INTERCEPTOR 8253-327 SANITARY SEWER IMPROVEMENTS

Final Facility Plan

METROPOLITAN COUNCIL

November 2025

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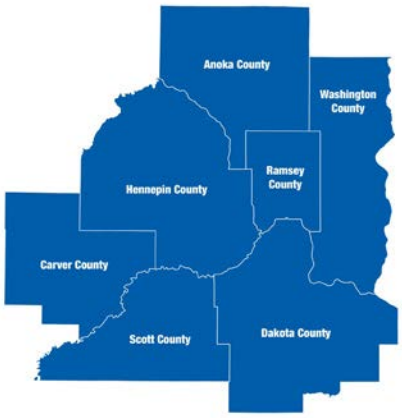

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Date: November 14, 2025

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Glossary of Terms

The following terms and abbreviations are used in this report and are provided here for reference.

ADF. Average Daily Flow. The 24-hour wastewater volume for a 24-hour day without precipitation.

BCE. Business Case Evaluation. A discipline used to systematically evaluate a perceived need then determine how best to address this need by considering financial and non-financial factors.

CIPP. Cured-in-Place Pipe. A trenchless rehabilitation technique that restores an existing damaged pipe to a new structurally sound condition.

DIP. Ductile Iron Pipe. A pipe made from an iron alloy that is commonly used for water infrastructure.

EIW. Environmental Information Worksheet. A report that documents potential environmental impacts from a project.

ESA. Environmental Site Assessment. A report prepared for a landowner that identifies potential or existing contamination liabilities.

FM. Forcemain. A pipe conveying pumped (forced) wastewater under pressure. Forcemains are used where gravity flow is not feasible (e.g. uphill).

GIS. Geographic Information System. A computer system designed to display geographically referenced data, usually in the form of a map.

Gopher State One Call (GSOC). The Minnesota call-before-you-dig utility locating and notification system.

GPM. Gallons per minute, a unit of measurement for rate of water flow by volume.

HP. Horsepower. A pump motor's power rating, which determines the pump's capability to move water.

HDPE. High Density Polyethylene. A type of plastic used to manufacture pipes commonly used for water infrastructure.

I/I. Inflow/Infiltration. Inflow is the entry of water, other than wastewater, entering a sewer collection system, often from maintenance structure covers or cross connections between the storm sewer and sanitary sewer systems. Infiltration is water, other than wastewater, that enters a collection system from the ground through pipe defects or leaking maintenance structures.

Lift (Pump) Station. A pumping station for wastewater or storm water. Often identified as "L-XX"

Meter (Flume or Magnetic). Wastewater flowing through a gravity pipe is measured (metered) using either a specially shaped channel called a flume which measures flow rate based on the water depth or a magnetic meter or "mag meter" which measures flow rate by detecting variations in a magnetic field.

MGD. Millions of Gallons per Day, a unit of measurement for flow rate of water by volume

MnDOT. Minnesota Department of Transportation.

MnDNR. Minnesota Department of Natural Resources.

MPCA. Minnesota Pollution Control Agency.

NPV. Net Present Value. NPV is a representation of future costs in terms of a single present-day amount.

NWI. National Wetland Inventory. A listing of all wetlands recognized by the US Fish and Wildlife Service.

NPDES. National Pollutant Discharge Elimination System. A permit program that addresses water pollution. Wastewater treatment plants have NPDES permits that require monitoring of specific constituents discharged. Construction projects have NPDES construction stormwater permits that regulate sediment in construction site runoff.

O&M. Operations and Maintenance

PFA. Public Facilities Authority. A unit of State government that administers financing programs for public infrastructure projects.

PVC. Polyvinyl Chloride. A plastic that is commonly used to manufacture water pipes.

ROW. Right of Way. A public land corridor reserved for public uses such as roads, sidewalks, and utilities.

SHPO. Minnesota State Historic Preservation Office. A unit of State government responsible for inventorying and protecting historic sites.

SWPPP. Stormwater Pollution Prevention Plan. A site-specific document that details the methods and practices used to prevent stormwater runoff from carrying pollutants offsite.

TDH. Total Dynamic Head. How much pressure a pump can generate to move water.

PWI. Public Waters Inventory. A listing of state-protected waterbodies compiled by the Minnesota Department of Natural Resources.

WWTP/WRRF. Wastewater Treatment Plant/Water Resource Recovery Facility. A facility which removes impurities from wastewater so the water can be safely returned to the environment

Executive Summary

Background and Objectives

The Interceptor 8253-327 Sanitary Sewer Improvements Facility Plan (Facility Plan) identifies and quantifies improvements to the Blue Lake Water Resource Recovery Facility (Blue Lake WRRF) service area of the regional interceptor system (Figure 1) which will provide a long-term, integrated solution for wastewater conveyance and ultimate treatment in the Lake Minnetonka area (Blue Lake WRRF service area). This Facility Plan develops alternatives and recommended improvements that will allow design and construction of needed infrastructure improvements in a timely and coordinated manner for maintaining service to communities with system improvements funded through the Clean Water Revolving Loan Fund (PFA funding). Construction of these improvements is scheduled to be implemented within the next five years; however, the actual schedule for construction may vary as design progresses.

Inspections, condition assessments, flow projections, hydraulic analyses, and recent emergency repairs show the need for facility replacement and/or rehabilitation of Metropolitan Council Environmental Services' regional Interceptor 8253-327, located in the cities of Chanhassen, Shorewood and Victoria. The primary objectives of the project are to maintain and improve the wastewater assets comprising the regional wastewater system; maintain system capacity, improve system reliability, minimize potential for overflows and service interruptions that could pose a threat to public safety, health, and the environment; and increase operational flexibility.

Existing Conditions

Flow from Lift Station L21, located in Shorewood, is conveyed primarily by Forcemain Interceptor 8253-327 (Figure 2). Interceptor 7017 functions as a low-flow backup facility. Forcemain 8253-327 was constructed in 1988 and is comprised of approximately 15,000 feet of 30-inch diameter ductile iron pipe (DIP). It originates at Lift Station L21 on the northern shore of Lake Virginia in Shorewood and runs generally eastward along 62nd Street and State Highway 7 to State Highway 41 where it turns south and discharges into Gravity Interceptor 8253-328 at Lake Lucy Drive, approximately one-half mile south of State Highway 7. In 2023, the downstream 1,900 feet of the original DIP was replaced with fiberglass reinforced polymer mortar pipe (RPMP) due to a failure of the DIP due to internal corrosion. This new segment of pipe was reconfigured as a gravity sanitary sewer system and will not be modified as part of the project covered by this Facility Plan.

