #683	Eqpt Replacement	*PW-691*	3	12,600
Replace 2014 Ex Mark Mower: Unit #684	Eqpt Replacement	*PW-692*	3	12,600
Replace 2014 Ex Mark Mower: Unit #685	Eqpt Replacement	*PW-693*	3	12,600
Stormwater Drainage Improvements	Stormwater Utility	*12-STRM-001*	3	350,000
Sunwood Drive Roundabout Landscaping	Street Improvements	*15-STR-003*	3	20,000
Reconstruction of Streets-Ford Brook Estates	Street Improvements	*15-STR-006*	3	780,400
2019 Overlay Projects	Street Improvements	*15-STR-012*	3	612,200
			Total for: Priority 3	2,388,400
Priority 4-New Addition (Med)				
New Electric Utility Vehicle	Eqpt Replacement	*PW-702*	4	35,000
			Total for: Priority 4	35,000
Priority 5-Opportunity/Unfunded/Placeholder				
Ramsey Blvd RR Underpass	Street Improvements	*16-STR-002*	5	0
North Hwy 10 Frontage Road-Ramsey to SLB	Street Improvements	*16-STR-003*	5	7,000,000
			Total for: Priority 5	7,000,000
	Total for 2019			**9,423,400**
2020				
Priority 2-New Addition (High)				
Sprinkler System @ Fire Station #1	Municipal Buildings	*10-BLDG-004*	2	25,000
			Total for: Priority 2	25,000
Priority 3-Existing Obligation (Med)				
Discovery Recovery Server	Eqpt Replacement	*15-IT-002*	3	11,000
Replace Engine 11 (556)	Eqpt Replacement	*FIRE-503*	3	275,000
2020 Ford Explorer Replace 2005 F150 #359	Eqpt Replacement	*POL-359*	3	37,000
2020 Chev Caprice - Replace2017 Chev Caprice #371	Eqpt Replacement	*POL-371*	3	32,000
2020 Chev Tahoe Replace 2016 Chev Tahoe #361	Eqpt Replacement	*POL-372*	3	37,000
Replace Engr Car #407 With Chevy Impala	Eqpt Replacement	*PW-407*	3	28,000
Replace 2006 3/4 Ton Truck 2x4 Unit #654	Eqpt Replacement	*PW-654*	3	22,000
Replace Sidewalk Machine: Unit #655	Eqpt Replacement	*PW-655*	3	128,000
Replace 2007 International Water Truck: Unit#669	Eqpt Replacement	*PW-669*	3	130,000
Replace 2013 Toro Wide Area Mower: Unit #679	Eqpt Replacement	*PW-697*	3	95,000
COR Bunker Lake Blvd (Armstrong to Ramsey Blvd)	Stormwater Utility	*04-STRM-011*	3	530,000
COR Bunker Lake Blvd (Armstrong to Ramsey Blvd)	Street Improvements	*04-STR-014*	3	3,650,000
Reconstruction of Streets-Barthels Rum River Acres	Street Improvements	*17-STR-001*	3	3,553,400
2020 Overlay Projects	Street Improvements	*17-STR-002*	3	539,000
The COR Bunker Lake Blvd (Armstrong - Ramsey Blvd)	Water Utility	*04-WTR-009*	3	340,000
			Total for: Priority 3	9,407,400
Priority 4-New Addition (Med)				
New 1-Ton Pickup With Box & Plow Equipment	Eqpt Replacement	*PW-703*	4	50,000
Ford Brook Park Playground Equipment	Park Improvements	*04-PARK-006*	4	70,000

Project Name	Department	Project #	Priority	Project Cost
Fire Station 1 Sanitary Sewer Service	Sewer Utility	*12-SEW-002*	4	60,000
Watermain Sunfish Lk Blvd	Water Utility	*12-WTR-001*	4	450,000
			Total for: Priority 4	630,000
Priority 5-Opportunity/Unfunded/Placeholder				
Observation deck on the Mississippi E of Dolomite	Park Improvements	*06-PARK-015*	5	85,000
Trail Connections	Park Improvements	*06-PARK-019*	5	200,000
McKinley Trail Connection to Anoka	Park Improvements	*12-PARK-008*	5	50,000
Abandon Liftstation Wildlife Sanctuary	Sewer Utility	*04-SEW-001*	5	352,000
Abandon Lift Station River Pines	Sewer Utility	*08-SEW-004*	5	45,000
North Hwy 10 Frontage Road-Ramsey to SLB	Street Improvements	*16-STR-003*	5	5,900,000
South Hwy 10 Frontage Rd-SLB to Anoka	Street Improvements	*16-STR-004*	5	2,000,000
River Pines Lift Station Water Connection	Water Utility	*08-WTR-003*	5	20,000
Fire Station #1 Extension of Water	Water Utility	*11-WTR-003*	5	55,000
Construct Well and Pumphouse #9	Water Utility	*16-WTR-002*	5	75,000
			Total for: Priority 5	8,782,000
	Total for 2020			**18,844,400**

2021

Priority 3-Existing Obligation (Med)				
Police Copier - File Room	Eqpt Replacement	*17-IT-004*	3	14,000
Police Copier - Patrol	Eqpt Replacement	*17-IT-005*	3	10,000
Utility Server	Eqpt Replacement	*17-IT-006*	3	8,000
Weblink Server Replacement	Eqpt Replacement	*17-IT-007*	3	8,000
Replace Engine 11 (556)	Eqpt Replacement	*FIRE-503*	3	275,000
2021 Chev Impala Replace 2013 Chev Malibu #334	Eqpt Replacement	*POL-334*	3	32,000
2021 Ford Explorer Replace 2016 Ford Explorer #351	Eqpt Replacement	*POL-335*	3	38,000
2021 Ford Explorer Replace 2018 Chev Caprice #3XX	Eqpt Replacement	*POL-366*	3	38,000
2021 Chev Tahoe Replace 2018 Chev Tahoe #3XX	Eqpt Replacement	*POL-367*	3	38,000
Replace 1991 Chipper: Unit #619	Eqpt Replacement	*PW-619*	3	22,000
Replace 2001 John Deere Mower: Unit #635	Eqpt Replacement	*PW-635*	3	25,000
Replace 2006 Tandem Axle Plow Truck: Unit #662	Eqpt Replacement	*PW-662*	3	230,000
Zeolite Roadway Improvements	Street Improvements	*04-STR-012*	3	400,000
Reconstruction of Streets: Riverdale Drive	Street Improvements	*17-STR-003*	3	3,445,000
2021 Overlay Projects	Street Improvements	*17-STR-004*	3	347,000
			Total for: Priority 3	4,930,000
Priority 5-Opportunity/Unfunded/Placeholder				
Bunker Lake Blvd Sunwood Drive Signal	Street Improvements	*12-STR-001*	5	350,000
South Hwy 10 Frontage Rd-SLB to Anoka	Street Improvements	*16-STR-004*	5	700,000
			Total for: Priority 5	1,050,000
	Total for 2021			**5,980,000**

