2013 – 2017
Sanitary Sewer Improvement and Maintenance Plan
Approved December 18, 2012
City of Mendota Heights
December 13, 2012

To the Honorable Mayor and City Council Members:

The purpose of the Sanitary Sewer Improvement and Maintenance Plan (SSIMP) is to provide a long range forecast of sanitary sewer improvement and maintenance activities to meet the needs of our community. The SSIMP provides policy makers and the community with a strategic approach to the implementation and administration of improvement and maintenance projects. Decisions about improving the city’s infrastructure must be made not only on the basis of need, but also on the basis of availability of resources, and the long-term impact on the community. The SSIMP identifies the city’s infrastructure, development objectives and allocation of financial resources.

The 2013-2017 SSIMP represents an excellent planning tool and provides for approximately $2 million of infrastructure improvements and maintenance during the next five years. While the improvements in the proposed SSIMP are not "written in stone" they do provide a framework for allocating personnel and finances. The total project costs used in the SSIMP are rough estimates using 2012 dollar amounts, which will be refined during the budget, feasibility study and bidding process. In addition, the SSIMP will be presented to the Mendota Heights City Council for annual review and approval. The improvement projects outlined in the SSIMP are designed to meet the city’s infrastructure needs and provide a safe environment for the community.

Respectfully submitted,

John R. Mazzitello, PE, PMP
Public Works Director/City Engineer
Certification

I hereby certify that this 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.

Ryan E. Ruzek, PE
Reg. No. 44990

Michael J. Albers, PE
Reg. No. 47074

Quality Control Review By:

John R. Mazzitello, PE, PMP
Reg. No. 44254

12/13/12
Date
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Summary of Sanitary Sewer Project Costs and Funding Sources
Sanitary Sewer Utility Fund Summary
Improvement Projects
OVERVIEW OF SANITARY SEWER SYSTEM

Sanitary Sewer Collection System
The City of Mendota Heights sanitary sewer collection system is available to the majority of existing land uses. Almost 100 percent of Mendota Heights current population is connected to the sanitary sewer collection system with the exception of a limited number of scattered sites that still utilize Individual Sewage Treatment Systems (ISTS) which are private on-site septic systems.

Wastewater from the City of Mendota Heights is collected and conveyed to the wastewater treatment plant through a network of over 73.1 miles of gravity sewers, 1.3 miles of pressure sewer (forcemain), 1,906 sanitary manholes and 6 lift stations.

The City of Mendota Heights is completely within the Metropolitan Urban Service Area (MUSA). The sanitary sewage system in Mendota Heights was developed based upon the Sanitary Sewer System Master Plan dated March 28, 1966. In 1972, the Sanitary Sewer Master Plan was approved by the Metropolitan Council (formerly the Metropolitan Sewer Board and Metropolitan Waste Control Commission). The City of Mendota Heights is serviced by the Metropolitan Council waste water system managed by Metropolitan Council Environmental Services (MCES). The sanitary sewerage collection system in Mendota Heights is a tributary to the Metropolitan Council system. The majority of the Mendota Heights system flows into a Metropolitan Council sewer interceptor connection, which crosses under the Mississippi River near the Interstate 35E Bridge to the West Seventh Street interceptor and ultimately to the treatment plant at Pig’s Eye Island. A portion of the northeastern part of the City flows directly into the St. Paul system at Chippewa Avenue and Annapolis Street.

Individual Sewage Treatment Systems (ISTS)
Approximately 60 Individual Sewage Treatment Systems (ISTS) are still utilized in Mendota Heights. The largest concentrations of on-site septic systems are in the Somerset neighborhood located in the east central part of the City, adjacent to the City of West St. Paul and the Olivia T. Dodge Nature Center.