Lift Station L21's low flow backup, a 725-foot-long, 24-inch diameter DIP forcemain (Forcemain Interceptor 7017) discharges into a 24-inch diameter reinforced concrete pipe (RCP) gravity line (Gravity Interceptor 7017). This interceptor has limited capacity and can only convey flow from one of the six L21 pumps. This is due to the low capacity of the 24-inch gravity pipe. This gravity pipe also serves as the local sewer for properties along West 62nd Street. Overfilling it can result in flows backing up into basements.

Recommendations

Based upon the review of the net present value of alternatives and non-monetary factors, the following improvement is recommended.

The recommended project alternative (Alternative 3) is to construct one new, fully redundant forcemain for the entire length of the existing 8253-327 forcemain pipe, as shown in (Figure 3). The new pipe will run along an alignment independent of the existing 8253-327 forcemain and consist of a 30-inch diameter forcemain plus access structures. See Appendix A for a detailed business case analysis of all five alternatives.

Table ES-1: **Facility Improvement Recommendation and Cost Summary**

Alternative	Estimated Total Capital Cost	O&M Costs	Total Project NPV*
Alternative 3 – One new forcemain. Repurpose existing 7017 forcemain.	$25.9M	$2.5M	$28.4M

*NPV: Net present value.

Proposed Project Schedule

The Interceptor 8253-327 Sanitary Sewer Improvements Project is planned to be implemented within the next 5 years. The construction schedule will be further developed as design progresses.

Table ES-2: **Project Implementation Schedule**

Activity	Schedule
Facility Plan and Environmental Documentation	2025-2026
Final Design	2026-2027
Bidding	2027
Construction	2028-2030
Commissioning	2030

1. Introduction

1.1. Problem Statement

The Metropolitan Council Environmental Services (Met Council) provides regional wastewater conveyance services to the communities in the Lake Minnetonka area. Wastewater flowing from the Lake Minnetonka area is conveyed to the Blue Lake Water Resource Recovery Facility (WRRF) in Shakopee through a system of 21 lift stations and 106 miles of interceptor pipes. The Blue Lake WRRF service area is shown in Figure 1.

The Interceptor 8253-327 Sewer Improvements Facility Plan (Facility Plan) focuses on the Met Council's L21 forcemain system, consisting of two forcemains, 7017 and 8253-327, as shown in Figure 2. Although L21 has two forcemains, the 7017 system has significantly less hydraulic capacity than Interceptor 8253-327 and cannot convey flow from more than a single L21 pump without filling beyond capacity and causing wastewater spills. Therefore, the overall L21 forcemain system has redundancy only under low flow conditions. In the event of an outage to the 8253-327 system, the only long-term backup would be an above-ground temporary conveyance pipe. Such a pipe would be costly and take two to three days to set up. Also, neither a trucking operation nor the 7017 system would be feasible as long-term backups.

If a long-term outage of 8253-327 were to occur, especially during wet weather, it would be unlikely that service to communities upstream of L21 could be maintained.

1.2. Objective

The purpose of this Facility Plan is to evaluate the findings from previous studies, provide a summary of the existing Council-owned infrastructure included in the project, and to implement the preferred alternative, with the goal of providing a long-term, integrated solutions for wastewater conveyance and ultimate treatment. Alternatives are intended to:

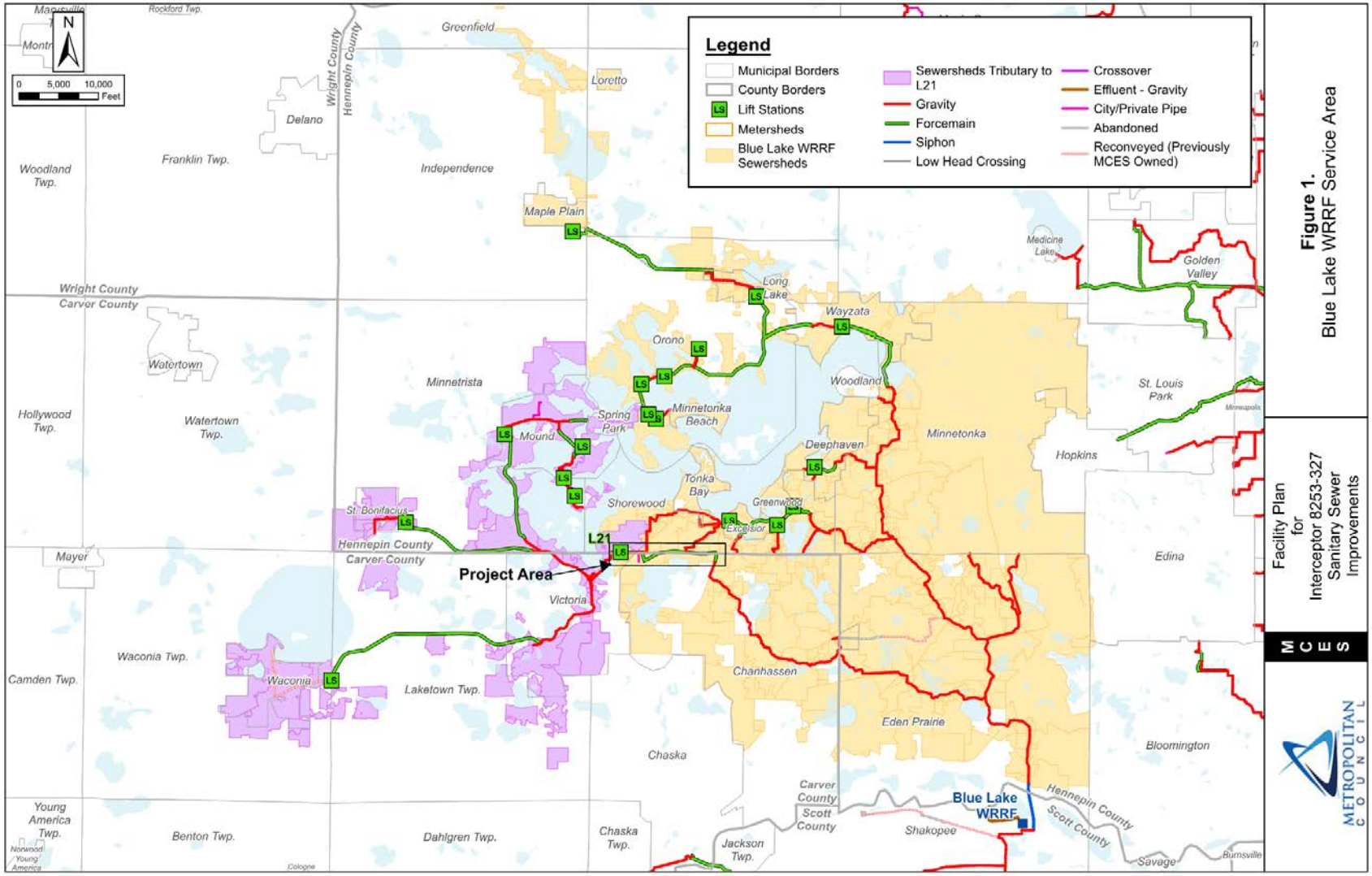
- Maintain system capacity
- Improve system reliability
- Minimize the potential for overflows and service interruptions that could pose a threat to public safety, health, and the environment
- Increase operational flexibility.

