CITY OF NORTH ST. PAUL
CITY COUNCIL
WORKSHOP AGENDA
APRIL 17, 2018
5:00 PM

North St. Paul City Hall – Sandberg Room
2400 Margaret Street

I. CALL TO ORDER

II. ROLL CALL

Council Member Furlong
Council Member Petersen
Council Member Walczak
Council Member Sonnek
Mayor Kuehn

III. ADOPT AGENDA

IV. TOPIC(S)

A. Alternatives for Lake Boulevard for 2018 S&U Project
B. Sanitary Sewer Lining and Pavement Overlay/Rehabilitation Project Locations

V. OTHER BUSINESS

VI. ADJOURNMENT

Agenda Information Memorandum
North St. Paul City Council
April 17, 2018

COUNCIL WORKSHOP
2018 STREET AND UTILITY IMPROVEMENT PROJECT – LAKE BOULEVARD ALTERNATIVES

FACTS

- The 2014-2020 Capital Improvement Plan (CIP) for the City of North St. Paul, adopted by the City Council on July 16, 2013, includes an identified project area for street and utility capital improvements in 2018.
- The proposed 2018 Street and Utility Improvement Project area is comprised of the following streets (see attached Project Location Map):
    - Lake Boulevard from 17th Avenue East to Lydia Avenue/Joy Road
    - Poplar Avenue from Helen Street North to Swan Avenue East
    - Swan Avenue East from Lake Boulevard to Poplar Avenue East
    - 19th Avenue East from Helen Street North to Century Avenue
    - Park Row from 19th Avenue East to 20th Avenue East
    - 20th Avenue East from Park Row to Century Avenue
- The City Council authorized preparation of a Feasibility Report for the Project area on May 16, 2017, and received the Feasibility Report on August 15, 2017, and then received on September 19, 2017 an amended Feasibility Report that included an examination of sidewalk and trail improvements on Margaret Street, from 17th Avenue to 19th Avenue, and on Highway 120, from 19th Avenue to Joy Road in the City of Maplewood. These additional sidewalk and trail improvements on Margaret Street and Highway 120 were subsequently excluded from the 2018 Street and Utility Improvement Project at the City Council's direction.
- Potential improvements considered in the Feasibility Study estimate for the project area include streets, sidewalks/trails, sanitary sewer, water main, and storm sewer. City electrical improvements, and gas main and service reconstruction (by Xcel Energy) are other considerations within a typical project area should City Council authorize a public capital improvement project for streets and utilities.
- As identified in the Feasibility Study 2018 CIP Area, total project is estimated to be $5,482,600, including construction, legal, engineering, administrative, and finance costs.
- The street improvement portion of the project is anticipated to be funded, in part, by special assessments to benefitting properties, in accordance with the Assessment Policy, adopted by City Council July 16, 2013. A separate hearing, anticipated in April 2018, will be scheduled to consider the special assessments proposed as a part of the project.
- The City Council scheduled and held a previous Public Improvement Hearing at the October 17, 2017 regular City Council meeting, and ordered the public improvements in the project with the following stipulations:
    - Removal of the current existing sidewalk on 19th Avenue between Charles and Henry.
    - Removal of the proposed sidewalk installation on 19th Avenue between Helen and Margaret.
    - Removal of off street trail on Lake Boulevard

    - Reconstruct/reclaim 19th Avenue at its existing width with no narrowing of the existing roadway.
- Additional direction given to city staff at the October 17, 2017 was to generate additional on-street bike and pedestrian Lake Boulevard alternatives, which were discussed at the December 5th 2017, January 2nd, and January 16th 2018 Council Workshop meetings, as well as at an additional Public Open House meeting held for residents of the project area December 20th, 2018. There was also discussions regarding additional off-street alternative as a compromise of construction impacts along the Lake Boulevard corridor.
- The Council agreed to schedule an additional Public Improvement Hearing, scheduled for February 20th, 2018. No public improvements were ordered at this meeting, as a supermajority is required, and two resolutions were considered and voted on that did not pass, one including a sidewalk with barrier curb on Lake Boulevard, and another with no sidewalk on Lake Boulevard.
- Staff will present three additional alternatives different than the two previously considered for Council consideration and discussion.

ATTACHMENTS

Location Map

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NORTH ST.PAUL extraordinary.