City of Ramsey, Minnesota

Capital Improvement Program

2017 thru **2026**

PROJECTS BY YEAR & PRIORITY

Project Name	Department	Project #	Priority	Project Cost
2022				
Priority 3-Existing Obligation (Med)				
Universal Power Supply Replacement	Eqpt Replacement	*17-IT-008*	3	30,000
Replace 16R Siren	Eqpt Replacement	*CIVIL-16R*	3	22,785
Replace Tanker 11 (501)	Eqpt Replacement	*FIRE-501*	3	340,000
2022 Ford Explorer Relace 2018 Ford Explorer #3XX	Eqpt Replacement	*POL-368*	3	39,000
2022 Chev Tahoe Replace 2018 Chev Tahoe #3XX	Eqpt Replacement	*POL-369*	3	39,000
2022 Ford Explorer Replace 2016 Ford Explorer #363	Eqpt Replacement	*POL-370*	3	39,000
Replace 2004 Tree Spade	Eqpt Replacement	*PW-002*	3	44,500
Replace 2004 Mobile Pressure Washer	Eqpt Replacement	*PW-003*	3	7,200
Replace 2004 Pull Behind PTO Mower	Eqpt Replacement	*PW-004*	3	24,000
Replace 2004 Snow Thrower	Eqpt Replacement	*PW-005*	3	94,000
Replace 1999 John Deere Grader: Unit #603	Eqpt Replacement	*PW-603*	3	271,000
Replace 2007 Chevy Pickup Unit #664	Eqpt Replacement	*PW-664*	3	45,000
Replace 2007 Chevy Pickup: Unit #665	Eqpt Replacement	*PW-665*	3	30,000
Replace 2006 Tandem Axle Plow Truck Unit #668	Eqpt Replacement	*PW-668*	3	232,000
Reconstruction Streets-Autumn Heights & Variolite	Street Improvements	*17-STR-005*	3	3,325,000
2022 Overlay Projects	Street Improvements	*17-STR-006*	3	379,000
			Total for: Priority 3	4,961,485
Priority 4-New Addition (Med)				
Additional Land For Central Park	Park Improvements	*15-PARK-01*	4	250,000
Field Lighting - Central Park	Park Improvements	*17-PARK-006*	4	200,000
			Total for: Priority 4	450,000
	Total for 2022			**5,411,485**
2023				
Priority 3-Existing Obligation (Med)				
Core Switch Replacement	Eqpt Replacement	*17-IT-009*	3	52,000
Document Imaging Server Replacement	Eqpt Replacement	*17-IT-010*	3	8,000
Engineering Plotter Replacement	Eqpt Replacement	*17-IT-011*	3	10,000
Replace 15R Siren	Eqpt Replacement	*CIVIL-15R*	3	20,200
Replace 17R Siren	Eqpt Replacement	*CIVIL-17R*	3	20,200
Replace 1R Siren	Eqpt Replacement	*CIVIL-1R*	3	20,200
Replace Grass 11 (562)	Eqpt Replacement	*FIRE-505*	3	50,000
2023 Ford Explorer Replace 2019 Ford Explorer #3XX	Eqpt Replacement	*POL-377*	3	40,000
2022 Chev Tahoe Replace 2019 Chev Tahoe #3XX	Eqpt Replacement	*POL-378*	3	40,000
2022 Chev Tahoe Replace 2019 Chev Tahoe #3XX	Eqpt Replacement	*POL-379*	3	40,000
Reconstruction Streets-Nature View & Sorteberg 6th	Street Improvements	*17-STR-007*	3	1,132,000
2023 Overlay Projects	Street Improvements	*17-STR-008*	3	797,000
			Total for: Priority 3	2,229,600
Priority 4-New Addition (Med)				

Project Name	Department	Project #	Priority	Project Cost
Irrigation for Titterud Park	Park Improvements	*06-PARK-010*	4	76,000
			Total for: Priority 4	76,000
Priority 5-Opportunity/Unfunded/Placeholder				
Construct Well and Pumphouse #9	Water Utility	*16-WTR-002*	5	1,700,000
			Total for: Priority 5	1,700,000
	Total for 2023			**4,005,600**
2024				
Priority 3-Existing Obligation (Med)				
File Server Replacement	Eqpt Replacement	*17-IT-012*	3	7,500
Council Chamber, Fire 1/2, Park Ramp &P W Switch	Eqpt Replacement	*17-IT-013*	3	30,000
Public Works Utilities Switch	Eqpt Replacement	*17-IT-014*	3	7,000
Video Evidence Server Replacement	Eqpt Replacement	*17-IT-015*	3	27,000
Replace 10R Siren	Eqpt Replacement	*CIVIL-10R*	3	20,600
Replace 14R Siren	Eqpt Replacement	*CIVIL-14R*	3	20,600
Replace 3R Siren	Eqpt Replacement	*CIVIL-3R*	3	20,600
Replace 4R Siren	Eqpt Replacement	*CIVIL-4R*	3	20,600
Replace 5R Siren	Eqpt Replacement	*CIVIL-5R*	3	20,600
Replace 9R Siren	Eqpt Replacement	*CIVIL-9R*	3	20,600
Replace Rescue 11 (559)	Eqpt Replacement	*FIRE-564*	3	80,000
2024 Ford Explorer Replace 2020 Ford Explorer #3XX	Eqpt Replacement	*POL-380*	3	41,000
2024 Chev Tahoe Replace 2020 Chev Tahoe #3XX	Eqpt Replacement	*POL-381*	3	41,000
2024 Chev Impala Replace 2016 Chev Impala #364	Eqpt Replacement	*POL-382*	3	35,000
Replace 2004 Mobile Generator	Eqpt Replacement	*PW-006*	3	164,000
Reconstruction Streets-Rodeo Hills Est/Valley View	Street Improvements	*17-STR-009*	3	2,280,000
2024 Overlay Projects	Street Improvements	*17-STR-010*	3	333,000
			Total for: Priority 3	3,169,100
Priority 4-New Addition (Med)				
Rabbit Park Phase Two	Park Improvements	*06-PARK-012*	4	125,000
			Total for: Priority 4	125,000
	Total for 2024			**3,294,100**
2025				
Priority 3-Existing Obligation (Med)				
Administration Copier	Eqpt Replacement	*17-IT-016*	3	12,000
Builidng Copier	Eqpt Replacement	*17-IT-017*	3	9,000
Engineering Workroom Copier	Eqpt Replacement	*17-IT-018*	3	12,000
Email Server Replacement	Eqpt Replacement	*17-IT-019*	3	7,000
Replace Fire Chief Vehicle (564)	Eqpt Replacement	*FIRE-570*	3	60,000
2025 Ford Explorer Replace 2021 Ford Explorer #3XX	Eqpt Replacement	*POL-383*	3	42,000
2025 Ford Explorer Replace 2021 Ford Explorer #3XX	Eqpt Replacement	*POL-384*	3	42,000
2025 Ford Explorer Replace 2021 Ford Explorer #3XX	Eqpt Replacement	*POL-385*	3	42,000
Replace 2004 Tool Cat	Eqpt Replacement	*PW-645*	3	54,000
Reconstruction Streets -2025	Street Improvements	*17-STR-011*	3	2,830,000
2025 Overlay Projects	Street Improvements	*17-STR-012*	3	493,000
			Total for: Priority 3	3,603,000
Priority 4-New Addition (Med)				
Pedestrian Underpass-Alpine Dr	Park Improvements	*17-PARK-002*	4	750,000

Project Name	Department	Project #	Priority	Project Cost
			Total for: Priority 4	750,000
	Total for 2025			**4,353,000**

2026

Priority 2-New Addition (High)

Northfork North Trail Connection	Park Improvements	*17-PARK-007*	2	275,000
			Total for: Priority 2	275,000

Priority 3-Existing Obligation (Med)

Replace 11R Siren	Eqpt Replacement	*CIVIL-11R*	3	21,400
Replace 2R Siren	Eqpt Replacement	*CIVIL-2N*	3	21,400
Replace 6R Siren	Eqpt Replacement	*CIVIL-6N*	3	21,400
Replace 7R Siren	Eqpt Replacement	*CIVIL-7R*	3	21,400
2026 Ford Explorer Replace 2022 Ford Explorer #3	Eqpt Replacement	*POL-390*	3	43,000
2026 Chev Tahoe Replace 2022 Chev Tahoe #3XX	Eqpt Replacement	*POL-391*	3	43,000
2026 Chev Tahoe Replace 2022 Chev Tahoe #3XX	Eqpt Replacement	*POL-392*	3	43,000
Replace Paver, Trailer, Roller	Eqpt Replacement	*PW-660*	3	90,000
Reconstruction Streets - 2026	Street Improvements	*17-STR-013*	3	3,422,000
2026 Overlay Projects	Street Improvements	*17-STR-014*	3	508,000
			Total for: Priority 3	4,234,600

Priority 5-Opportunity/Unfunded/Placeholder

Community Center Construction	Municipal Buildings	*04-BLDG-002*	5	20,000,000
Old Town Hall Restoration	Municipal Buildings	*08-BLDG-005*	5	221,300
Acquire outlots "A" in Rivers Bluff and Reilly Est	Site Acquisitions	*06-ACQ-002*	5	20,000
Alpaca Estates Outlot	Site Acquisitions	*08-ACQ-002*	5	35,000
Whispering Pines Estates Plat 2 Storm Sewer	Stormwater Utility	*11-STM-003*	5	330,000
River Pines Lift Station Street Connection	Street Improvements	*08-STR-005*	5	55,000
			Total for: Priority 5	20,661,300
	Total for 2026			**25,170,900**
GRAND TOTAL				**126,046,566**