These improvements are anticipated to be funded through the Clean Water Revolving Loan Fund (PFA funding).

1.3 Planning Area

The service area studied by this facility plan includes portions of Chanhassen, Laketown Township, Minnetrista, Mound, Shorewood, Spring Park, St. Bonifacius, Victoria, and Waconia. See (Figure 1).

Figure 1: Blue Lake WRRF Service Area



2. Existing and Future Conditions

2.1. Existing Facilities Inventory

The information below summarizes the existing interceptor facilities included in this Facility Plan.

Table 1: Existing Lift Station Infrastructure

Location	Lift Station	Pumps	Pump Capacity (gpm)	TDH (ft)	HP	Firm Capacity (MGD)	Year Built	Year Rehab
Shorewood	L21	6-Fairbanks Morse Dry Pit	3,300	65	100	15.1	1971	1989

Table 2: Existing Interceptor Infrastructure

Interceptor	Conveyance Type	Diameter (in)	Material	Length (ft)	Capacity (MGD)	Year Built	Year Rehab
7017	Forcemain	24	DIP	725	12.2*	1971	n/a
7017	Gravity	24	RCP	7,400**	5.0	1971	n/a
8253-327	Forcemain	30	DIP	14,300***	19.0*	1988	n/a

*Forcemain capacity is based on a flow velocity of 6 feet per second.
**At the end of this segment, the pipe changes to 30-inch RCP.
***At the end of this segment, the pipe discharges into the 30-inch RPMP gravity system.

2.2. Service Area Characteristics

The Metropolitan Council Imagine 2050 Water Policy Plan calculated the previous, existing, and future average daily flow conditions in the Lake Minnetonka area using the assumptions shown Table 3. Flow projections for cities in the L21 sewershed are shown in Table 4. These communities are all serviced by the Blue Lake WRRF located at 6951 County Rd 101 in Shakopee, MN along the Minnesota River. The Blue Lake WRRF is the fourth largest plant operated by Metropolitan Council Environmental Services treating an average of 29 million gallons per day.

In July 2024, the engineering consulting firm Brown and Caldwell performed hydraulic modeling for historic and future flow scenarios to determine system flow conditions and identify areas for improvements within the Lake Minnetonka area. Although observed peaking factors for 8253-327 exceeded standard peaking factors, the observed conditions did not exceed the capacity of 8253-327. This analysis is included in Appendix B and summarized in Table 5.

In December 2024, flow projections for interceptor 8253-327 were updated. These projections are summarized in Table 6.

In December 2021, the engineering consulting Short Elliot Hendrickson (SEH) performed a condition assessment of the 8253-327 forcemain in 2021. Their findings are included in Appendix C. This assessment included metal thickness testing and soil corrosivity analysis. SEH concluded that the only area of significant metal thickness loss occurred in the area that was subsequently repaired in 2023. After SEH's assessment, Brown and Caldwell performed a more comprehensive condition assessment of the 8253-327 forcemain in 2022. Brown and Caldwell found two possible instances of metal thickness loss in the areas tested. Considering also SEH's findings, Brown and Caldwell concluded that the existing 8253-327 pipe had sufficient years of remaining service life that it could continue to be

utilized through 2050, barring the discovery of any defects resulting from a future internal CCTV inspection. Such inspection will only be possible after construction of the fully redundant forcemain for L21 proposed by this project.

Table 3: Flow Projection Assumptions

Factor	Value Used
Household population water usage	60 gallons per capita per day
Employer usage	15 gallons per employee per day
Peaking factors:	Met Council flow variation factors for sewer design**
Water conservation reduction per decade	0%

** available in Appendix G of the Imagine 2050 Water Policy Plan

Table 4: Existing and Future Flows for Communities in the L21 Service Area.

Community	Existing ADF (MGD)	2030 ADF (MGD)	2040 ADF (MGD)	2050 ADF (MGD)
Chanhassen	2.51	2.75	2.89	3.08
Laketown Twp	0.06	0.12	0.12	0
Minnetrista	0.36	0.47	0.54	0.61
Mound	0.72	0.83	0.80	0.79
Shorewood	0.88	1.07	1.08	1.09
Spring Park	0.22	0.24	0.24	0.26
St. Bonifacius	0.25	0.26	0.26	0.27
Victoria	0.80	1.00	1.16	1.39
Waconia	1.01	1.29	1.39	1.63

Table 5: L21 Forcemain Projected Flows.

Interceptor	2030 ADF (MGD)	2030 Peak (MGD)	2040 ADF (MGD)	2040 Peak (MGD)	2050 ADF (MGD)	2050 Peak (MGD)	2050 Percent Utilization*
7017 FM	n/a	4.0	n/a	4.0	n/a	4.0	100%**
7017 Gravity (at MH11-2)	0.2	0.85	0.22	0.91	0.24	1.0	17%***
8253-327 FM	4.4	14.6	4.9	16.2	5.4	18.2	77%
8253-327 Gravity	4.4	14.6	4.9	16.2	5.4	18.2	73%

* Forcemain capacity is based on a flow velocity of 6 feet per second.
** The capacity of forcemain 7017 is limited by the capacity of the pipe it discharges into. Flows exceeding this rate can cause surcharging and backups in the downstream system.

***Utilization is based on standard operating conditions and not when being used as a backup to L21.

Table 6: Forcemain 8253-327 Current and Projected Flows.

Year	Average Daily Flow (ADF) (MGD)	Observed Peak Factor (PF)*	Observed PF Flow (MGD)	Standard Peak Factor (PF)**	Standard PF Flow (MGD)
Current	3.5	3.33	11.7	2.5	8.8
2030	4.4	3.33	14.6	2.4	10.5
2040	4.9	3.33	16.2	2.4	11.6
2050	5.4	3.33	18.2	2.3	12.5

*Observed peaking factors are multipliers determined by dividing historic observed flows by the average daily flow (ADF).

