

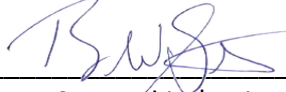
CERTIFICATION

FEASIBILITY REPORT 2017 STREET IMPROVEMENTS

THE CITY OF LAKE ELMO, MINNESOTA

DECEMBER 2016
Lake Elmo Project No: 2016.135

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.



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2017 STREET IMPROVEMENTS

CITY OF LAKE ELMO PROJECT NO: 2016.135

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**2017 STREET IMPROVEMENTS
CITY OF LAKE ELMO
PROJECT NO. 2016.135**

EXECUTIVE SUMMARY

This feasibility report has been prepared to address street and drainage improvements programmed for construction in 2017. In accordance with the City of Lake Elmo annual Street Capital Improvement Program, the City Council authorized the preparation of a feasibility report to be completed in accordance with Minnesota State Statutes 429. The report serves to identify the necessary improvements, the estimated project costs, and to consider the assessment of a portion of the project costs to properties adjacent to and benefitting from the improvements. The Report includes a preliminary assessment roll for each of the benefiting properties in accordance with the latest revision of the City of Lake Elmo Special Assessment Policy. The project addresses street segments located in 4 separate Subdivisions, including Fox Fire Estates, Springborns Green Acres, Judith Mary Manor and Rolling Hills Estates. The proposed project includes Street Reclaim Improvements for the following areas consisting of approximately 2.3 miles of local streets:

- 55th Street North, from Demontreville Trail North to Jamaca Avenue North. 2,100 LF
- 55th Street North, from Jamaca Avenue North to 57th Street North. 3,550 LF
- 57th Street North, from Julep Way North to Keats Avenue North. 1,820 LF
- Jamaca Avenue North, from 55th Street North to Jamaca Boulevard North. 2,450 LF
- Jamaca Boulevard North, from 55th Street North to Jamaca Avenue North. 2,200 LF

The timing of these street improvements was determined by the city's pavement management program. Upon review of the necessary street improvements, engineering also reviews the street drainage systems and existing public utilities. In addition to the street improvements, the scope of this Report includes recommendations for storm sewer casting replacement and storm sewer or drainage upgrades to prevent water from standing on or along the street. As part of the improvements the existing bituminous curb will be replaced with new concrete curb and gutter to improve drainage, improve the construction quality of the street, and provide edge control to protect and extend the service life of the new bituminous surface. A geotechnical investigation was completed to support the Report recommendations.

The total estimated project cost for the street improvement is \$1,400,000. Of this amount \$428,800 is proposed to be assessed to the benefiting properties resulting in a unit assessment of \$6,400 for each of the 67 assessable residential units located throughout the project. The city cost share for the

improvements is therefore estimated to be \$971,200 to be financed through the general tax levy. The detailed breakdown of the proposed improvement costs and corresponding assessment amounts is provided in the “Financing of Improvements” section of this Report.

In addition to the recommended improvements, the estimated project costs and the proposed assessments, this Report addresses the permitting requirements and the easement and right-of-way acquisition needed to implement the improvements. The recommended Project Improvements are necessary, cost-effective, and feasible and will result in a benefit to the properties proposed to be assessed. It is recommended that the City Council accept this Report, hold the public hearing, and order the improvements.

I. PROJECT INITIATION AND SCOPE

This project was initiated as part of the city’s Street Capital Improvement Plan (CIP). The preparation of this feasibility report for the 2017 Street and Drainage Improvements was authorized by the city council on October 4, 2016, after reaffirming the Street Capital Improvement Plan and the designated street segments to be considered for construction in 2017.

This Report is a desktop study, based on street pavement rating observations, street inventory measurements, record drawings, aerial photography, aerial contours, Washington County plat records, and city utility maps. Field observations were made to review and evaluate the severity of the distresses in the pavement, and a geotechnical investigation was completed to determine the in place pavement section for each of the street segments, including the bituminous and aggregate base, and the underlying subbase soil characteristics. Topographic surveys were not completed as part of this report. It has been assumed that the general drainage characteristics of each neighborhood can be preserved or improved as the project is implemented, however this must be verified as part of the detailed design for the selected improvements.