Figure 1

Project Location
CIP Project - 2018
North St. Paul, MN

City Boundary

2018 CIP

N

0 500 Feet

1 inch = 500 feet

WSB

Agenda Information Memorandum
North St. Paul City Council
April 17, 2018

COUNCIL WORKSHOP
SANITARY SEWER LINING AND PAVEMENT OVERLAY/REHABILITATION PROJECT LOCATIONS

FACTS

SANITARY SEWER LINING

- The City has approximately $200,000 dedicated sanitary sewer lining budget unused at this time that can be applied toward a 2018 project. Staff has identified sewer lining locations as shown on the attached location map. Current total project cost estimates for the proposed locations are approximately $230,000 including construction, contingency, and indirect costs. Approximately 40 percent of the identified lining areas correspond to the proposed 2018 Street and Utility Improvement Project area and if completed ahead of time, would reduce the utility work and costs currently planned to be included in that project.

PAVEMENT REHABILITATION

- Based on pavement forensics analysis (report attached), staff has identified for Council consideration two potential pavement rehabilitation projects, comprised of three different areas, as shown in the attached location maps. As these pavement improvements are located on dedicated Municipal State Aid route segments, they are eligible to be funded by Municipal State Aid funds.
- North St. Paul's current unexpended Municipal State Aid construction funds balance is $1,581,821.70. To incentivize use of the funds for projects, the State will issue disbursements that are adjusted lower when a community carries too high a balance. Consideration of these potential State Aid funded pavement rehabilitation projects in the short term will help North St. Paul take full advantage of the funding in upkeep for pavements and roadways on its State Aid system.
- Estimated total project costs including construction, contingency, and indirect costs for Locations 1, 2, and 3, are approximately as follows:
    - Location 1 (7th Ave. from McKnight to South Ave): $180,000.00
    - Location 2 (7th Ave. from South Ave. to 1st Street): $300,000.00
    - Location 3 (11th Ave., Castle Ave., 12th Ave.): $960,000.00
- All three locations would not all need to be done at the same time under the same contract. If split, staff would recommend Locations 2 and 3 being combined under one project.
- A similar overlay project was completed in 2015 on 11th Avenue west of McKnight using State Aid funds and special assessments. As these are pavement preservation projects, substantial changes to the roadway such as adding curb and gutter, widening or adding turn lanes are typically not considered.
- Following Council discussion and feedback, moving forward with a project will require authorization of a feasibility study, to be considered by resolution at a future regular City Council meeting.

ATTACHMENTS

Location Maps

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

Technical Memorandum

To: ***Brad Reifsteck***
Senior Project Manager

From: ***Tom Wood***
Andrea Blanchette, PE
Sheue Torng Lee, EIT

Date: ***March 29, 2018***

Re: ***Pavement Coring Forensic Report***
WSB Project Number: 011470

Introduction

WSB & Associates, Inc. is pleased to submit this pavement forensics report detailing the results of the pavement coring which were obtained on March 27, 2018 on pavement within the City of North St. Paul. The various characteristics of the pavement cores were analyzed to assist in determining the appropriate pavement maintenance or rehabilitation method for each roadway segment.

A total of 10 pavement cores were taken within the roadway segments. The locations of the pavement cores are summarized in **Figure 1** below and a summary of the pavement depths and conditions are shown on **Table 1** below. Recommended maintenance activity for each Project Location are summarized in **Table 2** below. Pictures of the pavement cores and roadway surface are shown in **Appendix A** of this report.

Figure 1. Pavement core locations taken within the City of North St. Paul.

Table 1. Pavement core location and information.

Core ID	Project Location	Street	Bituminous Depth (inches)	Aggregate Depth (inches)	Notes
1	1	7th Ave E (McKnight Rd to 3rd St N)	9	7+	2.5" top lift delaminated from the remaining bottom of the core.
2	2	7th Ave E (3rd St N to Oakhill Pl)	4.5	Concrete	Two 1" Type 61 lifts. Type 61 mixture observed to have large voids. Core showed signs of deterioration, losing fines and binder.
3		7th Ave E (Oakhill Pl to 2nd St N)	5.25	Concrete	Two 1" Type 61 lifts. Type 61 mixture observed to have large voids. Core showed signs of delamination.
4		7th Ave E (2nd St N to 1st St N)	6	Concrete	Two 1" Type 61 lifts. Type 61 mixture observed to have large voids. Core showed signs of deterioration, losing fines and binder.
5		7th Ave E (1st St N to North St. Paul Dr)	7.5	8+	Driving lane is concrete pavement. Core was taken on the shoulder EB. Core was in good condition. Curbs were observed to be in good condition. Sandy Class 5 material was found underneath bituminous.
6	3	12th Ave E (Helen St N to Margaret St N)	10	6+	2.5" top lift and core was in good condition. Base layer was observed to be sandy Class 5 material with traces of silt.
7		Castle Ave (1st St N to Helen St N)	7	7+	2.5" top lift and the bottom of the core crumbled into pieces. The core showed signs of deterioration.
8		11th Ave E (2nd St N to 1st St N)	6	6+	Core was measured to be 5" thick, bottom 1" crumbed into pieces. Top lift of the core was in good condition, bottom lift showed signs of deterioration.
9		11th Ave E (3rd St N to 2nd St N)	6	6+	Core was measured to be 5" thick, bottom 1" crumbled into pieces. Top lift of the core was in good condition, bottom lift showed signs of deterioration.
10		11th Ave E (3rd St N to 2nd St N)	5	6+	Core was measured to be 2.5" thick, bottom half crumbled into pieces. Core showed signs of deterioration.

