

VIKING RAVINE LIFT STATION

Project Feasibility Report

City Project Number 11088

August 2, 2024



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City Of Mankato

I. TABLE OF CONTENTS

I.	TABLE OF CONTENTS	2
II.	CERTIFICATION PAGE.....	3
III.	PROJECT CONTACTS.....	3
IV.	EXECUTIVE SUMMARY	4
V.	PROJECT INTRODUCTION.....	4
VI.	EXISTING CONDITIONS.....	4
A.	SANITARY SEWER.....	4
B.	OTHER UTILITIES.....	4
VII.	PROPOSED IMPROVEMENTS	5
A.	STREET	5
B.	LIFT STATION	5
C.	SANITARY SEWER.....	5
D.	OTHER UTILITIES.....	5
VIII.	RIGHT-OF-WAY AND EASEMENT	5
IX.	APPROVALS/PERMITS	5
X.	PROJECT COST ESTIMATE AND FINANCING.....	6
XI.	POSSIBLE SCHEDULE	6
XII.	CONCLUSION AND RECOMMENDATIONS	6
XIII.	APPENDIX	7
A.	FIGURE 1: EXISTING SANITARY (RED) AND PROPOSED LAYOUT OF VIKING RAVINE FORCEMAIN (BLUE)	7
B.	FIGURE 2: PROPOSED VIKING RAVINE SANITARY LIFT STATION	8

Project Feasibility Report

Viking Ravine Lift Station
City Project Number 11088
City Of Mankato

II. CERTIFICATION PAGE

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of Minnesota.

Michael J McCarty
Reg. No. 45505

Date

III. PROJECT CONTACTS

TITLE	NAME	PHONE	EMAIL
Mayor	Najwa Massad	507.387.9693	nmassad@mankatomn.gov
Councilor at Large	Mike Laven	507.720.8674	mlaven@mankatomn.gov
Councilor Ward 1	Michael McLaughlin	507.720.1093	mmclaughlin@mankatomn.gov
Councilor Ward 2	Dennis Dieken	507.720.1817	ddieken@mankatomn.gov
Councilor Ward 3	Kevin Mettler	507.995.0070	kmettler@mankatomn.gov
Councilor Ward 4	Jenn Melby-Kelley	507.720.2502	jmelby-kelley@mankatomn.gov
Councilor Ward 5	Jessica Hatanpa	507.613.8067	jhatanpa@mankatomn.gov
City Manager	Susan Arntz	507.387.8695	sarntz@mankatomn.gov
Public Works Director	Jeffrey Johnson	507.387.8640	jjohnson@mankatomn.gov
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Project Operations	Kari Lozinski	507.387.8634	klozinski@mankatomn.gov
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Project Representative	Brandon Geldner	507.387.8541	bgeldner@mankatomn.gov

Project Feasibility Report

Viking Ravine Lift Station
City Project Number 11088
City Of Mankato

IV. EXECUTIVE SUMMARY

Viking Drive lift station is proposed replace the existing sanitary sewer line that is located in Viking Ravine (Barne Creek). This sewer system provides service for the neighborhood encompassing Kristy Lane on the east, Victoria Boulevard to the south, Stoltzman Road to the west and Viking Drive to the north. The current sewer pipe is 12-inch vitrified clay line installed in 1966 that has suffered several failures over the last 10-earys. Because this line traverses through Viking Ravine (Barnes Creek), making it difficult to access for any maintenance needs or repairs.

Suggested improvements include installation of a lift station and force main at Viking Ravine.

The estimated cost of these necessary improvements is approximately \$1,250,000.

From an engineering standpoint, the proposed improvements are necessary, cost effective, and feasible. This can best be accomplished by letting competitive bids for the work. It is recommended that the council accept this project feasibility report for the proposed improvements.

V. PROJECT INTRODUCTION

The recommended utility improvements on Viking Ravine lift station are being proposed for the fall of 2024. Staff has prepared a project feasibility report to define the scope and determine the reasonableness of the project. The specific objectives of this preliminary engineering report are to:

- Evaluate the need for this project.
- Determine the necessary improvements.
- Provide information on the estimated costs for the proposed project.
- Determine the project schedule.
- Determine the feasibility of the proposed project.

This project, as proposed, 1600 feet and 3 city blocks. Specific items that will be included in the construction are as follows:

- Lift station installation.
- Force main installation.