City of Ramsey, Minnesota

Capital Improvement Program

2017 thru **2026**

PROJECTS & FUNDING SOURCES BY CATEGORY

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Capital Impr Bonding Projects												
Public Works Campus Building Improvements	06-BLDG-001		13,906,500									*13,906,500*
Facility Fund			***1,000,000***									***1,000,000***
GO CIP Bonding			***9,275,000***									***9,275,000***
Recycling Utility Fund			***200,000***									***200,000***
Sewer Utility Fund			***1,715,750***									***1,715,750***
Water Utility Fund			***1,715,750***									***1,715,750***
Capital Impr Bonding Projects Total			**13,906,500**									***13,906,500***
Eqpt Replacement												
Replace File Server	15-IT-001	7,500										*7,500*
Capital Equipment Certificates		***3,750***										***3,750***
Equipment Revolving Fund		***3,750***										***3,750***
Discovery Recovery Server	15-IT-002				11,000							*11,000*
Capital Equipment Certificates					***5,500***							***5,500***
Equipment Revolving Fund					***5,500***							***5,500***
Replace Email Server	15-IT-003		7,500									*7,500*
Capital Equipment Certificates			***3,750***									***3,750***
Equipment Revolving Fund			***3,750***									***3,750***
Police Copier - File Room	17-IT-004					14,000						*14,000*
Capital Equipment Certificates						***7,000***						***7,000***
Equipment Revolving Fund						***7,000***						***7,000***
Police Copier - Patrol	17-IT-005					10,000						*10,000*
Capital Equipment Certificates						***5,000***						***5,000***
Equipment Revolving Fund						***5,000***						***5,000***
Utility Server	17-IT-006					8,000						*8,000*
Capital Equipment Certificates						***4,000***						***4,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Equipment Revolving Fund						***4,000***						***4,000***
Weblink Server Replacement	17-IT-007					8,000						*8,000*
Capital Equipment Certificates						***4,000***						***4,000***
Equipment Revolving Fund						***4,000***						***4,000***
Universal Power Supply Replacement	17-IT-008						30,000					*30,000*
General Fund							***30,000***					***30,000***
Core Switch Replacement	17-IT-009							52,000				*52,000*
General Fund								***52,000***				***52,000***
Document Imaging Server Replacement	17-IT-010							8,000				*8,000*
General Fund								***8,000***				***8,000***
Engineering Plotter Replacement	17-IT-011							10,000				*10,000*
General Fund								***10,000***				***10,000***
File Server Replacement	17-IT-012								7,500			*7,500*
General Fund									***7,500***			***7,500***
Council Chamber, Fire 1/2, Park Ramp &P W Switch	17-IT-013								30,000			*30,000*
General Fund									***30,000***			***30,000***
Public Works Utilities Switch	17-IT-014								7,000			*7,000*
General Fund									***7,000***			***7,000***
Video Evidence Server Replacement	17-IT-015								27,000			*27,000*
General Fund									***27,000***			***27,000***
Administration Copier	17-IT-016									12,000		*12,000*
General Fund										***12,000***		***12,000***
Builidng Copier	17-IT-017									9,000		*9,000*
General Fund										***9,000***		***9,000***
Engineering Workroom Copier	17-IT-018									12,000		*12,000*
General Fund										***12,000***		***12,000***
Email Server Replacement	17-IT-019									7,000		*7,000*
General Fund										***7,000***		***7,000***
Replace Ford Taurus - 403	ADMIN-403		29,000									*29,000*
Fleet Vehicles			***29,000***									***29,000***
Replace 2006 Ford Taurus	ADMIN-404		29,000									*29,000*
Fleet Vehicles			***29,000***									***29,000***
Replace 2005 Chevy Colorado	BUILD-401			23,000								*23,000*
Capital Equipment Certificates				***11,500***								***11,500***
Equipment Revolving Fund				***11,500***								***11,500***
Replace 2006 Ford Taurus	BUILD-405		29,000									*29,000*
Capital Equipment Certificates			***14,500***									***14,500***
Equipment Revolving Fund			***14,500***									***14,500***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Replace 2006 Ford Taurus	BUILD-406			29,000								*29,000*
Capital Equipment Certificates				***14,500***								***14,500***
Equipment Revolving Fund				***14,500***								***14,500***
Replace 10R Siren	CIVIL-10R								20,600			*20,600*
General Fund									***20,600***			***20,600***
Replace 11R Siren	CIVIL-11R										21,400	*21,400*
General Fund											***21,400***	***21,400***
Replace 14R Siren	CIVIL-14R								20,600			*20,600*
General Fund									***20,600***			***20,600***
Replace 15R Siren	CIVIL-15R							20,200				*20,200*
General Fund								***20,200***				***20,200***
Replace 16R Siren	CIVIL-16R						22,785					*22,785*
General Fund							***22,785***					***22,785***
Replace 17R Siren	CIVIL-17R							20,200				*20,200*
General Fund								***20,200***				***20,200***
Replace 1R Siren	CIVIL-1R							20,200				*20,200*
General Fund								***20,200***				***20,200***
Replace 2R Siren	CIVIL-2N										21,400	*21,400*
General Fund											***21,400***	***21,400***
Replace 3R Siren	CIVIL-3R								20,600			*20,600*
General Fund									***20,600***			***20,600***
Replace 4R Siren	CIVIL-4R								20,600			*20,600*
General Fund									***20,600***			***20,600***
Replace 5R Siren	CIVIL-5R								20,600			*20,600*
General Fund									***20,600***			***20,600***
Replace 6R Siren	CIVIL-6N										21,400	*21,400*
General Fund											***21,400***	***21,400***
Replace 7R Siren	CIVIL-7R										21,400	*21,400*
General Fund											***21,400***	***21,400***
Replace 9R Siren	CIVIL-9R								20,600			*20,600*
General Fund									***20,600***			***20,600***
Replace Tanker 11 (501)	FIRE-501						340,000					*340,000*
General Fund							***340,000***					***340,000***
Replace Engine 11 (556)	FIRE-503				275,000	275,000						*550,000*
Capital Equipment Certificates					***137,500***	***137,500***						***275,000***
Equipment Revolving Fund					***137,500***	***137,500***						***275,000***
Replace Grass 21 (504)	FIRE-504		45,000									*45,000*
Capital Equipment Certificates			***22,500***									***22,500***
Equipment Revolving Fund			***22,500***									***22,500***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Replace Grass 11 (562)	FIRE-505							50,000				*50,000*
General Fund								***50,000***				***50,000***
Replace Fire Prevention Vehicle (566)	FIRE-506			40,000								*40,000*
Capital Equipment Certificates				***20,000***								***20,000***
Equipment Revolving Fund				***20,000***								***20,000***
800 MHZ Radio Replacements	FIRE-551	56,900										*56,900*
Capital Equipment Certificates		***28,450***										***28,450***
Equipment Revolving Fund		***28,450***										***28,450***
Replace Rescue 11 (559)	FIRE-564								80,000			*80,000*
General Fund									***80,000***			***80,000***
Replacement of all SCBA's	FIRE-566		100,000	100,000								*200,000*
Capital Equipment Certificates			***50,000***	***50,000***								***100,000***
Equipment Revolving Fund			***50,000***	***50,000***								***100,000***
Replace Duty Officer Truck (563)	FIRE-567	40,000										*40,000*
Capital Equipment Certificates		***20,000***										***20,000***
Equipment Revolving Fund		***20,000***										***20,000***
Replace Fire Chief Vehicle (564)	FIRE-569	50,000										*50,000*
Capital Equipment Certificates		***25,000***										***25,000***
Equipment Revolving Fund		***25,000***										***25,000***
Replace Fire Chief Vehicle (564)	FIRE-570									60,000		*60,000*
General Fund										***60,000***		***60,000***
2017 Chev Caprice Replace 2012 Chev Caprice #323	POL-323	29,000										*29,000*
Capital Equipment Certificates		***14,500***										***14,500***
Equipment Revolving Fund		***14,500***										***14,500***
2018 Chev Caprice - Replace 2013 Chev Caprice #331	POL-331		30,000									*30,000*
Capital Equipment Certificates			***15,000***									***15,000***
Equipment Revolving Fund			***15,000***									***15,000***
2018 Chev Tahoe to Replace 2013 Chev Tahoe #332	POL-332		35,000									*35,000*
Capital Equipment Certificates			***17,500***									***17,500***
Equipment Revolving Fund			***17,500***									***17,500***
2017 Chev Tahoe to Replace 2013 Chev Tahoe #333	POL-333	34,000										*34,000*
Capital Equipment Certificates		***17,000***										***17,000***
Equipment Revolving Fund		***17,000***										***17,000***
2021 Chev Impala Replace 2013 Chev Malibu #334	POL-334					32,000						*32,000*
Capital Equipment Certificates						***16,000***						***16,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Equipment Revolving Fund						***16,000***						***16,000***
2021 Ford Explorer Replace 2016 Ford Explorer #351	POL-335					38,000						*38,000*
Capital Equipment Certificates						***19,000***						***19,000***
Equipment Revolving Fund						***19,000***						***19,000***
2019 Chev Caprice to Replac 2014 Chev Caprice #341	POL-341			31,000								*31,000*
Capital Equipment Certificates				***15,500***								***15,500***
Equipment Revolving Fund				***15,500***								***15,500***
2019 Chev Caprice to Replac 2014 Chev Caprice #342	POL-342			31,000								*31,000*
Capital Equipment Certificates				***15,500***								***15,500***
Equipment Revolving Fund				***15,500***								***15,500***
2019 Chev Tahoe to Replace Chev Tahoe #343	POL-343			36,000								*36,000*
Capital Equipment Certificates				***18,000***								***18,000***
Equipment Revolving Fund				***18,000***								***18,000***
800 MHZ Radio Replacement	POL-355	51,906										*51,906*
Capital Equipment Certificates		***25,953***										***25,953***
Equipment Revolving Fund		***25,953***										***25,953***
2020 Ford Explorer Replace 2005 F150 #359	POL-359				37,000							*37,000*
Capital Equipment Certificates					***18,500***							***18,500***
Equipment Revolving Fund					***18,500***							***18,500***
2021 Ford Explorer Replace 2018 Chev Caprice #3XX	POL-366					38,000						*38,000*
Capital Equipment Certificates						***19,000***						***19,000***
Equipment Revolving Fund						***19,000***						***19,000***
2021 Chev Tahoe Replace 2018 Chev Tahoe #3XX	POL-367					38,000						*38,000*
Capital Equipment Certificates						***19,000***						***19,000***
Equipment Revolving Fund						***19,000***						***19,000***
2022 Ford Explorer Relace 2018 Ford Explorer #3XX	POL-368						39,000					*39,000*
General Fund							***39,000***					***39,000***
2022 Chev Tahoe Replace 2018 Chev Tahoe #3XX	POL-369						39,000					*39,000*
General Fund							***39,000***					***39,000***
2022 Ford Explorer Replace 2016 Ford Explorer #363	POL-370						39,000					*39,000*
General Fund							***39,000***					***39,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
2020 Chev Caprice - Replace2017 Chev Caprice #371	POL-371				32,000							*32,000*
Capital Equipment Certificates					***16,000***							***16,000***
Equipment Revolving Fund					***16,000***							***16,000***
2020 Chev Tahoe Replace 2016 Chev Tahoe #361	POL-372				37,000							*37,000*
Capital Equipment Certificates					***18,500***							***18,500***
Equipment Revolving Fund					***18,500***							***18,500***
2017 Chevy Impala Replace 2007 Chevy Impala #375	POL-375	28,000										*28,000*
Capital Equipment Certificates		***14,000***										***14,000***
Equipment Revolving Fund		***14,000***										***14,000***
2019 Chev Impala to Replace 2007 Lincoln #376	POL-376			29,000								*29,000*
Capital Equipment Certificates				***14,500***								***14,500***
Equipment Revolving Fund				***14,500***								***14,500***
2023 Ford Explorer Replace 2019 Ford Explorer #3XX	POL-377							40,000				*40,000*
General Fund								***40,000***				***40,000***
2022 Chev Tahoe Replace 2019 Chev Tahoe #3XX	POL-378							40,000				*40,000*
General Fund								***40,000***				***40,000***
2022 Chev Tahoe Replace 2019 Chev Tahoe #3XX	POL-379							40,000				*40,000*
General Fund								***40,000***				***40,000***
2024 Ford Explorer Replace 2020 Ford Explorer #3XX	POL-380								41,000			*41,000*
General Fund									***41,000***			***41,000***
2024 Chev Tahoe Replace 2020 Chev Tahoe #3XX	POL-381								41,000			*41,000*
General Fund									***41,000***			***41,000***
2024 Chev Impala Replace 2016 Chev Impala #364	POL-382								35,000			*35,000*
General Fund									***35,000***			***35,000***
2025 Ford Explorer Replace 2021 Ford Explorer #3XX	POL-383									42,000		*42,000*
General Fund										***42,000***		***42,000***
2025 Ford Explorer Replace 2021 Ford Explorer #3XX	POL-384									42,000		*42,000*
General Fund										***42,000***		***42,000***
2025 Ford Explorer Replace 2021 Ford Explorer #3XX	POL-385									42,000		*42,000*