**Standard peaking factors are flow multipliers used by Environmental Services to establish thresholds for excessive inflow/infiltration (I/I).

3. Development of Alternatives

3.1 Description of Alternatives

The following design parameters were used to develop project alternatives. Redundancy: provide a fully redundant system with each forcemain being capable of conveying future peak wet weather flows and interconnections between the two forcemains.

- Maintain existing hydraulic conditions: each alternative's pipe profile and length should be similar to the existing system so pumping rates at L21 remain the same for each of the redundant forcemains.
- Ability to divert flow: each alternative must be capable of diverting up to 4 MGD (one full speed pump at L21) to L19 in Excelsior to provide relief to the gravity system downstream of 8253-327.
- Consistent number of maintenance structures: alternatives must not require more maintenance structures than the existing system to avoid increasing operation and maintenance costs.
- Maximize use of existing easements and right-of-way
- Minimize the number of private driveway impacts
- Avoid waterbodies and wells wherever possible
- Maintain specified distance from feature to pipe centerline:
    - Well, 50 ft
    - Habitable buildings, 35 feet
    - Detached garage, pool, outbuilding, 25 feet
    - Electrical transmission power poles, 15 feet
    - Watermain and high-pressure gas main, 12 feet
    - Local gas, existing sanitary sewer, power poles, and edge of MnDOT Highways, 10 feet

Five alternatives were developed for 8253-327 improvements, including the status quo alternative. Alternatives that retain the existing 8253-327 forcemain include rehabilitation of the existing access structures but not rehabilitation of the existing pipe.

Alternative 1, Status Quo. This alternative leaves the existing system in place (see Figure 2). In this alternative, maintenance, rehabilitation of maintenance structures, and cleaning and inspection would be required to extend the system's useful life. Furthermore, the system would need to be taken out of service every 10 years for cleaning and inspection to determine if any internal defects exist. Without a

fully redundant system available, such actions would need to be performed during sustained periods of dry weather to avoid the requirement for temporary flow conveyance.

Alternative 1 does not meet the project objectives of reliability and operational flexibility. Furthermore, due to the environmentally sensitive nature of the Lake Minnetonka area, a release of wastewater in the event of a facility failure would create a threat to public safety and health, the environment, and threaten private property and economic activity. Therefore, the “status quo” alternative was not selected.

Alternative 2, One New Forcemain on new alignment. Alternative 2 involves constructing approximately 13,700 ft of new 30-inch forcemain following a new alignment. The proposed alignment of the new pipe is shown in Figure 3. In this alternative, the existing forcemain and gravity interceptors remain in use, and no temporary conveyance is necessary for construction. This alternative includes cleaning and inspecting the existing 8253-327 forcemain, as well as maintenance structure rehabilitation once the new forcemain is put into service. The addition of one new forcemain meets project objectives by providing a fully redundant forcemain system.

Alternative 3, One New Forcemain on existing 7017 alignment. Alternative 3 includes the addition of approximately 13,500 LF of 30-inch forcemain. In this alternative, the new pipe is placed in a similar alignment to the existing gravity interceptor 7017 as shown in Figure 3. Therefore, the existing 7017 gravity interceptor on W 62nd St. is removed and the reinstalled 7017 gravity interceptor is placed in a new alignment and is no longer connected to L21. This alternative requires temporary gravity service coordination for cutover piping during construction. As with Alternative 2 this alternative includes cleaning and inspecting the existing 8253-327 forcemain, as well as manhole rehabilitation once the new forcemain is put into service. The addition of one new forcemain meets project objectives by providing a fully redundant forcemain system.

Alternative 4, Two New Forcemains on existing 8253-327 alignment. This alternative constructs approximately 27,100 LF of two new 30-inch forcemain pipes on a the existing forcemain alignment as shown in Figure 4. Because this alternative removes the existing 8253-327 forcemain within W 62nd St during new pipe construction, temporary conveyance is needed in that area. The remainder of the alignment constructs two new pipes within the same trench in a different alignment from the existing 8253-327 forcemain and then requires removal of the existing 8253-327 forcemain after the new forcemains are put into service. The addition of two new forcemains meets project objectives by providing a fully redundant forcemain system.

Alternative 5, Two New Forcemains. This alternative constructs approximately 27,300 LF of two new 30-inch forcemain pipes in a different alignment from the existing 8253-327 forcemain as shown in Figure 4. The two new pipes would be constructed within the same trench. Since the existing forcemain remains in place during construction no temporary conveyance is needed. The existing 8253-327 forcemain is removed after construction of the new forcemains. The addition of two new forcemains meets project objectives by providing a fully redundant forcemain system.