II. PROJECT AREA CHARACTERISTICS

The street segments proposed to be improved in 2017 reside within 4 separate subdivisions. Fox Fire Estates was originally constructed in 1978 and includes Jamaca Boulevard and 55th Street North, from Demontreville Trail to about 760 feet east of Jamaca Boulevard. A segment of 55th Street North, approximately 2,100 feet from Demontreville Trail to Jamaca Avenue, was constructed as a rural section

road with no dedicated right-of-way. The road has a 24 foot bituminous surface and 2 foot gravel shoulders with the exception of the west end where 460 feet of bituminous curb was installed along the steeper part of the street to better control erosion. The road has adequate drainage with one existing culvert at the low point near the west end with drainage flumes and one existing culvert at the low point near the east end with a drainage flume. The rural section of 55th Street was used as a connecting street for the neighborhood to Demontreville Trail and serves lower density (larger parcel) agricultural properties. The remaining portion of 55th Street, approximately 2,250 feet, along with Jamaca Boulevard (2,200 feet in length) was constructed within a 60 foot dedicated right-of-way with a 32 foot wide urban section using bituminous curb. Limited storm sewer was installed at low points for drainage with the storm water runoff discharged at Kleis Park and various locations between residential lots. The urban section street was installed to serve the relatively higher density residential area.

Springborns Green Acres subdivision was also constructed in 1978 and includes Jamaca Avenue North, extending approximately 2,450 feet. Jamaca Avenue was constructed within a 60 foot dedicated right-of-way with a 34 foot wide urban section using bituminous curb. The street is single sided with 11 lower density residential lots along the east side and larger parcel property located on the west side. A storm sewer system is in place that adequately manages the storm water runoff, however 2 of the discharge points are located on private property that is protected by an electric fence.

Judith Mary Manor subdivision was constructed in 1991 and includes a segment of 55th Street North, extending approximately 1,300 feet from the Fox Fire Estates neighborhood to 57th Street. This segment of 55th Street was constructed within a 60 foot dedicated right-of-way with a 30 foot wide urban section using bituminous curb. The storm sewer system is more robust in this area due to varying topography along the street, however the storm sewer is in poor condition and not draining properly. The abutting property includes 7 lower density residential lots (zoned Rural Estates).

Rolling Hills Estates subdivision was constructed in 1993 and includes 1,820 feet of 57th Street North. Like Judith Mary Manor, this street was constructed within a 60 foot dedicated right-of-way with a 30 foot wide urban section using bituminous curb. The storm sewer system is more robust in this area due to varying topography along the street and the storm sewer is good condition. The abutting property also includes 7 lower density residential lots (zoned Rural Estates).

Each of these subdivisions are served by private wells and individual sewage treatment systems and reside outside of any planned service areas for municipal utilities. Therefore, there are no future plans

to extend public utilities to the area and the street improvements can be implemented without concern for excavating the new streets for a future utility improvement. It should be noted, however that an existing 12-inch trunk watermain is located at the intersection of Keats Avenue North and 57th Street North, immediately adjacent to the 57th Street improvement area with 7 to 10 residential properties.

III. PROPOSED STREET & DRAINAGE IMPROVEMENTS

A full depth reclamation of the existing bituminous and aggregate base with the placement of a new bituminous surface is recommended as the proposed improvement for each of the street segments within the 2017 construction project. This improvement will provide a new 3.5-inch bituminous surface supported by an 8-inch renewed recycled aggregate base. Geotechnical investigations indicate that there is adequate bituminous pavement and aggregate base material in place to employ a reclaim of approximately 8 inches in depth and to pave a new bituminous surface to the approximate existing street grades and elevations. The proposed project would keep the streets at the existing centerline to limit or minimize the construction grading and drainage impacts to adjacent properties. Maintaining the existing grading and drainage conditions, with minimal change, is very important to controlling overall project costs. Concrete curb and gutter will be placed along these streets to direct storm water to the existing catch basin inlet structures. The concrete curb and gutter will protect the edge of the pavement and provide improved construction tolerance capability as well as improved drainage of the roadway. The curb height is proposed to be 4 inches tall to allow the recycled material to remain in place to the maximum extent possible, while minimizing the match-in grades to the boulevard areas. The street reclamation project, therefore, will replace the existing street surfaces in place, approximating the existing location and conditions to the greatest extent possible.

Street widths will also be maintained in order to preserve the character of the neighborhoods and minimize impacts to private properties. 55th Street North, from Demontreville to Jamaca Avenue will remain a 24 foot wide bituminous rural section with 2 foot gravel shoulders. The west end of the road will have concrete curb and gutter to replace the existing bituminous curb along the steep slope in order to better manage erosion. No storm sewer improvements are needed on this segment except for the replacement of 3 concrete flumes to transition the street from its rural section to the abutting urban sections. The roadway serves as a neighborhood connection to Demontreville Trail and ultimately Trunk Highway 36. With adjacent agricultural properties the boulevard will be restored using salvaged topsoil and seed.