Note: Please refer to the summary section for detailed explanations.

Table 2. Project location and summary of recommended maintenance activity.

Core ID	Project Location	Street	Recommended Maintenance Activity
1	1	7th Ave E (McKnight Rd to 3rd St N)	SFDR
2	2	7th Ave E (3rd St N to Oakhill Pl)	Full depth bituminous removal with UTBWC followed by an overlay
3		7th Ave E (Oakhill Pl to 2nd St N)	
4		7th Ave E (2nd St N to 1st St N)	
5		7th Ave E (1st St N to North St. Paul Dr)	Fog seal (shoulder)
6	3	12th Ave E (Helen St N to Margaret St N)	SFDR
7		Castle Ave (1st St N to Helen St N)	
8		11th Ave E (2nd St N to 1st St N)	
9		11th Ave E (3rd St N to 2nd St N)	
10		11th Ave E (3rd St N to 2nd St N)	

Fog Seal: A preventative maintenance in which only the asphalt emulsion is applied to the roadway to protect the roadway surface from environmental aging, moisture damage, and oxidation. This maintenance technique will not add any strength to the pavement.

Full Depth Bituminous Removal and Replacement: Involves milling off the entire depth of the existing pavement and re-paving. This assumes the underlying layers are structurally sound. This process will eliminate all existing bituminous distresses.

Stabilized Full Depth Reclamation (SFDR): Involves pulverizing the bituminous layer and a predetermined depth of underlying materials, followed by blending the materials together with mechanical, chemical, or bituminous stabilization. This process will remove the existing distresses within the pavement layer.

Ultra-Thin Bonded Wearing Course (UTBWC): An application of gap graded aggregate Hot Mix Asphalt (HMA) over a polymer modified asphalt emulsion, with thin finished lifts only 5/8-inch to 3/4-inch. The gap graded membrane provides drainage and prevents moisture from flowing through yet is still flexible. The bottom emulsion membrane has good cracking resistance, which helps retard reflective cracking.

Summary of Findings and Recommendations

Several factors are considered when determining the number of pavement cores to be taken, including the pavement condition or visible distresses present on the pavement and the variability of the pavement depth as the cores are being completed. Pavement coring identifies what exists underneath the visible layer of the pavement and can give a lot of information including depths of the pavement layers, signs of bonding or de-bonding, and distresses that might not be visible from the road surface.

Location 1

One core was taken on 7th Ave E from McKnight Rd to 3rd St N. The core had a bituminous depth of 9 inches and there was at least 7 inches of gravel found underlying the bituminous. The top 2.5 inches of the bituminous was delaminated from the bottom of the core. The street was observed to be in fair condition with fatigue cracking and some spots of patching. It would be our recommendation to perform a SFDR that will help increase the structural strength of the pavement. For this section, it would be our recommendation to mill off 4 inches of bituminous, grind the remaining 5 inches of bituminous with 1 inch of gravel, and stabilize the 6-inch mixture, followed by repaving 3 inches to 4 inches of bituminous. SFDR is estimated to cost around $23.00 per square yard including cost of pre-grind and engineered emulsion and assuming $63 a ton for the HMA mix, with an extension of life of approximately 30 years.

A mill and overlay with an Ultra-Thin Bonded Wearing Course (UTBWC) can also be an option for maintenance. The milling depth should be deeper than where the delamination between lifts occurred, which is greater than 2.5 inches. This is to ensure good bonding between the bituminous lifts by removing the existing delamination. Cracks will likely reflect through the new pavement within a few years and this technique provides roughly a 10-year fix. It is estimated that a 3-inch mill and a 2.25-inch overlay with UTBWC to cost around $14.15 per square yard, not including the milling cost and assuming $63 a ton for HMA mix.