VI. EXISTING CONDITIONS

A. SANITARY SEWER

The existing sanitary sewer system consists of a a twelve-inch vitrified clay line that flows north in an easement between 306 and 308 Viking Drive and then traverses through Viking Ravine (Barnes Creek) west to Stoltzman Road. The existing line was installed in 1966 and is difficult to access for any needed maintenance. Since 2014, several extreme precipitation events have caused damage to this pipe resulting in costly, challenging repairs. Additionally, the vitrified clay pipe is not water tight and will allow infiltration of clean water into the sanitary sewer system. The existing sanitary sewer system for Viking Drive is located in Figure 2 in the Appendix with the sanitary system shown in brown.

B. OTHER UTILITIES

Project Feasibility Report

Viking Ravine Lift Station
City Project Number 11088
City Of Mankato

Other non-municipal-owned utilities may be present in the right-of-way. These include natural gas, electric, and telecommunications. The condition of these utilities is unknown and their replacement is beyond the scope of this report.

VII. PROPOSED IMPROVEMENTS

A. STREET

Viking Ravine lift station installation is proposed to reconstruct any necessary roadway impacts due to this installation. Reconstruction would include installation of geotextile fabric, aggregate base, and bituminous surfacing to match the existing conditions of Viking Drive.

Any temporary damages that occur to the boulevard during construction will be repaired after the project with sod in all of the disturbed areas. Trees, bushes, and other vegetation located in the construction zone will be protected where possible; however, some trees and bushes may need to be removed as part of construction due to direct conflict with the proposed utilities or due to unavoidable root damage.

B. LIFT STATION

Installation of a lift station and adjacent valve vault. This installation will include all piping, valves, flanges, couplers, power conduit, and control panel necessary for a complete and operating lift station.

C. SANITARY SEWER

The installation of the 8 inch to 10 inch HDPE forcemain to be directionally drilled to a sanitary manhole located at the intersection of Stoltzman Road and Caroletta Court.

D. OTHER UTILITIES

The design of the proposed improvements will be coordinated with the owners of private utilities such as natural gas, electric, telephone, and cable television. A design coordination meeting will be held with all private utility companies to identify those utilities that are in conflict with the proposed improvements. Private utility companies will be requested to submit proposed designs and construction schedules for any relocation. The construction schedule for the proposed improvements will be coordinated with the utility relocation schedule to avoid unnecessary delays.

VIII. RIGHT-OF-WAY AND EASEMENT

No right-of-way or easement acquisition is necessary for this project.

IX. APPROVALS/PERMITS

Approvals and permits are required from various agencies for the construction of the project. They include:

- City of Mankato Land Disturbance permit.

Project Feasibility Report

Viking Ravine Lift Station
City Project Number 11088
City Of Mankato

X. PROJECT COST ESTIMATE AND FINANCING

Estimated projections for the cost of this project are summarized below.

ITEM	COST
Force Main Construction	\$651,426.93
Lift Station Construction	\$480,819.66
TOTAL CONSTRUCTION	\$1,132,246.59
Construction Contingency	\$113,224.66
TOTAL PROJECT COST	\$1,245,471.25

Funding for the proposed improvements is shown in the table below.

FUNDING SOURCE	AMOUNT	PERCENT
Sewer Utility	\$1,245,471.25	100%
TOTAL FUNDS	\$1,245,471.25	100%

XI. POSSIBLE SCHEDULE

The following is a possible schedule for the proposed improvements on Viking Ravine Lift Station:

08/12/2024	Receiving Report and ordering plans and specifications
08/13/2024	Advertise for Bids
08/23/2024	Bid Opening
08/26/2024	Award Bid
09/02/2024	Begin Construction
11/15/2024	Intermediate completion
01/03/2025	Final Completion

XII. CONCLUSION AND RECOMMENDATIONS

The existing conditions of the sanitary sewer line in Viking Ravine are unfavorable with only further deteriorations to come. If these utility improvements are not made, maintenance costs and unscheduled repairs will continue to be an issue and failure of the system will occur. From an engineering standpoint, this project is cost effective, necessary, and feasible. The best way to accomplish this project is by letting competitive bids for the work. Feasibility is contingent upon City Council findings with respect to project financing.

We recommend the Council accept this project feasibility report, order the City Engineer to prepare final plans and specifications and instruct the City Manager to advertise for bids in accordance with the requirement of law.

Project Feasibility Report

Viking Ravine Lift Station
City Project Number 11088
City Of Mankato

XIII. APPENDIX

A. FIGURE 1: EXISTING SANITARY (RED) AND PROPOSED LAYOUT OF VIKING RAVINE FORCEMAIN (BLUE)



Project Feasibility Report

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B. FIGURE 2: PROPOSED VIKING RAVINE SANITARY LIFT STATION