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
General Fund										***42,000***		***42,000***
2026 Ford Explorer Replace 2022 Ford Explorer #3	POL-390										43,000	*43,000*
General Fund											***43,000***	***43,000***
2026 Chev Tahoe Replace 2022 Chev Tahoe #3XX	POL-391										43,000	*43,000*
General Fund											***43,000***	***43,000***
2026 Chev Tahoe Replace 2022 Chev Tahoe #3XX	POL-392										43,000	*43,000*
General Fund											***43,000***	***43,000***
Replace 2004 Tree Spade	PW-002						44,500					*44,500*
General Fund							***44,500***					***44,500***
Replace 2004 Mobile Pressure Washer	PW-003						7,200					*7,200*
General Fund							***7,200***					***7,200***
Replace 2004 Pull Behind PTO Mower	PW-004						24,000					*24,000*
General Fund							***24,000***					***24,000***
Replace 2004 Snow Thrower	PW-005						94,000					*94,000*
General Fund							***94,000***					***94,000***
Replace 2004 Mobile Generator	PW-006								164,000			*164,000*
Equipment Revolving Fund									***164,000***			***164,000***
Replace Mobile Air Compressor	PW-016			65,000								*65,000*
Capital Equipment Certificates				***32,500***								***32,500***
Equipment Revolving Fund				***32,500***								***32,500***
Replace Engr Veh #402 With 2017 GMC Sierra	PW-402			35,000								*35,000*
Capital Equipment Certificates				***17,500***								***17,500***
Equipment Revolving Fund				***17,500***								***17,500***
Replace Engr Car #407 With Chevy Impala	PW-407				28,000							*28,000*
Capital Equipment Certificates					***14,000***							***14,000***
Equipment Revolving Fund					***14,000***							***14,000***
Replace 1999 John Deere Grader: Unit #603	PW-603						271,000					*271,000*
General Fund							***271,000***					***271,000***
Replace 1991 Chipper: Unit #619	PW-619					22,000						*22,000*
Capital Equipment Certificates						***11,000***						***11,000***
Equipment Revolving Fund						***11,000***						***11,000***
Replace 1998 Mule: Unit #622	PW-622		18,000									*18,000*
Capital Equipment Certificates			***9,000***									***9,000***
Equipment Revolving Fund			***9,000***									***9,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Replace 2001 Case Backhoe: Unit #634	PW-634			78,000								*78,000*
Capital Equipment Certificates				***39,000***								***39,000***
Equipment Revolving Fund				***39,000***								***39,000***
Replace 2001 John Deere Mower: Unit #635	PW-635					25,000						*25,000*
Capital Equipment Certificates						***12,500***						***12,500***
Equipment Revolving Fund						***12,500***						***12,500***
Replace-2002 Snowplow Truck: Unit #636	PW-636		191,000									*191,000*
Capital Equipment Certificates			***95,500***									***95,500***
Equipment Revolving Fund			***95,500***									***95,500***
Replace 2002 3/4 Ton Truck 4x4: Unit #637	PW-637		45,000									*45,000*
Capital Equipment Certificates			***22,500***									***22,500***
Equipment Revolving Fund			***22,500***									***22,500***
Replace 2003 Kawasaki: Unit #639	PW-639		18,000									*18,000*
Capital Equipment Certificates			***9,000***									***9,000***
Equipment Revolving Fund			***9,000***									***9,000***
Replace Elgin Sweeper: Unit #642 (Storm Wtr)	PW-642		205,000									*205,000*
Storm Water Utility Fund			***205,000***									***205,000***
Replace-2004 Snowplow Truck: Unit #644	PW-644		191,000									*191,000*
Capital Equipment Certificates			***95,500***									***95,500***
Equipment Revolving Fund			***95,500***									***95,500***
Replace 2004 Tool Cat	PW-645									54,000		*54,000*
General Fund										***54,000***		***54,000***
Replace 2005 3/4 Ton Truck 4x4 W/Plow Unit # 651	PW-651		47,000									*47,000*
Sewer Utility Fund			***23,500***									***23,500***
Water Utility Fund			***23,500***									***23,500***
Replace 2005 Utility Truck: Unit #652	PW-652	50,000										*50,000*
Sewer Utility Fund		***25,000***										***25,000***
Water Utility Fund		***25,000***										***25,000***
Replace 3/4 Ton 4x4 Truck; Unit #653	PW-653		43,000									*43,000*
Capital Equipment Certificates			***21,500***									***21,500***
Equipment Revolving Fund			***21,500***									***21,500***
Replace 2006 3/4 Ton Truck 2x4 Unit #654	PW-654				22,000							*22,000*
Capital Equipment Certificates					***11,000***							***11,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Equipment Revolving Fund					***11,000***							***11,000***
Replace Sidewalk Machine: Unit #655	PW-655				128,000							*128,000*
Capital Equipment Certificates					***64,000***							***64,000***
Equipment Revolving Fund					***64,000***							***64,000***
800 MHZ Radio Replacement	PW-659	6,800										*6,800*
Capital Equipment Certificates		***2,550***										***2,550***
Equipment Revolving Fund		***2,550***										***2,550***
Water Utility Fund		***1,700***										***1,700***
Replace Paver, Trailer, Roller	PW-660										90,000	*90,000*
Equipment Revolving Fund											***90,000***	***90,000***
Replace 2006 Tandem Axle Plow Truck: Unit #662	PW-662					230,000						*230,000*
Capital Equipment Certificates						***115,000***						***115,000***
Equipment Revolving Fund						***115,000***						***115,000***
Replace 2007 Chevy Pickup Unit #664	PW-664						45,000					*45,000*
General Fund							***45,000***					***45,000***
Replace 2007 Chevy Pickup: Unit #665	PW-665						30,000					*30,000*
General Fund							***30,000***					***30,000***
Replace 2007 3/4 Ton Pick-Up: Unit #667	PW-667			43,000								*43,000*
Water Utility Fund				***43,000***								***43,000***
Replace 2006 Tandem Axle Plow Truck Unit #668	PW-668						232,000					*232,000*
Equipment Revolving Fund							***232,000***					***232,000***
Replace 2007 International Water Truck: Unit#669	PW-669				130,000							*130,000*
Capital Equipment Certificates					***32,500***							***32,500***
Equipment Revolving Fund					***32,500***							***32,500***
Storm Water Utility Fund					***65,000***							***65,000***
Replace Zero Turn Mower: Unit #670	PW-670		12,000									*12,000*
Capital Equipment Certificates			***6,000***									***6,000***
Equipment Revolving Fund			***6,000***									***6,000***
Replace 2008 Bobcat Skidster: Unit #671	PW-671			48,000								*48,000*
Capital Equipment Certificates				***24,000***								***24,000***
Equipment Revolving Fund				***24,000***								***24,000***
Replace 2014 Ex Mark Mower: Unit #683	PW-691			12,600								*12,600*
Capital Equipment Certificates				***6,300***								***6,300***
Equipment Revolving Fund				***6,300***								***6,300***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Replace 2014 Ex Mark Mower: Unit #684	PW-692			12,600								*12,600*
Capital Equipment Certificates				***6,300***								***6,300***
Equipment Revolving Fund				***6,300***								***6,300***
Replace 2014 Ex Mark Mower: Unit #685	PW-693			12,600								*12,600*
Capital Equipment Certificates				***6,300***								***6,300***
Equipment Revolving Fund				***6,300***								***6,300***
Replace 2013 Toro Wide Area Mower: Unit #679	PW-697				95,000							*95,000*
Capital Equipment Certificates					***47,500***							***47,500***
Equipment Revolving Fund					***47,500***							***47,500***
New Velocity Patcher	PW-700		250,000									*250,000*
Capital Equipment Certificates			***125,000***									***125,000***
Equipment Revolving Fund			***125,000***									***125,000***
New 1-Ton Pickup with Box and Plow	PW-701		48,000									*48,000*
Capital Equipment Certificates			***24,000***									***24,000***
Equipment Revolving Fund			***24,000***									***24,000***
New Electric Utility Vehicle	PW-702			35,000								*35,000*
Capital Equipment Certificates				***17,500***								***17,500***
Equipment Revolving Fund				***17,500***								***17,500***
New 1-Ton Pickup With Box & Plow Equipment	PW-703				50,000							*50,000*
Capital Equipment Certificates					***25,000***							***25,000***
Equipment Revolving Fund					***25,000***							***25,000***
New Programmable Message Board	TE-001		19,000									*19,000*
Capital Equipment Certificates			***9,500***									***9,500***
Equipment Revolving Fund			***9,500***									***9,500***
Eqpt Replacement Total		**354,106**	**1,391,500**	**660,800**	**845,000**	**738,000**	**1,257,485**	**300,600**	**556,100**	**280,000**	**304,600**	***6,688,191***
Municipal Buildings												
Community Center Construction	04-BLDG-002										20,000,000	*20,000,000*
To Be Determined											***20,000,000***	***20,000,000***
Old Town Hall Restoration	08-BLDG-005										221,300	*221,300*
To Be Determined											***221,300***	***221,300***
Sprinkler System @ Fire Station #1	10-BLDG-004				25,000							*25,000*
Facility Fund					***25,000***							***25,000***
Municipal Buildings Total					**25,000**						**20,221,300**	***20,246,300***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Park Improvements												
Elmcrest Park & The Draw Park Entrance & Signage	04-PARK-003	80,000										*80,000*
Park Improvement Trust Fund		***80,000***										***80,000***
Ford Brook Park Playground Equipment	04-PARK-006				70,000							*70,000*
City of Nowthen					***20,000***							***20,000***
Park Improvement Trust Fund					***50,000***							***50,000***
Drinking Fountains/Misting Station	06-PARK-002	8,000										*8,000*
Park Improvement Trust Fund		***8,000***										***8,000***
Irrigation for Titterud Park	06-PARK-010							76,000				*76,000*
Park Improvement Trust Fund								***76,000***				***76,000***
Observation boardwalk - Lake Itasca	06-PARK-011		60,000									*60,000*
Lawful Gambling Fund			***60,000***									***60,000***
Rabbit Park Phase Two	06-PARK-012								125,000			*125,000*
Park Improvement Trust Fund									***125,000***			***125,000***
Observation deck on the Mississippi E of Dolomite	06-PARK-015				85,000							*85,000*
Lawful Gambling Fund					***85,000***							***85,000***
Trail Connections	06-PARK-019	250,000			200,000							*450,000*
Grants/Outside Sources		***150,000***										***150,000***
Park Improvement Trust Fund		***100,000***			***200,000***							***300,000***
Mississippi River Trail -West End	08-PARK-002	1,519,200										*1,519,200*
Grants/Outside Sources		***868,200***										***868,200***
Park Improvement Trust Fund		***651,000***										***651,000***
Park Development in the COR	08-PARK-005	1,200,000										*1,200,000*
Park Improvement Trust Fund		***1,200,000***										***1,200,000***
The Draw Grates	12-PARK-006	10,000										*10,000*
Storm Water Utility Fund		***10,000***										***10,000***
McKinley Trail Connection to Anoka	12-PARK-008				50,000							*50,000*
City of Anoka					***25,000***							***25,000***
Park Improvement Trust Fund					***25,000***							***25,000***
Additional Land For Central Park	15-PARK-01						250,000					*250,000*
Park Improvement Trust Fund							***250,000***					***250,000***
Alpine Park - Replace Fencing & Add Dugouts	17-PARK-001	125,000										*125,000*
Grants/Outside Sources		***50,000***										***50,000***
Park Improvement Trust Fund		***75,000***										***75,000***
Pedestrian Underpass-Alpine Dr	17-PARK-002									750,000		*750,000*
Park Improvement Trust Fund										***750,000***		***750,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Replace Fencing & Dugouts (#5-7)-Central Park	17-PARK-004		75,000									*75,000*
Grants/Outside Sources			***50,000***									***50,000***
Park Improvement Trust Fund			***25,000***									***25,000***
Dog Park Shelter-Alpine Park	17-PARK-005		58,000									*58,000*
Grants/Outside Sources			***20,000***									***20,000***
Landfill Trust Fund			***38,000***									***38,000***
Field Lighting - Central Park	17-PARK-006						200,000					*200,000*
Grants/Outside Sources							***50,000***					***50,000***
Lawful Gambling Fund							***150,000***					***150,000***
Northfork North Trail Connection	17-PARK-007										275,000	*275,000*
Park Improvement Trust Fund											***275,000***	***275,000***
Park Improvements Total		**3,192,200**	**193,000**		**405,000**		**450,000**	**76,000**	**125,000**	**750,000**	**275,000**	***5,466,200***
Sewer Utility												
Abandon Liftstation Wildlife Sanctuary	04-SEW-001				352,000							*352,000*
Sewer Utility Fund					***352,000***							***352,000***
Abandon Lift Station River Pines	08-SEW-004				45,000							*45,000*
Sewer Utility Fund					***45,000***							***45,000***
Fire Station 1 Sanitary Sewer Service	12-SEW-002				60,000							*60,000*
Sewer Utility Fund					***60,000***							***60,000***
Sewer Utility Total					**457,000**							***457,000***
Site Acquisitions												
Acquire outlots "A" in Rivers Bluff and Reilly Est	06-ACQ-002										20,000	*20,000*
Park Improvement Trust Fund											***20,000***	***20,000***
Alpaca Estates Outlot	08-ACQ-002										35,000	*35,000*
Park Improvement Trust Fund											***35,000***	***35,000***
Site Acquisitions Total											**55,000**	***55,000***
Stormwater Utility												
COR Bunker Lake Blvd (Armstrong to Ramsey Blvd)	04-STRM-011				530,000							*530,000*
Storm Water Utility Fund					***530,000***							***530,000***
Whispering Pines Estates Plat 2 Storm Sewer	11-STM-003										330,000	*330,000*
Storm Water Utility Fund											***330,000***	***330,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Stormwater Drainage Improvements	12-STRM-001			350,000								*350,000*
Storm Water Utility Fund				***350,000***								***350,000***
COR Regional Infiltration Basin	16-STM-002	986,000										*986,000*
Storm Water Management Fund		***493,000***										***493,000***
Storm Water Utility Fund		***493,000***										***493,000***
Riverdale Drive Extension Traprock-Ramsey Blvd	16-STM-003	118,120										*118,120*
Storm Water Utility Fund		***118,120***										***118,120***
Stormwater Utility Total		**1,104,120**		**350,000**	**530,000**						**330,000**	***2,314,120***
Street Improvements												
Zeolite Roadway Improvements	04-STR-012					400,000						*400,000*
Tax Increment Fund #2						***400,000***						***400,000***
COR Bunker Lake Blvd (Armstrong to Ramsey Blvd)	04-STR-014				3,650,000							*3,650,000*
Tax Increment Fund #2					***3,650,000***							***3,650,000***
River Pines Lift Station Street Connection	08-STR-005										55,000	*55,000*
Public Improvement Revolving Fund											***55,000***	***55,000***
Bunker Lake Blvd Sunwood Drive Signal	12-STR-001					350,000						*350,000*
MSA						***350,000***						***350,000***
Riverdale Drive Extension: Traprock to Ramsey Blvd	15-STR-001	1,111,905										*1,111,905*
MSA		***1,111,905***										***1,111,905***
Sunwood Drive Roundabout Landscaping	15-STR-003			20,000								*20,000*
Public Improvement Revolving Fund				***20,000***								***20,000***
Reconstruction of Streets-Ford Brook Estates	15-STR-006			780,400								*780,400*
GO Bonding (Road Funding)				***423,600***								***423,600***
Special Assessment - Bonded				***195,100***								***195,100***
Storm Water Utility Fund				***161,700***								***161,700***
Alpine Drive Reconstruction	15-STR-007	793,600										*793,600*
GO Bonding (Road Funding)		***711,600***										***711,600***
Storm Water Utility Fund		***82,000***										***82,000***
Reconstruction Streets Stanhope Terr & North Forty	15-STR-008		1,750,000									*1,750,000*
GO Bonding (Road Funding)			***914,300***									***914,300***
Special Assessment - Bonded			***437,500***									***437,500***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Storm Water Utility Fund			***398,200***									***398,200***
2017 Overlay Projects	15-STR-010	353,800										*353,800*
GO Bonding (Road Funding)		***265,350***										***265,350***
Special Assessment - Bonded		***88,450***										***88,450***
2018 Overlay Projects	15-STR-011		753,700									*753,700*
GO Bonding (Road Funding)			***565,275***									***565,275***
Special Assessment - Bonded			***188,425***									***188,425***
2019 Overlay Projects	15-STR-012			612,200								*612,200*
GO Bonding (Road Funding)				***459,150***								***459,150***
Special Assessment - Bonded				***153,050***								***153,050***
Ramsey Blvd RR Underpass	16-STR-002		22,000,000	0								*22,000,000*
Grants/Outside Sources			***20,000,000***	***0***								***20,000,000***
MSA			***2,000,000***									***2,000,000***
North Hwy 10 Frontage Road-Ramsey to SLB	16-STR-003			7,000,000	5,900,000							*12,900,000*
Grants/Outside Sources				***6,355,000***	***5,900,000***							***12,255,000***
Public Improvement Revolving Fund				***645,000***								***645,000***
South Hwy 10 Frontage Rd-SLB to Anoka	16-STR-004				2,000,000	700,000						*2,700,000*
Grants/Outside Sources					***1,285,000***	***700,000***						***1,985,000***
Public Improvement Revolving Fund					***715,000***							***715,000***
Reconstruction of Streets-Barthels Rum River Acres	17-STR-001				3,553,400							*3,553,400*
GO Bonding (Road Funding)					***2,665,050***							***2,665,050***
Special Assessment - Bonded					***888,350***							***888,350***
2020 Overlay Projects	17-STR-002				539,000							*539,000*
GO Bonding (Road Funding)					***394,250***							***394,250***
Special Assessment - Bonded					***134,750***							***134,750***
Storm Water Utility Fund					***10,000***							***10,000***
Reconstruction of Streets: Riverdale Drive	17-STR-003					3,445,000						*3,445,000*
GO Bonding (Road Funding)						***2,053,750***						***2,053,750***
MSA						***500,000***						***500,000***
Special Assessment - Bonded						***736,250***						***736,250***
Storm Water Utility Fund						***155,000***						***155,000***
2021 Overlay Projects	17-STR-004					347,000						*347,000*
GO Bonding (Road Funding)						***250,250***						***250,250***
Special Assessment - Bonded						***86,750***						***86,750***
Storm Water Utility Fund						***10,000***						***10,000***