Figure 2: L21 System Layout and Status Quo Alternative

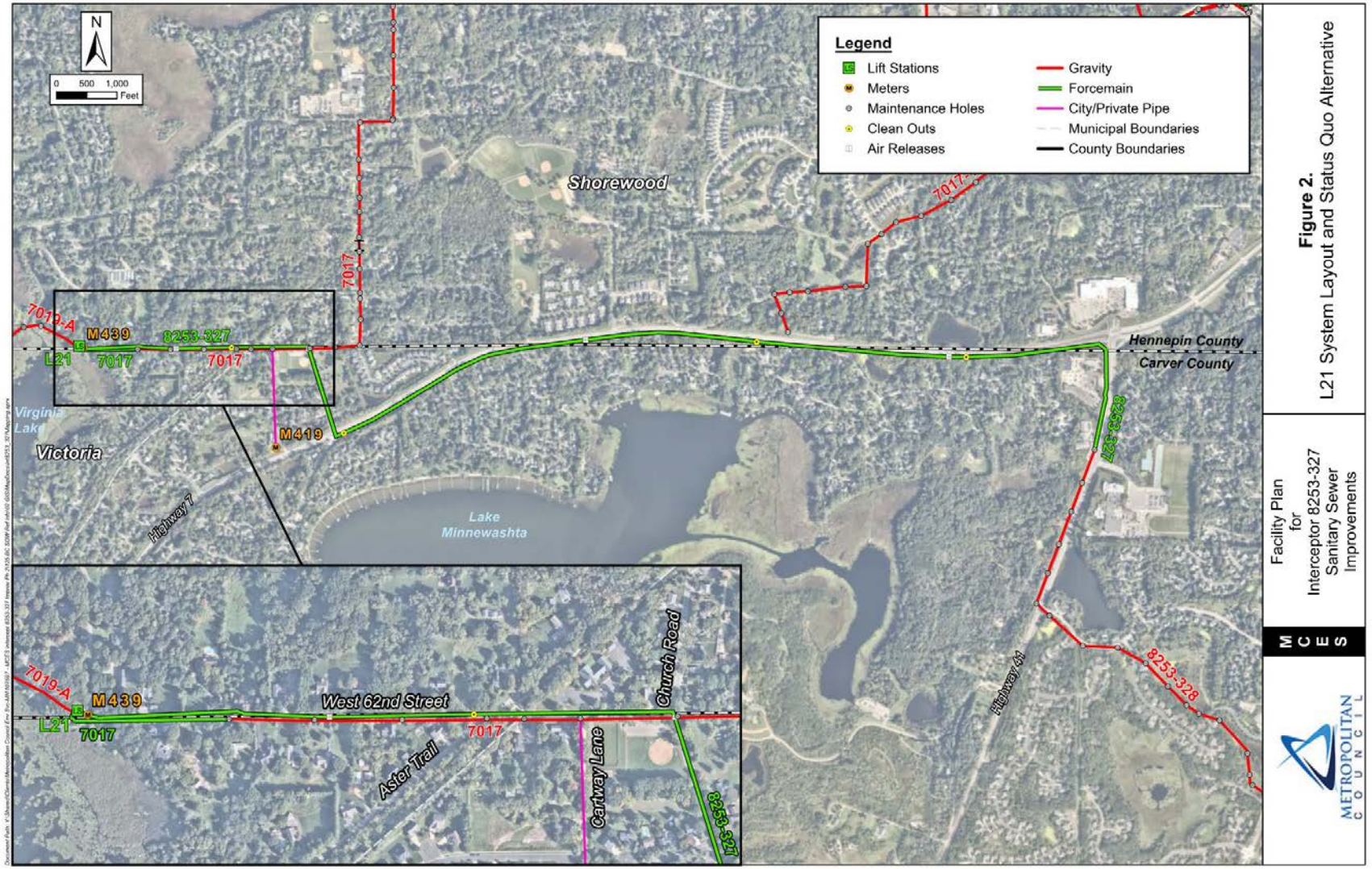


Figure 3: Alternatives 2 and 3

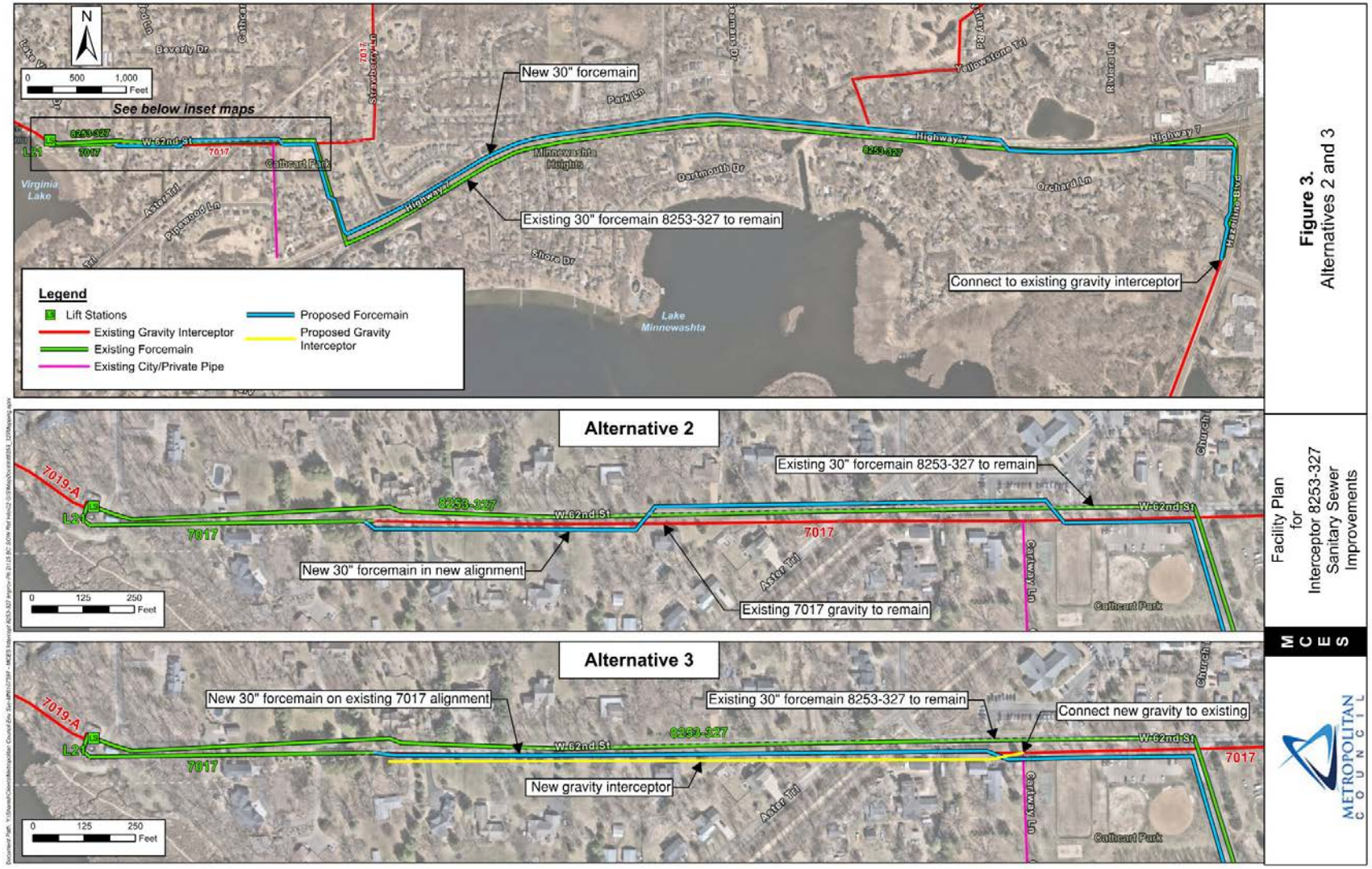
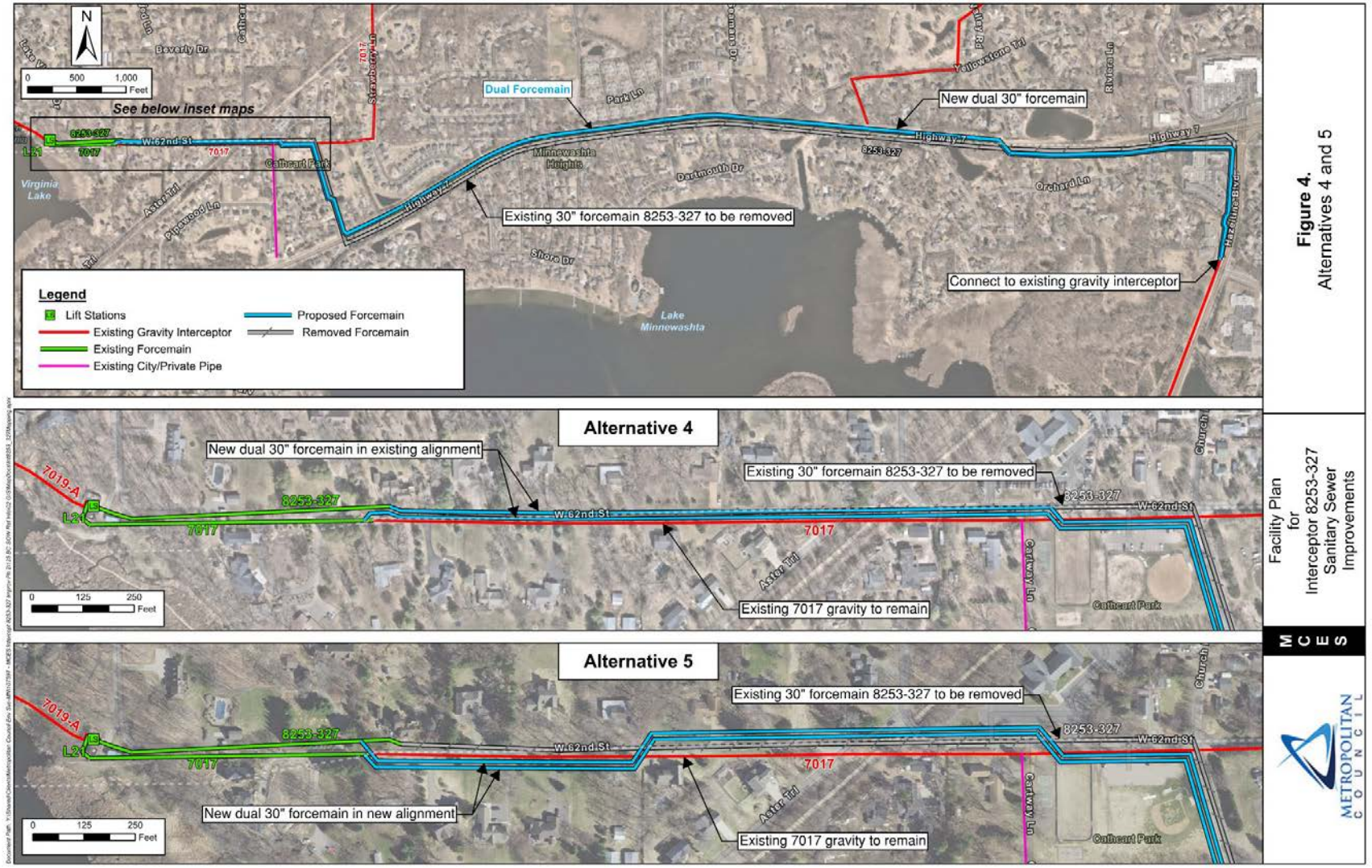