City Code (10-3-3: Individual Sewage Treatment Systems) outlines management practices for properties served by an Individual Sewer Treatment System (ISTS):

- The system must be pumped/inspected at least once every three years.
- The Pumping/Inspection must be performed by a person with a current MPCA sewage contractor license.
- The licensed contractor is responsible for filing a septic maintenance log with Dakota County.
- Upon verification of required maintenance, the City shall issue a statement of compliance in letter form, permitting three additional years of operation.
- The City will notify the owner of an ISTS no later than two months before permit expiration. The City has contracted Dakota County to perform this work.
**Individual Service Connections**
The City of Mendota Heights is not responsible for the cleaning, maintaining, or repairing individual service connections from their building up to and including the connection to the sanitary sewer main; the property owner bears the responsibility.

**Sanitary sewer system regulations, ordinances and management practices**
The City of Mendota Heights has adopted a number of practices that are aimed at protecting the quality of water resources within Mendota Heights and the integrity of the sanitary sewer system. These practices are crucial to the future performance and investment required by the utility system because they represent the manner in which this and previous sanitary sewer plans are implemented.

- The sanitary sewer ordinance prescribes the design and manner in which individual connections and use of public sewers are to be made. To limit the amount of inflow into the sanitary sewer system, the ordinance prohibits the flows of storm water, ground water, roof runoff, surface water, unpolluted drainage, unpolluted industrial cooling water, or unpolluted industrial process water into any public sanitary sewer.
- The city zoning regulations determine the specific use and development intensity of individual parcels in the community.
- The city subdivision ordinance requires that properties to be developed be served by the municipal sanitary sewer system, and that, all new sanitary sewers must be constructed according to plans approved by the City Engineer.
- The construction of the municipal and MCES sanitary sewer systems and their on-going operations are financed by: Service Availability Charges (SAC), assessments to properties, and by customer charges that are paid on a regular basis.
- The City of Mendota Heights has updated its on-site septic system ordinance to comply with recent Minnesota Pollution Control Agency (MPCA) requirements.
- The Mendota Heights Public Works Department Utilities Division is responsible for all maintenance activities associated with the sanitary sewer system.

**Existing system issues**
Basic problems that can affect the operation of a sewer collection system include infiltration, inflow, and blockages. It is important that infiltration and inflow flows be kept to a minimum to maintain pipe capacity and preserve treatment plant capacity. The most common sources of sewer blockages are tree root obstructions and the possibility of solids settling out and collecting within the sanitary sewer collection system as a result of sewer lines flowing at less than design capacity.
**Inflow and Infiltration**

The condition of sanitary sewer systems can greatly impact total sewage flow. Inflow and Infiltration (I/I) are terms for the ways that clear water (rain and groundwater) makes its way into sanitary sewer pipes. Infiltration occurs when groundwater seeps into sewer pipes through cracks, leaky joints or deteriorated manholes. Inflow is a direct connection that allows rainwater to enter the sewer system through roof leaders, basement sump pumps, or foundation drains illegally connected to the system. I/I are of great concern as it results in the unnecessary treatment of water and consumes capacity in the large regional sewer pipes. I/I can also contribute to sewer backups into homes and overflows into local lakes and rivers. In order to minimize I/I, the City of Mendota Heights prohibits the connection of sump pumps, rain leaders and passive drain tile into the sanitary sewer system.

The current I/I goal for the City of Mendota Heights is an allowable peak hourly flow of 4.83 MGD with an adjusted average of 1.67 MGD. The Metropolitan Council’s metering program shows that the total annual flow contributed to the MCES sanitary sewer has been in decline over the past several years. This decline can be directly attributed to the City of Mendota Heights’ efforts to reduce I/I contributions to the system. Notwithstanding exceeding our I/I goal, the City of Mendota Heights continues to seek opportunities to reduce clear water flow into the sanitary sewer system.
SSIMP OVERVIEW

Sanitary Sewer Improvement and Maintenance Plan (SSIMP)
The Sanitary Sewer Improvement and Maintenance Plan (SSIMP) is a planning tool that forecasts the city’s needs over a five year period based on city-adopted long-range plans, goals and policies. The SSIMP includes detailed descriptions of sanitary sewer improvement projects and maintenance projects the city anticipates to initiate during the five-year period. The SSIMP is updated annually to ensure consistency and the reflection of changing demands and financial resources.