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Reconstruction Streets-Autumn Heights & Variolite	17-STR-005						3,325,000					*3,325,000*
GO Bonding (Road Funding)							***2,118,750***					***2,118,750***
MSA							***500,000***					***500,000***
Special Assessment - Bonded							***706,250***					***706,250***
2022 Overlay Projects	17-STR-006						379,000					*379,000*
GO Bonding (Road Funding)							***284,250***					***284,250***
Special Assessment - Bonded							***94,750***					***94,750***
Reconstruction Streets-Nature View & Sorteberg 6th	17-STR-007							1,132,000				*1,132,000*
GO Bonding (Road Funding)								***849,000***				***849,000***
Special Assessment - Bonded								***283,000***				***283,000***
2023 Overlay Projects	17-STR-008							797,000				*797,000*
GO Bonding (Road Funding)								***597,750***				***597,750***
Special Assessment - Bonded								***199,250***				***199,250***
Reconstruction Streets-Rodeo Hills Est/Valley View	17-STR-009								2,280,000			*2,280,000*
GO Bonding (Road Funding)									***1,710,000***			***1,710,000***
Special Assessment - Bonded									***570,000***			***570,000***
2024 Overlay Projects	17-STR-010								333,000			*333,000*
GO Bonding (Road Funding)									***249,750***			***249,750***
Special Assessment - Bonded									***83,250***			***83,250***
Reconstruction Streets -2025	17-STR-011									2,830,000		*2,830,000*
GO Bonding (Road Funding)										***2,122,500***		***2,122,500***
Special Assessment - Bonded										***707,500***		***707,500***
2025 Overlay Projects	17-STR-012									493,000		*493,000*
GO Bonding (Road Funding)										***369,750***		***369,750***
Special Assessment - Bonded										***123,250***		***123,250***
Reconstruction Streets - 2026	17-STR-013										3,422,000	*3,422,000*
GO Bonding (Road Funding)											***2,566,500***	***2,566,500***
Special Assessment - Bonded											***855,500***	***855,500***
2026 Overlay Projects	17-STR-014										508,000	*508,000*
GO Bonding (Road Funding)											***381,000***	***381,000***
Special Assessment - Bonded											***127,000***	***127,000***
COR Pavement Striping	17-STR-015	80,000										*80,000*
Public Improvement Revolving Fund		***80,000***										***80,000***
Street Improvements Total		**2,339,305**	**24,503,700**	**8,412,600**	**15,642,400**	**5,242,000**	**3,704,000**	**1,929,000**	**2,613,000**	**3,323,000**	**3,985,000**	***71,694,005***