Figure 4: Alternatives 4 and 5



3.2. Non-monetary Factors

Nonmonetary factors must be identified and addressed in addition to the traditional monetary factors since they impact the project implementation schedule and the overall cost. Nonmonetary factors can include constructability, environmental impacts, and community concerns. This section discusses the impacts of non-monetary factors on project alternatives.

3.2.1. Community Impacts

Community impacts cover topics such as disruption to local communities, property, recreational areas, and roads. Impacts to roads and recreational facilities are generally the same for all but Alternative 1. Table 7 depicts the number of parcels impacted of each alternative on properties, wells and trees/landscaping. Note that impacts are subject to change depending on final pipe alignment. Impacted wells will likely require relocation by Metropolitan Council Environmental Services.

Table 7: Community Construction Impact Summary

Alternative	Temporary and/or permanent easements required	Wells within 50 feet of new pipe construction	Locations with two or more large diameter trees	Gas or electric utility relocation required	Total Number of Parcels Impacted
1	0	2	0	0	2
2	23	2	13	1	25
3	26	2	15	0	28
4	35	3	13	7	35
5	32	4	22	0	33

3.2.2. Environmental Impacts

Environmental impacts associated with the proposed projects are documented fully in the Environmental Information Worksheet (EIW) which will be submitted separately. The following sections summarize key topics that are addressed by the EIW.

3.2.3. Contaminated Properties and Hazardous Materials

A review of data available on the Minnesota Pollution Control Agency's online GIS database entitled "What's in My Neighborhood" to identify properties or events with the potential to impact the specified portions of the project was conducted in June 2025. Twelve sites were identified, eleven on which were considered low risk and one that was considered medium risk, see Table 8 for details and Figure 5 for locations.

The separate EAW will include a more detailed MPCA file review which will identify any potential high-risk sites in the corridor and recommend any appropriate actions such as a Phase II Environmental Site Assessment or development of a management plan to develop best practices for handling impacted soil and or groundwater encountered during construction.