SSIMP Goals
The goals of the SSIMP are to:
- Provide a balanced program for sanitary sewer improvements given anticipated funding revenues over a five-year planning period.
- Enable the Mendota Heights City Council to evaluate the needs of the entire city objectively.
- Anticipate needed sanitary sewer improvements in advance, rather than being overlooked until critically needed.
- Provide a plan for sanitary sewer improvements that can be used in preparing the budget for the coming fiscal year.

Project Details
The sanitary sewer improvement projects being reported in the SSIMP will be shown within the following sections:
- Preventative Maintenance
- Sanitary Sewer Rehabilitation

Preventative Maintenance
Preventative maintenance includes activities such as cleaning and televising sanitary sewer lines, visual inspection of manholes, annual inspection and maintenance of lift stations, and root cutting in the main lines. Sanitary sewer maintenance and activities are funded through the Sanitary Sewer Utility Fund.

Cleaning and Televising
In 2006, the City of Mendota Heights started a cleaning and televising program with the goal of cleaning and televising the entire sanitary sewer system in a 5 year period. Currently, Public Works Staff along with one seasonal employee clean approximately 7-10 miles of pipe per year. In addition, the city hires a contractor each year to clean an additional 7-8 miles of pipe and televise all of the pipes that are cleaned that year. At our current rate, we are cleaning and televising the entire sanitary sewer system every 5-6 years.
Sanitary sewer pipes are cleaned and televised to identify problem areas, including leaking joints, collapsed sections of pipe and excessive root intrusion through cracks and joints. Excessive root intrusion can cause plugging, which can lead to sewage backups into basements.

Through routine televising and maintenance logs, Public Works staff have identified and prioritized those sections of sewers that require disproportionate maintenance to remain functional or have a history of excessive root intrusion. The SSIMP was then developed to address these problem areas using a variety of rehabilitation techniques, including: conventional excavation and pipe replacement; pipe lining with cured-in-place pipe (CIPP); additional root treatments.

CIPP installation involves inverting an epoxy saturated fiber lining into a sewer line and using water/stream pressure to cure the epoxy. Services and lateral connections are opened after the pipe has cured using a camera and robotic cutter. This process results in a continuous, joint free, structural liner that can be installed with minimal disruption to adjacent residents and traffic, and requires no excavation or street reconstruction.

**Sanitary Sewer Rehabilitation**

A sanitary sewer rehabilitation project will be defined as a project in which the sanitary sewer is modified or supplemented in-place, to restore the serviceability of the existing sanitary sewer system.

The City of Mendota Heights maintains approximately 74.4 miles of sanitary sewer pipe. As the sanitary sewer infrastructure ages, it requires rehabilitation to protect or extend its useful life. If the sanitary sewer infrastructure is not preserved, it will deteriorate prematurely and its benefit to the community will be lost. As a result, the SSIMP reflects the broad direction of the City Council to preserve existing sanitary sewer infrastructure before they fall into such disrepair that expensive reconstruction is required. Typically, the City of Mendota Heights completes one sanitary sewer lining project a year and additional sanitary sewer rehabilitation projects as needed.

Reconstruction projects are identified and planned as part of the Street Improvement Plan (SIP) as sanitary sewer reconstruction often involves removal of the road surface for utility access. Sanitary sewer reconstruction projects that do not impact streets are identified in this plan.
Project Financing

The 2013-2017 Sanitary Sewer Improvement and Maintenance Plan which is detailed on the following pages is financed from the Sanitary Sewer Utility Fund; however, a variety of funding sources are available for non-sanitary sewer project costs. The purpose of this section is to describe and analyze these sources, in as much detail as possible, so that the users of this SSIMP can be certain that the program as outlined can be financed from available funding sources.

Municipal State Aid (MSA) Fund
The Minnesota Department of Transportation (MnDOT) provides funding assistance for improvements to those municipal streets which are designated as part of its MSA system. The City of Mendota Heights receives an annual allotment from the State of Minnesota Municipal State Aid Street Construction Account.