Street Light Utility

Category		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Riverdale Drive Extension Lighting	16-STLT-001	275,000										*275,000*
Street Light Utility Fund		***275,000***										***275,000***
Street Light Utility Total		**275,000**										***275,000***
Water Utility												
Complete Pump House 3	04-WTR-005		60,000									*60,000*
Water Utility Fund			***60,000***									***60,000***
The COR Bunker Lake Blvd (Armstrong - Ramsey Blvd)	04-WTR-009				340,000							*340,000*
Water Utility Fund					***340,000***							***340,000***
Watermain Looping: (Ramsey Blvd to Traprock St.)	04-WTR-018	129,250										*129,250*
Water Utility Fund		***129,250***										***129,250***
River Pines Lift Station Water Connection	08-WTR-003				20,000							*20,000*
Water Utility Fund					***20,000***							***20,000***
Fire Station #1 Extension of Water	11-WTR-003				55,000							*55,000*
Water Utility Fund					***55,000***							***55,000***
Watermain Sunfish Lk Blvd	12-WTR-001				450,000							*450,000*
Water Utility Fund					***450,000***							***450,000***
Refurbish Water Tower #2	14-WTR-001	1,300,000										*1,300,000*
Water Utility Fund		***1,300,000***										***1,300,000***
Refurbish Water Tower #1	14-WTR-002		700,000									*700,000*
Water Utility Fund			***700,000***									***700,000***
Emergency Power Supply for Well #3	16-WTR-001	115,000										*115,000*
Water Utility Fund		***115,000***										***115,000***
Construct Well and Pumphouse #9	16-WTR-002				75,000			1,700,000				*1,775,000*
Water Utility Fund					***75,000***			***1,700,000***				***1,775,000***
Water Utility Total		**1,544,250**	**760,000**		**940,000**			**1,700,000**				***4,944,250***
GRAND TOTAL		**8,808,981**	**40,754,700**	**9,423,400**	**18,844,400**	**5,980,000**	**5,411,485**	**4,005,600**	**3,294,100**	**4,353,000**	**25,170,900**	***126,046,566***

PROJECT DETAILS

Project # 08-PARK-002

Project Name Mississippi River Trail -West End

Department Park Improvements
Contact
Type Improvement
Useful Life 20 Years
Category Park Improvement
Priority 1-Existing Obligation (High)
Status Active

Total Cost $1,519,200

Description

This project will complete the off-road Mississippi River Trail (MRT) in Ramsey, by the construction of the segment between the Armstrong Boulevard Interchange and City Limits with Elk River within the ROW of Hwy #10.