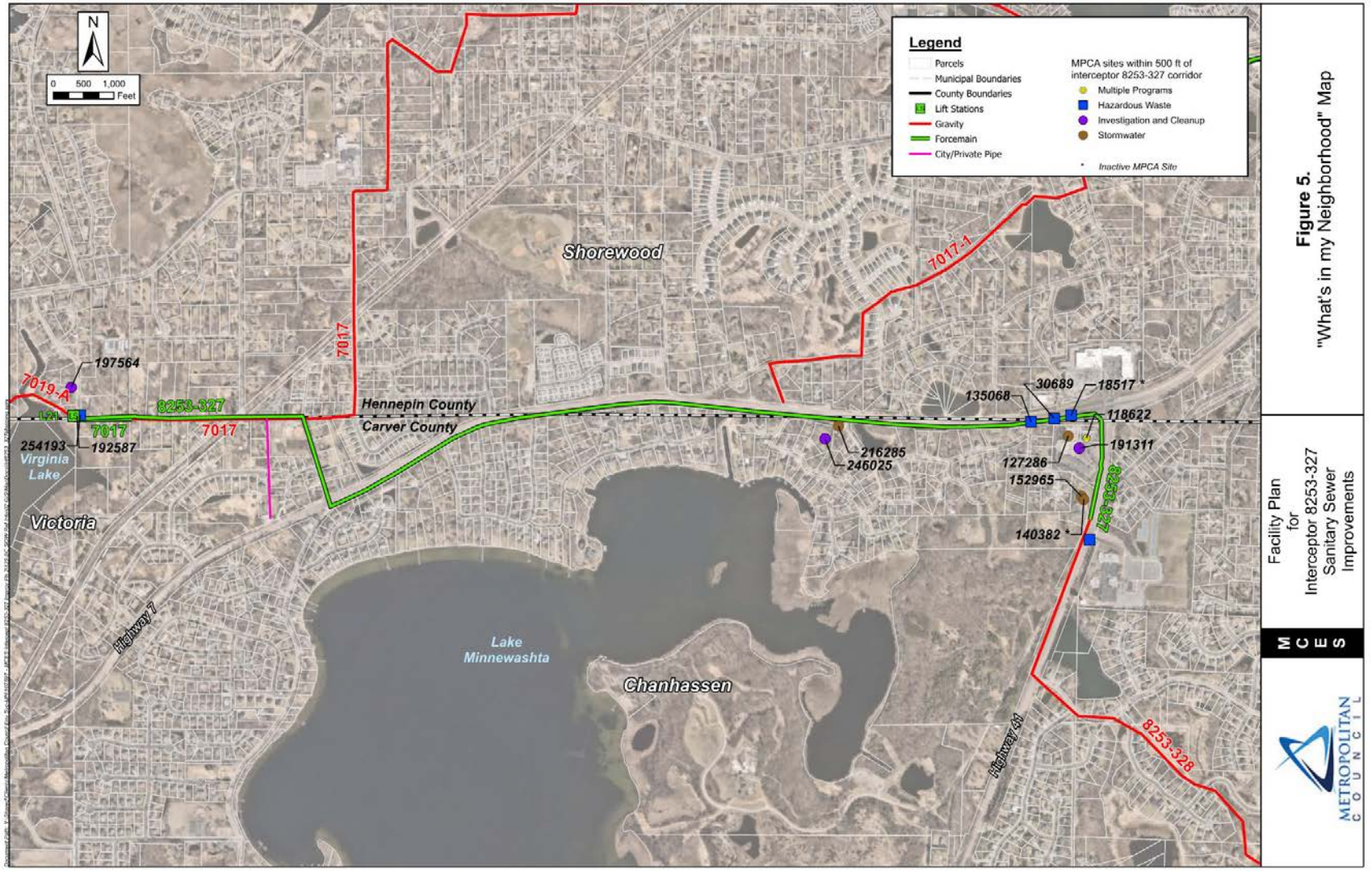
Based on the information from the "What's in My Neighborhood" site, it is not possible to determine whether any release has encroached into the project corridor. Therefore, the focus of this Facility Plan is to identify sites that have the greatest potential to impact the project corridor. Most of the sites likely won't impact construction, however petroleum products could be encountered during construction

through excavation or dewatering activities. A closer examination of these sites will be made during final design.

Table 8: MPCA Database Search Results

Risk Classifi-cation	Site ID	Site Type	Contamination of Concern	Media Impacted	Location	Site Status
Low	192587	Leak Remediation	Petroleum	Soil or Groundwater	Lift Sta L21, 6198 Lake Virginia Dr	Inactive
Low	254193	Haz Mat Generator	Hazardous Materials	n/a	Lift Sta L21, 6198 Lake Virginia Dr	Active
Low	216285	Stormwater	Sediment/ Pollutants	Runoff	North Manor Road Reconstruction Project 2016	Permit C00045957 Active
Low	135068	Haz Mat Generator	Hazardous Materials	Soil or Groundwater	Walgreen's, 2499 Highway 7	Active
Low	30689	Haz Mat Generator	Hazardous Materials	Soil or Groundwater	Career Cleaners, 2425 Highway 7	Inactive
Low	18517	Haz Mat Generator	Petroleum products	Soil or Groundwater	SuperAmerica, 2391 Highway 7	Inactive
Low	118622	Leak Remediation	Petroleum	Soil or Groundwater	SuperAmerica, 2391 Highway 7	Inactive
Medium	191311	Brownfield/ VIC	Pollutants	Soil or Groundwater	7 & 41 Crossing, 2401-2497 State Hwy 7	Active, NFA issued and site closed 2014
Low	152965	Stormwater	Sediment/ Pollutants	Runoff	Beehive Homes, 6330 Hazeltine Blvd	Permit C00041551 Active
Low	140382	Stormwater	Sediment/Pollutants	Runoff	Beehive Homes, 6330 Hazeltine Blvd	Permit C00035011 Terminated 2014, Inactive
Low	17725	Haz Mat Generator	Hazardous Materials	Soil or Groundwater	Gardeneer, 6421 Hazeltine Blvd	Inactive
Low	197564	Leak Remediation	Petroleum	Soil or Groundwater	27475 Maple Ridge Lane	Inactive
Low	246025	Leak Remediation	Petroleum	Soil or Groundwater	2841 N Manor Dr	Inactive
Low	127286	Stormwater	Sediment/Pollutants	Runoff	2401 State Highway 7	Permit C00026659 Active

Figure 5: "What's in My Neighborhood" Map



3.2.4. Cultural Resources

In June 2023 a Phase 1A Cultural Resources Desktop Review was performed for the project corridor by InSitu / Bolton & Menk. It identified 12 sites within one mile of the project. These sites consist of burial mounds, artifact scatters, ghost towns and farmsteads. Two of these are within 500-feet of the project.

The EIW, which will be submitted separately from this Facility Plan, will include a more detailed discussion of cultural resources in the corridor. This will include a review of the National Register of History Places database, a request for review of the State Historic Preservation Office (SHPO) database through *datarequestshpo@state.mn.us*, and consultation under Section 106. Since this Facilities Plan is limited to discussion of planning and preliminary design the EIW will be used to formally address Section 106 requirements. Furthermore, any change to the EIW's project area may require further consultation with the SHPO to ensure that cultural resources are adequately identified and protected from disturbance.

3.2.5. Wetland and Floodplain Review

In February 2025, a Level 2 Aquatic Resources Delineation Report was prepared for the project corridor by KLJ, Inc. See Appendix D. This report was prepared in accordance with the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual, USACE August 2010 Regional Supplement: Midwest Region (Version 2.0), and the 2015 Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and Wetland Conservation Act Local Government Units in Minnesota (Version 2.0). The routine approach with onsite inspection was utilized, including the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification. Areas identified on the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps along with sites which visually supported a hydrophytic plant community were examined during the field survey. Two wetlands, one stormwater pond, and ten wet ditches were identified and delineated within the Project limits.