The remaining street segments will each be replaced as urban sections using concrete curb and gutter and replaced to the current street width. 55th Street, from Jamaca Avenue to Judith Mary Manor subdivision is 32 feet wide. 55th Street, from Judith Mary Manor subdivision to 57th Street is 30 feet wide. 57th Street is 30 feet wide, Jamaca Boulevard is 32 feet wide, and Jamaca Avenue is 34 feet wide. Restoration along the urban street segments will include new boulevard sod along maintained properties and seed where the vegetation is not actively maintained.

On past street improvement projects engineering has evaluated the potential to reduce street widths and found that the cost is typically more expensive due to the need to reconstruct the storm sewer and drainage system as well as incurring additional boulevard and driveway restoration costs. For the 2017 Street Improvements there are two street segments that could be potentially narrowed with similar construction costs since the streets are single sided. Jamaca Avenue could be potentially narrowed from 34 feet down to 28 feet, and 55th Street between Jamaca Blvd. and Jamaca Avenue could be narrowed from 32 feet down to 28 feet. Engineering intends to further evaluate this opportunity as part of the project design.

The storm sewer and drainage system will be repaired and in some instances replaced to restore the original drainage patterns within the development. Catch basins and castings will be replaced as needed, outlets will be cleaned of sediment and the outlet ditches cleaned out to prevent blockage. Additional catch basins and storm sewer runs will be added along Jamaca Boulevard and 55th Street to correct drainage in areas of flat grade. Along Jamaca Boulevard two storm sewer outlets will be reconstructed to terminate in the exiting right-of-way to improve maintenance access.

IV. IMPACTS OF PROPOSED IMPROVEMENTS

The City always has the option of not completing the improvements at this time, thereby deferring the improvements until some future date. Over recent years the City did not go forward with street improvement projects in 2007, 2008, 2013, and 2015. When improvements are ready for major repair or replacement but then deferred the street sections will continue to degrade at an accelerated rate. These street pavements are beyond their useful service life and distresses will become more severe. Continuing to fund routine maintenance on these streets, such as patching, pothole repairs and overlays will become more expensive and less effective as the repair needs become more substantial and frequent. Deferring the improvements is an option to manage short term cash flow and bonding limitations but will result in increased maintenance and replacement costs over the long term. The 2017

Street Improvements in particular are proposed as a lower cost street reclamation project. These types of projects, when deferred can result in the street section degrading to a point beyond the ability to apply a standard reclamation process, and a more expensive solution, such as a full reconstruction, may then be required.

Should a construction project be pursued as recommended there are several short term impacts that will affect properties adjacent to and surrounding the project area. Short-term traffic delays, construction dust and noise, minor tree loss, and erosion will occur during construction of the improvements. Efforts to minimize these impacts include resident communications, proper construction traffic signage, restriction of work hours, and implementation of dust and erosion control measures. Special efforts will be required by the contractor to maintain access to properties and access for emergency vehicles. Driveways and boulevard areas will be impacted with curb and ditch improvements. For new curb areas, disturbances will occur approximately five feet behind curb into the boulevard and driveway areas. For new ditch areas, disturbances may extend to the city's right-of-way depending on the existing grades to match in front yards. This may require the property owners to relocate all private property located within city right-of-way including any underground sprinkler systems or invisible dog fences prior to construction. Mailboxes will be removed and relocated by the contractor to facilitate the curb installation. Disruptions that occur to existing yards and driveways will be restored consistent with general construction practices, however it is not always possible to restore to pre-existing conditions. Construction impacts can be mitigated through the use of proper construction specifications and best management practices.

V. RIGHT-OF-WAY AND EASEMENTS

All improvements are proposed to be completed within existing City right-of-way or prescriptive roadway easement with the possible exception of a few storm sewer inlet and outlet repairs. At this time we have verified existing drainage easements for a few, but not all of the storm sewer outlets as the storm sewer leaves the existing street right-of-ways. Right of entry agreements will be requested from these properties to allow for the minor repair work for existing drainage systems. If the right of entry agreements cannot be acquired the street project can still proceed and the storm sewer repair work can be abandoned from the project.

The existing streets along the 2017 Improvements all reside within 60 foot right-of-ways with the exception of 55th Street North, from Demontreville Tail to Jamaca Avenue. This section of street will be improved while staying within the prescriptive roadway easement area.

VI. PERMITS AND APPROVALS

The following permits will be required to implement the proposed improvements:

- Valley Branch Watershed District Permit for stormwater management and erosion control.

VII. SUMMARY OF ESTIMATED PROJECT COSTS

Included in the Appendix is the detailed estimate of probable Project costs including construction, engineering, geotechnical investigations, easement acquisition services and contingencies. An allowance for easement coordination has been included to cover easement evaluation needs and staff time for preparation of easement sketch and descriptions along with negotiations with property owners. No allowance or estimate has been provided to acquire any necessary easement and right-of-way. An allowance has also been included for legal, fiscal and administration costs per past practices and direction by the City Finance Director.