Construction costs are estimated up to $868,200 in Federal funding as part of a trail grant in the amount of $1,120,000 (for two phases of the MRT), with the local match of less than $396,000 from the Park Trust Fund. Contracted Engineering and Administration will be required for this project at an estimated cost of $255,000, also from the Park Trust Fund, and is not grant eligible.

Justification

The MRT in particular, due to its National and Regional scope, is an important economic development 'tool' as it relates to the benefits of tourism associated with non-resident cyclists. Portions of the MRT are also United States Bike Route #45.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	1,519,200										1,519,200
Total	**1,519,200**										**1,519,200**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Grants/Outside Sources	868,200										868,200
Park Improvement Trust Fund	651,000										651,000
Total	**1,519,200**										**1,519,200**

Project # 12-PARK-006

Project Name The Draw Grates

Department Park Improvements

Contact

Type Improvement

Useful Life 25

Category Park Improvement

Priority 2-New Addition (High)

Total Cost $10,000

Status Active

Description

Adding stormwater grates to the recently constructed (2010) park.

Justification

This project will install grates over the pipes in the stormwater spreaders. The pipes do not have grates to prevent people and animals from entering the pipes.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	10,000										10,000
Total	**10,000**										**10,000**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Storm Water Utility Fund	10,000										10,000
Total	**10,000**										**10,000**

Project #	16-STM-002
Project Name	COR Regional Infiltration Basin

Department	Stormwater Utility
Contact	
Type	Improvement
Useful Life	50 Years
Category	Storm Water Utility Improvement
Priority	2-New Addition (High)
Status	Active

Total Cost $986,000

Description

Construct stormwater lift station and regional infiltration basin on City-owned property at 14165 Ramsey Blvd. for all new developments in the COR located witing 10-year capture zones of municipal water supply wells.

Justification

The LRRWMO and state rules, as well as local ordinances, infiltration is not allowed within the 10-year capture zone of any municipal well. A condition of several recent LRRWMO permit approvals for such developments was that the City of Ramsey is responsible for providing the required volume retention for 1-inch of runoff from the developments at an off-site location. The first such development (Parkview East Apartments) required that this facility be on-line in 2018.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	986,000										986,000
Total	**986,000**										**986,000**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Storm Water Management Fund	493,000										493,000
Storm Water Utility Fund	493,000										493,000
Total	**986,000**										**986,000**

Project #	16-STM-003
Project Name	Riverdale Drive Extension Traprock-Ramsey Blvd

Department	Stormwater Utility
Contact	
Type	Improvement
Useful Life	20 Years
Category	Storm Water Utility Improvement
Priority	2-New Addition (High)
Status	Active

Total Cost $118,120

Description

This project will extend Riverdale Drive from Traprock Street to Ramsey Blvd.
The City received a Cooperative grant to assist with funding this project.

Total Project $1,359,275 (not including street lights)

*Street Light: $275,000 (related project not included in costs)
Streets: $911,905
ROW: $200,000
Storm: $118,120
Watermain: $129,250

Justification

This project will provide a frontage road on the south side of TH10, providing access to the commercial properties in this area. Direct access to TH10 is not available.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	118,120										118,120
Total	**118,120**										**118,120**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Storm Water Utility Fund	118,120										118,120
Total	**118,120**										**118,120**

Project # 15-STR-001

Project Name Riverdale Drive Extension: Traprock to Ramsey Blvd

Department Street Improvements
Contact
Type Improvement
Useful Life 60 Years
Category Street Improvement
Priority 2-New Addition (High)
Status Active

Total Cost $1,111,905

Description

This project would extend Riverdale Drive from Traprock Street to Ramsey Boulevard.

Justification

The City was awarded a grant from MN/DOT for partial construction of this segment of street in an amount not to exceed $584,280. The Armstrong Boulevard overpass will require the extension of Riverdale Drive to provide local access. This project includes installation of water with construction of the street. The utility costs are itemized on separate projects.

Total Project Costs: $1,359,275 (not including street lights)
Watermain Extension (04-WTR-018) $ 129,250
Stormwater (16-STM-003) $ 118,120
Street Improvement (12-STR-007) $ 911,905
Right-of-Way $ 200,000
*Street Lighting (16-STLT-001) $ 275,000 (related project not included in costs)

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	1,111,905										1,111,905
Total	**1,111,905**										**1,111,905**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
MSA	1,111,905										1,111,905
Total	**1,111,905**										**1,111,905**

Project # 15-STR-007

Project Name Alpine Drive Reconstruction

Department Street Improvements
Contact
Type Improvement
Useful Life 60 Years
Category Street Improvement
Priority 1-Existing Obligation (High)
Status Active

Total Cost **$793,600**

Description

Reconstruction of Alpine Drive from Armstrong Boulevard to Variolite Street.

Total Project Cost = $793,600
Street Improvement: $711,600
Storm Water Improvement: $ 82,000

Justification

These streets are in poor condition and require reconstruction. The pavement has deteriorated beyond the point where an overlay could be applied. This project will install concrete curb and gutter and storm sewer. Subgrade corrections are likely required. To be verified with soil borings during feasibility report preparation in the fall of 2016.

Look at Possibility of Using MSA or PIR funds for portion of costs instead of bonding.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	793,600										793,600
Total	793,600										793,600

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Storm Water Utility Fund	82,000										82,000
GO Bonding (Road Funding)	711,600										711,600
Total	793,600										793,600

Project #	15-STR-010
Project Name	2017 Overlay Projects

Department	Street Improvements
Contact	
Type	Improvement
Useful Life	20 Years
Category	Street Improvement
Priority	1-Existing Obligation (High)
Status	Active

Total Cost $353,800

Description

Each paved street within the City is scheduled to receive preventative maintenance on a regularly scheduled basis, including reconstruction at the end of its useful life.

2017 Projects: Riversbend and Sunwood Drive between Ramsey Boulevard and Bunker Lake Boulevard.

There is a total of $2.2M designated to maintain streets annually.

Overlays will be assessed at 25% of cost whenever possible.

Justification

Regular scheduled maintenance safeguards the considerable investment the City has in its pavements by cost effectively maximizing pavement life and minimizing emergency repairs.

Overlaying streets provides additional pavement life. These streets were selected based on Paser rating and time since last pavement maintenance treatment.

Look at Possibility of Using MSA or PIR funds for portion of costs instead of bonding.

Revisit Program for 2020-2025

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	353,800										353,800
Total	**353,800**										**353,800**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Special Assessment - Bonded	88,450										88,450
GO Bonding (Road Funding)	265,350										265,350
Total	**353,800**										**353,800**

Project # 17-STR-015

Project Name COR Pavement Striping

Department Street Improvements
Contact
Type Improvement
Useful Life 20 Years
Category Street Improvement
Priority 1-Existing Obligation (High)
Status Active

Total Cost $80,000

Description

Re-stripe Sunwood Drive and Rhinestone Street in the COR including required striping modifications for turn lanes to Casey's and Residence at the COR/Common Bond.

Justification

Existing pavement striping is deteriorating and needs to be freshened up. Striping modifications are also needed on Sunwood Drive at the new access to Casey's and for the westbound turn lane to the west driveway for Residence at the COR/Common Bond.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	80,000										80,000
Total	**80,000**										**80,000**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Public Improvement Revolving Fund	80,000										80,000
Total	**80,000**										**80,000**

Project #	16-STLT-001
Project Name	Riverdale Drive Extension Lighting

Department	Street Light Utility
Contact	
Type	Improvement
Useful Life	20 Years
Category	Street Light Utility Improvement
Priority	2-New Addition (High)
Status	Active

Total Cost $275,000

Description

This project will add strret lights to the Riverdale Drive extension.

Justification

Street lights were added to the Riverdale Drive project from Armstrong to Traprock Street. This project will continue the lighting when the extension is completed.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	275,000										275,000
Total	**275,000**										**275,000**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Street Light Utility Fund	275,000										275,000
Total	**275,000**										**275,000**

Project #	04-WTR-018
Project Name	Watermain Looping: (Ramsey Blvd to Traprock St.)