Location 2

Core #2, #3, and #4 were taken on 7th Ave E from 3rd St N to 1st St N, with bituminous depths ranging from 4.5 inches to 6 inches. The top lifts of the core were observed to be made up of two 1-inch Type 61 mixes with large voids. Type 61 mixes are old asphalt mixes under Section 2331 in the *MnDOT Standard Specifications for Construction 2000*. All cores showed signs of deterioration, with cores losing fines and binder throughout. Concrete pavements were found underneath the bituminous layers in these core locations. These bituminous pavements were in poor condition with the surface highly raveled and spots of patching and alligator cracking along the street.

It would be recommended to perform a full depth bituminous removal and replacement, with an UTBWC as an interlayer. UTBWC can act as a bond breaker between the existing concrete pavement and the new bituminous overlay that will help retard the deterioration of cracks. Thus, the new pavement would only need a 1.5-inch to 2-inch bituminous lift leveled, which costs roughly $13.25 per square yard including UTBWC. However, concrete curbs were observed along the Westbound lane of 7th Ave E from 2nd St N to 1st St N and they were in good condition, while bituminous curbs were found along the Eastbound lane. It would be recommended to pave full depth bituminous, approximately 5 inches, so that it matches with the concrete curbs. It is estimated this would cost $24.00 per square yard including the UTBWC. This type of repair will provide a 10-year to 15-year of fix. Full depth removal and replacement of 6-inch bituminous pavement without an UTBWC is estimated to cost around $21.75 per square yard. It is important to note that the cracks will reflect through within a few years. The costs above were calculated assuming $63 a ton for HMA mix and they do not include milling cost.

One core was taken along 7th Ave E from 1st St N to North St. Paul Dr. The driving lane was concrete pavement thus the core was taken on the Eastbound shoulder. The core had a depth of 7.5 inches with a top

lift of 1.5 inches, and it was in good condition. The curbs were also in good condition so curb replacement is not anticipated anytime soon. It would be recommended to perform a fog seal along the bituminous shoulder to protect the pavement surface from oxidation. Fog sealing is estimated to cost approximately $.50 per square yard. The core was not taken along 7th Ave E East of North St. Paul Drive since the street was observed to be concrete pavement.

Location 3

Core #6 taken on 12th Ave E had a bituminous depth of 10 inches, with a top lift of 2.5 inches. The core was in good condition and the underlying aggregate base was found be at least 6 inches of sandy Class 5 material with traces of silt. The road surface was in poor condition, with high severity alligator cracking and large areas of patching, hence we would not recommend a mill and overlay on this street. We do not have traffic information, but from observing there is heavier bus traffic around the area and silt material found, it would be recommended to perform a SFDR to increase the structural capacity of the pavement. On 12th Ave E, we would recommend milling off 4 inches of bituminous, grinding the remaining 6 inches of asphalt with 1 inch of gravel, stabilizing 6 inches of the reclaimed material, followed by repaving 3 inches to 4 inches of bituminous.

Core #7 was taken on Castle Ave with a bituminous depth of 7 inches. The core extracted measured only 2.5 inches, as the bottom 4.5 inches had crumbled into pieces. There was at least 7 inches of gravel underneath the bituminous layer. Core #8, #9, and #10 were taken along 11th Ave N from 3rd St N to 1st St N, with bituminous depths ranging from 5 inches to 6 inches. The bottom of all cores were found to be crumbled to pieces. During the coring operation, all the cores obtained along Castle Ave and 11th Ave N were highly raveled at the bottom; thus, we could not obtain the depths of pavement by just measuring the core thicknesses since the bituminous had crumbled into pieces. We determined the bituminous depths by measuring along the wall of the core holes, until the material changed to aggregate base. There was at least 6 inches of gravel underlying the bituminous pavement. It would be recommended to mill off 4 inches of the bituminous pavement, and grind and stabilize the remaining bituminous and gravel with varying depth, with a total stabilization depth of 6 inches, followed by repaving 4 inches of bituminous. SFDR for this street is estimated to cost around $23.00 per square yard including cost of pre-grind and engineered emulsion and assuming $63 a ton for HMA mix, with an extension of life for approximately 30 years. Curb repair should be conducted where it is determined to be necessary.