Sanitary Sewer Utility Fund
This fund receives revenue from the utility billing for sanitary sewer. It also is responsible for any expenses relating to the sanitary sewer system.

Storm Water Utility Fund
This fund receives revenue from the utility billings and is responsible for the expenses related to maintaining the city’s storm water system.

Water Revenue Fund
This fund accumulates the water surcharges the city receives from St Paul Regional Water Services. These funds are used for any city expenses that are incurred relating to the city’s water system and water tower.

Special Assessments
The City of Mendota Heights Street Rehabilitation and Reconstruction Assessment Policy approved in June 1992 states that the city will be responsible for financing up to 50% of street reconstruction and rehabilitation projects with the property owner being assessed for the remaining.

City Funding (Municipal Bond Sales)
Since it often takes several years for the city to collect special assessments, the city typically issues bonds for the remaining improvement costs for cash flow purposes. The bond payments relating to street improvement projects are then levied. If there are project costs relating to the above mentioned fund sources, the amount of bonds to be issued can be reduced by monies received from any of those funds.
Sanitary Sewer Facilities

Improvements totaling approximately $2 million are planned for in the 2013-2017 SSIMP. Highlights of the planned projects are as follows:

Preventative Maintenance Projects:
Annual Sanitary Sewer Cleaning and Televising

Sanitary Sewer Rehabilitation Projects:
Annual Sanitary Sewer Lining
2013: Lift Station Rehabilitation: Veronica Lane
2014: Lift Station Rehabilitation: Mendota Heights Road and Northland Drive
2015: 816 Ridge Place Sanitary Sewer Rehabilitation
TBD: Mendota Heights Road Forcemain Replacement
Sanitary Sewer Improvement & Maintenance Plan 2013-2017
Sanitary Sewer Cleaning and Televising Maintenance Plan

December 13, 2012

Legend
Cleaning and Televising
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
### SUMMARY OF SANITARY SEWER PROJECT COSTS AND FUNDING SOURCES

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<th>Project Name</th>
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<th>2015</th>
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<td>$74,000</td>
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<td>$416,000</td>
<td>$448,000</td>
<td>$153,000</td>
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<tr>
<td>Sanitary Sewer Utility Fund</td>
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<td>$153,000</td>
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<tr>
<td><strong>Total</strong></td>
<td>$422,000</td>
<td>$416,000</td>
<td>$448,000</td>
<td>$153,000</td>
<td>$171,000</td>
<td>$1,610,000</td>
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SANITARY SEWER IMPROVEMENT & MAINTENANCE PLAN 2013-2017

CITY OF MENDOTA HEIGHTS

SANITARY SEWER UTILITY FUND SUMMARY

Available Balance (11/1/2012) $711,916
Anticipated 2012 Fourth Quarter Revenue $330,000
Anticipated 2012 Expenditures -$315,656
Total Available (12/31/2012) $726,260

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<th>Revenue</th>
<th>2013</th>
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<td>$1,558,700</td>
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<td>$2,284,960</td>
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<th>2016</th>
<th>2017</th>
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<tbody>
<tr>
<td>Estimated MCES Sewer Fees (2)</td>
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<td>Annual Sanitary Sewer Cleaning and Televising</td>
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<td>$62,000</td>
<td>$56,000</td>
<td>$54,000</td>
<td>$74,000</td>
<td>$92,000</td>
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<tr>
<td>Annual Sanitary Sewer Lining</td>
<td>502</td>
<td>$110,000</td>
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<tr>
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<td>$281,000</td>
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<td>$0</td>
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Subtotal Unreserved Cash Balance | $368,000 | $198,400 | $37,200 | $214,400 | $420,100 |
Asset Depreciation | $145,000 | $145,000 | $145,000 | $145,000 | $145,000 |
Total Unreserved Cash Balance on 12/31 (4) | $513,000 | $343,400 | $182,200 | $359,400 | $565,100 |