Department	Water Utility
Contact	Unassigned
Type	Improvement
Useful Life	60 Years
Category	Water Utility Improvement
Priority	2-New Addition (High)
Status	Active

Total Cost $129,250

Description

This project includes the looping of a 12" watermain from Ramsey Blvd to Traprock Street with the extension of Riverdale Drive along the south side of Highway 10.

Watermain Extension (04-WTR-018)	$ 129,250
Stormwater (16-STM-003)	$ 118,120
Street Improvement (12-STR-007)	$ 911,905
Right-of-Way	$ 200,000
*Street Lighting (16-STLT-001)	$ 275,000 (related project not included in costs)
Total Project Cost	$ 1,359,275 (not including street lights)

Justification

Development south of Highway 10 is anticipated as a result of The COR, including through the Mississippi West County Park. The project will provide dependable water pressure and supply to this developing area.

The city was awarded a MNDOT cooperative agreement funds grant to extend Riverdale Drive from Traprock Street to Ramsey Blvd in 2016/2017. Installation of water with street construction will eliminate the need to dig up the street in the future.

Expenditures	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Improvements Other than Building Cost	129,250										129,250
Total	**129,250**										**129,250**

Funding Sources	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Total
Water Utility Fund	129,250										129,250
Total	**129,250**										**129,250**

Public Works Committee **6. 3.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Staff Updates on Improvement Projects and Items of Interest

Purpose/Background:

The purpose of this case is to update the Public Works Committee on current and proposed improvement projects within the City, and on other items of interest to the Committee.

City Improvement Projects

- **Business Park 95 Regional Stormwater Pond Improvements**
  - Work is substantially complete
  - Final payment will occur in 2017 following satisfactory completion of punch list and warranty work
- **Andrie Street & 164th Lane Reconstruction**
  - Work is substantially complete
  - Final payment will occur in 2017 following satisfactory completion of punch list and warranty work
- **Riverdale Drive Extension - Traprock St. to Ramsey Blvd.**
  - Plans and specifications 99% complete
  - In process of acquiring 5.3 acres of roadway right-of-way from Anoka County Parks (appraised value $200,000)
  - Construction will occur in 2017
- **Mississippi River Trail Phase 3**
  - Grading substantially complete 2016
  - Aggregate base and paving will occur in spring/summer of 2017
  - Final completion scheduled for summer 2017
- **Zeolite Street Storm Sewer Extension Improvements**
  - Work is substantially complete
  - Final payment will occur in 2017 following satisfactory completion of punch list and warranty work

Anoka County Improvement Projects

- **Hanson Boulevard/CSAH 78 Grade Separation @ BNSF Railway Crossing (2017)**
  - Reconstruct County State Aid Highway 78 (CSAH 78) / Hanson Boulevard to a 4-lane divided section
  - Construct a grade-separated overpass for Burlington Northern Sante Fe (BNSF) railway crossing
- **Hanson Boulevard/CSAH 78 Reconstruction (2018)**
  - Expand CSAH 78 / Hanson Blvd between 139th Ave and CSAH 18 / Crosstown Blvd to 4-lane divided section
- **Foley Boulevard/CSAH 11 Grade Separation @ BNSF Railway Crossing**
  - This project is currently unscheduled and unfunded

MnDOT Improvement Projects

- **Trunk Highway 10 Cable Median Barrier Installation (2018)**
  - Install cable median barrier along Highway 10 between Thurston Avenue and Highway 101
- **Ferry Street / Trunk Highway 47 Grade Separation @ BNSF Railway Crossing (2017)**
  - Complete preliminary design

Items of Interest

Cost Estimate for Pavement Corings and Soil Borings on programmed Street Maintenance Projects

Timeframe:
Staff estimates that 10 minutes will be needed to provide updates and for discussion.

Observations/Alternatives:
N/A

Funding Source:
N/A

Recommendation:
N/A

Action:
N/A

Attachments

MnDOT Projects Summary

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	01/12/2017 07:57 AM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:31 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 09:12 AM
Final Approval Date: 01/12/2017		

DEPARTMENT OF TRANSPORTATION

MnDOT-led projects on Highways 10, 47, and 65 in Anoka County: December 2016 update

Offered by Paul Jung, Metro District · (651) 234-7716 · paul.jung@state.mn.us

Completed 2016

Hwy 10	New wear course between Hanson Blvd and University Avenue
Hwy 47	**Feasibility study for Ferry Street–BNSF Railway grade separation** Safety improvement at 142nd Avenue
Hwy 65	**Access Management Plan: Bunker Lake Blvd to Isanti County line** **Reduced conflict intersection (RCI) study and educational video** Microsurface* southbound lanes: 217th Avenue to County 10

On tap for 2017

Hwy 47	**Preliminary design for Ferry Street–BNSF Railway grade separation**

Beyond 2017

Hwy 10	Install cable median barrier between Hwy 101 and Thurston Avenue (2018)
Hwy 47	Mill and overlay between 27th Avenue and 40th Avenue (2018) Add northbound right turn lane at St. Francis Middle School (2020/21)
Hwy 65	Replace storm sewer in west ditch from 0.1 mi. south of West Moore Lake Drive to 68th Avenue, replace storm sewer (2018) **Construct signalized RCI at Viking Boulevard; construct non-signalized RCIs at 143rd, 153rd, 157th, 181st, and 187th (2018/2019)** Lengthen left turn lanes at several signalized intersections (2018/19) Mill and overlay between County 10 and 153rd Avenue (2022)

* Microsurface is a 3/8-inch thick layer placed atop the existing pavement. It's a mixture of asphalt, cement, and gravel. It improves safety, ride quality, and extends the pavement life.

(over)

Goals—currently unfunded, no date commitment

Hwy 10	Remove traffic signals in Anoka and Ramsey, in accord with Highway 10 Access Planning Study Potential study of Highway 10 bridges on either side of Rum River in conjunction with planning replacement of Rum River bridge
Hwy 47	Construct Ferry Street–BNSF Railway grade separation
Hwy 65	Reduce number of traffic signals in Blaine, in accord with Principal Arterial Conversion Study. Study recommendations expected in 2017.

This handout focuses on significant or unique projects led by MnDOT. It does not include routine projects to replace signs or traffic signals that have reached the end of their service life.

Public Works Committee **6. 4.**

Meeting Date: 01/17/2017

By: Bruce Westby, Engineering/Public Works

Title:

Review Future Topics Calendar

Purpose/Background:

Attached is a list of topics for review and discussion by the Public Works Committee. The list includes topics that were drawn from Committee requests received during meetings or are topics that have previously been discussed by the Committee but have yet to be resolved. Calendar dates have been estimated based on availability of information, staff workload, and competing objectives and are therefore subject to change.

Timeframe:

Staff estimates 5 minutes will be necessary to review the future topics calendar and address Committee questions.

Observations/Alternatives:

N/A

Funding Source:

N/A

Recommendation:

N/A

Action:

For Committee review and discussion purposes only. No formal action is requested or necessary.

Attachments

Jan2017 PWCcalendar

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	01/12/2017 07:55 AM
Kurt Ulrich	Kurt Ulrich	01/12/2017 04:31 PM
Form Started By: Bruce Westby		Started On: 01/10/2017 09:12 AM
Final Approval Date: 01/12/2017		

Public Works Committee Future Topics Calendar *

Date	Topics for Discussion – Committee Action
February 2017	County Ditch Maintenance / Buffer Law *(Westby)*
March 2017	Sunfish Lake Sedimentation Basin Improvements *(Westby)*
March 2017	Gibbon Street & 173rd Avenue Drainage Improvements *(Westby)*
March 2017	Well Siting Study - Well #9
Date	**Topics for Discussion – Regulatory**
March 2017	CR 63 / Green Valley Road Speed Study Results *(Westby)*
Date	**Topics for Discussion – Policy**
Future	Landscaped Median Maintenance Policy *(Riemer)*
May 2017	Draft Trail Maintenance Policy *(Westby)*
May 2017	Draft Stormwater Pond Maintenance Policy *(Westby)*
Date	**Topics for Discussion – Planning and Budget**
March 2017	Review 1996 and 2007 (unadopted) TH 47 Corridor Studies *(Westby)*
March 2017	Review Municipal State Aid System (MSAS) Revisions *(Westby)*
Future	Public Works Facility Review/Update *(Riemer/Brama)*
Future	Comprehensive Plan for Long-Term Water Supply *(Westby)*
Date	**Topics for Discussion – Staff Updates**
Future	Flashing Yellow Arrow Study @ Sunwood Dr & CSAH 83 *(Westby)*
Future	Water Conservation Options / Incentives

* Dates are estimated and are subject to change based on availability of information, staff workload, and competing objectives.