Mr. Brad Reifsteck
March 29, 2018

Appendix A

North St. Paul Coring Pictures

Core 1: 7th Ave E (McKnight Rd to 3rd St N)

Core 2: 7th Ave E (3rd St N to 2nd St N)

Core 3: 7th Ave E (3rd St N to 2nd St N)

Core 4: 7th Ave E (2nd St N to 1st St N)

Core 5: 7th Ave E (1st St N to North St. Paul Dr)

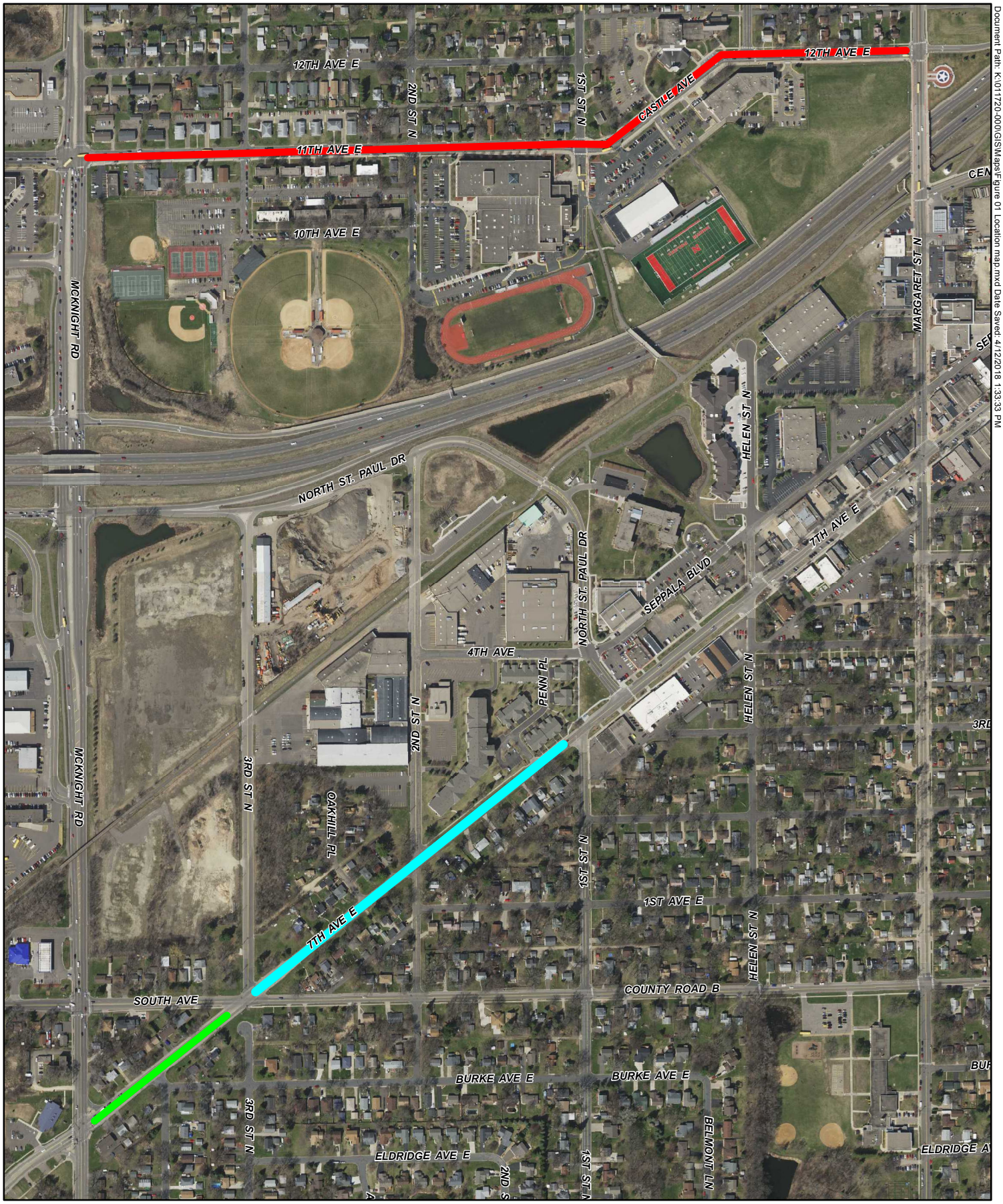
Core 6: 12th Ave E (Helen St N to Margaret St N)

Core 7: Castle Ave E (1st St N to Helen St N)

Core 8: 11th Ave E (2nd St N to 1st St N)

Core 9: 11th Ave E (3rd St N to 2nd St N)

Core 10: 11th Ave E (3rd St N to 2nd St N)



NORTH ST.PAUL
extraordinary.