Notes:
(1) Assumes a 5% yearly increase.
(2) Assumes a 3% yearly increase.
(3) Assumes a 2% yearly increase.
(4) Includes amounts for asset depreciation allocated annually.
SANITARY SEWER IMPROVEMENT & MAINTENANCE PLAN 2013-2017

CITY OF MENDOTA HEIGHTS

PROJECT NAME: Annual Sanitary Sewer Cleaning and Televising              TOTAL COST: $338,000
PROJECT #: 501                      PROJECT TYPE: Sanitary Sewer PM

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**Project Description**

Each year, staff will determine the sanitary sewer that can be cleaned and televised within the allotted budget based upon current estimated project costs. The areas tentatively planned for cleaning and televising are shown on the sanitary sewer cleaning and televising map.

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**Project Justification**

Our sanitary sewer system is aging. Many of our pipes are 60 years old and will soon be in need of repair. Cleaning our sewer system on a regular cycle will help extend the life of the pipes. Televising of the system will show where immediate repairs are needed.

---

**Project History**

The City of Mendota Heights maintains 73.1 miles of sanitary sewer pipe. In 2006, the City of Mendota Heights started a cleaning and televising program with the goal of cleaning the entire sanitary sewer system in a 5 year period. Currently, Public Works staff along with one seasonal employee cleans approximately 7-10 miles of pipe per year. In addition, the city hires a contractor each year to clean an additional 7-8 miles of pipe and televise all of the pipes that are cleaned that year. At our current rate, we are cleaning the entire sanitary sewer system every 5-6 years.

---

**Project Costs**

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<th>2015</th>
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<td>$54,000</td>
<td>$74,000</td>
<td>$92,000</td>
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**Funding Sources**

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</table>
SANITARY SEWER IMPROVEMENT & MAINTENANCE PLAN 2013-2017

CITY OF MENDOTA HEIGHTS
PROJECT NAME: Annual Sanitary Sewer Lining
PROJECT #: 502
TOTAL COST: $426,000
PROJECT TYPE: San. Sewer Rehab

Project Description
Each year, staff will determine the sanitary sewer that can be lined within the allotted budget based upon current estimated project costs. 2013: Highway 13 (Sutcliff Circle to Fremont Ave), Fremont Ave 2014-2017: To Be Determined based on previous cleaning and televising reports

Project Location

Project Justification
Our sanitary sewer system is aging. Many of our pipes are 60 years old and will soon be in need of repair. Cleaning our sewer system on a regular cycle will help extend the life of the pipes. Televising of the system will show where immediate repairs are needed. Lining pipes and manholes in need of repair will extend the life of our system.

Project History

Project Costs

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Funding Sources

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Rehabilitation of the Sanitary Sewer Lift Stations including but not limited to interior wet well repair, drainpipe replacement, and standardized electrical controls.

2013: Veronica Lane Lift Station
2014: Mendota Heights Road (Add a New Valve)
2014: Northland Drive Lift Station

These projects are necessary to keep the pump stations at a high level of service. Pumps, motors and other equipment should be periodically maintained in order to ensure uninterrupted service. These improvements will lower operation costs, increase pumping efficiency and provide redundancy.
This sanitary sewer rehabilitation project was identified in the 2010 Sanitary Sewer Cleaning and Televising report. The sanitary sewer manhole located at 816 Ridge Place has sunk approximately 1.5'. Proposed rehabilitation consists of replacing the manhole and approximately 200 ft of 27” sanitary sewer pipe.

Rehabilitation of the City’s sanitary sewer system is necessary to keep these utility operating at a high level of service. This sanitary sewer pipe serves approximately 40% of the city.

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The forcemain on Mendota Heights Road (Pilot Knob Road to Highway 55) that pumps the sewage from the industrial park has had several breaks in the past few years and will need to be replaced in the near future. Staff will continue to monitor the break frequency and coordinate replacement of the forcemain with street improvements. Estimated cost for sanitary forcemain replacement is $375,000 and does not including street replacement costs.

Eliminate emergency repairs and sewer spills.

The project year for this project has yet to be determined due to staffs desire to continue to monitor the frequency of breaks.