These cost estimates are based on recent construction projects of similar character and assume that the proposed improvements would begin in 2017. The actual project costs will be determined through a competitive bidding process and will vary with market conditions at the time of the bid. Total estimated project cost for the 2017 Street Improvements are outlined below.

Total estimated project cost for the 2017 Street Improvements: \$1,400,000

• 55th Street North	\$565,000
• 57th Street North	\$195,000
• Jamaca Avenue North	\$320,000
• Jamaca Boulevard North	\$320,000

VIII. FINANCING OF IMPROVEMENTS

The street and drainage improvements will be partially financed by imposing special assessments against the benefiting properties. Special assessments are levied in accordance with Minnesota Statutes Chapter 429 and the City of Lake Elmo Special Assessment Policies and Procedures for Public Improvements, amended October 4, 2016.

Street and drainage improvements are assessed at a rate of 30% of the total project costs for residential properties using a unit method, and at a rate of 100% of the total project costs for non-residential properties based upon the actual front footage abutting the improvement. Residential properties are considered to provide an equal demand on street use and are therefore assessed on a per unit basis. The remaining 70% of the project costs are paid through the City general fund. Residential properties along 55th Street North, 57th Street North, Jamaca Avenue North and Jamaca Boulevard North with direct access to the street are included as benefitting properties. Each property is assessed one unit unless the property has the ability to be subdivided using the current underlying land use and zoning regulations. The city planning and land use department reviews larger parcels to determine if a parcel can be subdivided and the number of lots that could be obtained.

There are 66 residential benefitted properties located along the 2017 Street Improvement project with 67 assessable units. There are two corner lots that have driveway access to both streets that will be assessed ½ unit when each street is improved. In addition there is one large property that can be subdivided into two lots and Kleis Park that can be subdivided in 4 lots. Because Kleis Park is located on a corner two of the assessable units are applied to this project along Jamaca Blvd and the remaining two assessment units will be applied when 53rd Street is improved. The preliminary assessment rolls detailing each property's proposed assessment amount are included in the Appendix of this report.

The total estimated project costs for the proposed street and drainage improvements and corresponding assessment amounts are listed in the table below:

Proposed Improvement	Total Estimated Project Costs	CITY SHARE OF PROJECT COST	ESTIMATED PER UNIT ASSESSED RATE
55 th Street North, 57 th Street North, Jamaca Avenue and Jamaca Blvd.	\$1,400,000	\$971,200	\$6,400

The City may use fund reserves or bonds to pay the up-front project costs and to cover City cost participation. Special assessments would be levied against the benefiting properties with payment terms structured so that the City receives funds to meet debt obligations. Consistent with the City's Special Assessment Policy, the street and drainage improvements will be levied over a 15-year period. Assessments will be charged an interest rate of 1% over the bond rate for the project.

IX. PROJECT SCHEDULE

The following schedule is proposed to accommodate construction of the improvements in 2017:

October 4, 2016	Council authorizes preparation of Feasibility Report.
December 6, 2016	Presentation of Feasibility Report. Council accepts the Report and calls for Hearing on Improvement.
January 17, 2017	Public Improvement Hearing. Council <u>Orders the Improvement</u> and orders the preparation of Plans and Specifications (Requires 4/5th vote).
April 4, 2017	Council approves Plans and Specifications. Orders Advertisement for Bids.
May 4, 2017	Receive contractor bids.
May 16, 2017	Council accepts bids and awards Contract.
June 12, 2017	Conduct Pre-Construction Meeting and issue Notice to Proceed.
September 22, 2017	Substantial completion.
October 27, 2017	Final completion.

X. CONCLUSIONS AND RECOMMENDATIONS

The street pavement surfaces in the North Tri-Lakes Area, as reviewed as part of this report, are beyond their useful service life and show surface distresses indicating improvements are needed at this time. A full-depth reclamation is recommended with the placement of a new bituminous surface and the installation of new concrete curb and gutter along the urban street segments. The pavement surfaces need to be replaced before the base and subgrade further deteriorates to the point that total reconstruction is required, thereby significantly increasing the needed improvement costs. It is recommended that the improvement be assessed as outlined within this report.

The street and drainage improvements, as proposed in this Report, are consistent with the City's Comprehensive Plan, the Capital Improvement Plan, is technically and financially feasible, is necessary, cost effective, and will result in a benefit to the properties proposed to be assessed. It is recommended that the City Council accept this Report, hold the public hearing, and order the improvements.

APPENDIX