Project Location

2018 Mill and Overlay
North St. Paul, MN

Legend

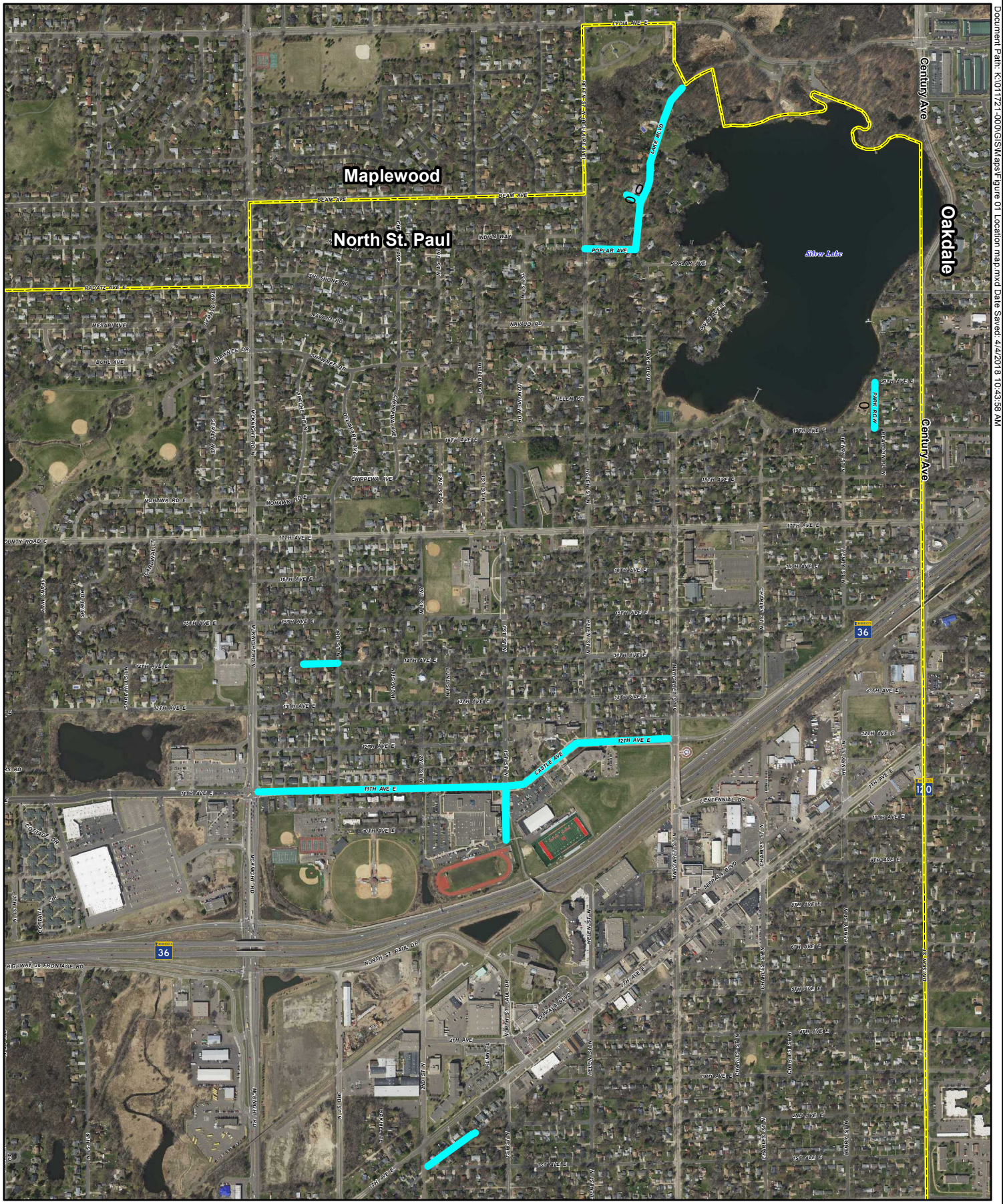
Location 1
Location 3
Location 2

N

0 500 Feet

1 inch = 500 feet

WSB



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NORTH ST.PAUL
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Project Location

2018 Sanitary Sewer Improvements
North St. Paul, MN

Legend

- City Boundary
- Lining Locations

N

0 1,000 Feet

1 inch = 1,000 feet

WSB