The project corridors pass through or are adjacent to numerous water resources identified on the NWI and Public Waters Inventory (PWI). The project corridors also pass through or are adjacent to the 100-year floodplain. The floodplain area elevations may need to be updated based on Atlas 14 rainfall data, after the Federal Emergency Management Agency (FEMA) accepts the new Hydrologic and Hydraulic studies. Underground utility projects are generally exempt from wetland replacement requirements under *Minn. R. 8420.0122, subp.6a.* but above ground facilities such as lift stations are subject to wetland replacement.

This project involves only underground utility construction and does not include lift station construction. While portions of the project corridor may be in the floodplain, the current construction limits do not indicate any permanent impacts to wetlands and floodplains. However, if the construction limits change during final design, additional wetland delineations may be required to accurately assess impacts.

The EIW will include a more detailed discussion of wetland and floodplain impacts and mitigations.

3.2.6. Endangered Species

A request for a MnDNR review of the Natural Heritage Information System (NHIS) for the project area was initially made in 2023. The MnDNR did not report any known occurrences of state-listed species within the project area, nor any critical habitats present within or adjacent to the project area. Another request will be submitted in 2025. The MnDNR response will be included in the EIW.

The US Fish and Wildlife Service (USFWS) noted the potential habitats for monarch butterflies, bats, and salamander mussels within or near the project area. Potential impacts to such habitats will be addressed in the EIW.

3.2.7. Constructability

Constructability issues that are not directly monetary include unknown subsurface conditions; surface issues such as weather, traffic, existing utilities; the need for temporary conveyance of wastewater, and worker safety. Not all such factors are typically addressed in a contractor's bid.

It is anticipated that the project will include open cut and tunneling construction techniques typical to utility construction. The most significant risks relate to trench excavations include the proximity to cohesionless soils, highly developed areas, existing utilities and groundwater. The presence of wetlands that contain soft, compressible organic deposits may cause pipe settlement, misalignment, uneven stress, or pipe cracking and fracture. Boulders and cobbles in glacial tills may obstruct tunneling or other trenchless pipe installation methods in certain instances. As the project progresses, a detailed geotechnical investigation will be conducted to address these risks.

3.2.8. Implementation

Implementation includes property acquisition, design, permitting, coordination with local communities, and construction schedule. Table 9 lists the anticipated permits required.

Table 9: Anticipated List of Required Permit

Governmental Unit	Type of Application
Minnesota Pollution Control Agency (MPCA)	• Review of Construction Plans and Specification (CWRF Requirement) • NPDES Construction Stormwater and Erosion Control Permit • Approval of Response Action Plan (if contaminated soils are present) • Sewer Extension Permit • Approval of plans and specifications, etc.
Minnesota Department of Transportation (MnDOT)	• Utility Accommodation on Trunk Highway ROW; Permit Form 2525
Minnesota Department of Natural Resources (MnDNR)	• Water Appropriations Permit for Temporary Construction Dewatering • Water Appropriations Permit for new well construction
Minnesota Department of Health (MDH)	• Water supply well jurisdiction • Variance Request Application
Minnesota State Historic Preservation Office (SHPO)	• Cultural Resources Coordination
Hennepin County Regional Rail Authority (HCRRA)	• License agreement for construction within HCRRA ROW (Lake Minnetonka regional Trail)
Three River Park District	• Temporary Trail Access Permit
City of Chanhassen	• Work in the ROW/Underground Utilities Permit • Vegetation Management Permit • Earthwork (Excavation/Grading) Permit

Governmental Unit	Type of Application
City of Shorewood	• Right of Way (ROW) Excavation Permit
City of Victoria	• ROW Permit and Public Easement Application • Grading, Filling, Excavation Permit • Tree/Vegetation Removal and Replacement Application
Minnehaha Creek Watershed District	• Minnesota Wetland Conservation Act Certificate of No-loss or Exemption Grading and Erosion Control Permit • Replacement Plan Approval (If permanent wetland impacts occur) • Wetland delineation concurrence • Stormwater permit • Erosion control permit
U. S. Army Corps of Engineers (USACE)	• Utility Regional General Permit, if applicable

3.2.10. Operability/Maintainability

Operability is an indication of the ease of operation. Reliability, flexibility, and safety are also considered as components of operability. Reliability is the use of proven and reliable equipment and design approaches. Flexibility considers the ability to accommodate current and future conditions and allows for different operating scenarios. Safety impacts would include potential safety concerns related to operation and maintenance of the facility.

All alternatives other than Alternative 1 (Status Quo) present improved protection of the existing 7017 gravity system that has private sewer services connected to it, whether the gravity system is reconstructed per Alternative 3 or not per other alternatives. The 7017 forcemain discharging to the 7017 gravity system will no longer be the only backup system since alternatives 2-5 all present fully redundant full-length forcemains discharging to 8253-328. This significantly improves Metropolitan Council Environmental Services' personnel's ability to safely operate and maintain system flows with limited future risk of interruption.

Maintainability considers accessibility for cleaning and maintenance activities that would be required for a given alternative. Maintainability also includes the ease of Gopher State One Call (GSOC) underground utility locating. Pipe alignments that meander and cross each other within a corridor are more difficult to locate than straighter and more parallel pipe alignments. By providing a fully redundant forcemain, the system will be far easier to maintain due to greater ease of cleaning and inspection.

Operational flexibility will be increased because two separate systems will serve Lift Station L21. In addition, interconnection structures will allow flow to be switched between forcemains at certain locations along each forcemain.

Finally, this project will utilize well established equipment, materials, and designs that will be reviewed by Environmental Services' O&M staff to ensure Operability/Maintainability.

3.3. Project Cost Estimates

Estimated capital and life-cycle costs will form the basis of the economic comparison of feasible alternatives. Planning level costs are presented for each of the proposed alternative projects in Table 10.

The capital cost estimates developed for the various alternatives include construction costs, as well as administrative costs and contingencies. The cost estimates shown have been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project will depend on actual labor, equipment, materials, market conditions, implementation schedule, and other variables. As a result, the final project costs may vary from the estimates presented here. Therefore, project feasibility and funding needs must be carefully reviewed prior to making specific financial decisions to ensure proper project evaluation and adequate funding. A summary of each alternative's costs is presented below. Detailed capital costs and life-cycle costs for each alternative are included in Appendix A. Alternative project costs that are within 10% of each other are within the accuracy limits of the cost estimating data and are therefore considered equal.

The project alternatives present worth of capital costs, present worth of O&M costs, and total present worth are compared by alternative in Table 11.

Table 10: Cost estimates for Alternatives 1-5:

Item	Alternative 1 Cost	Alternative 2 Cost	Alternative 3 Cost	Alternative 4 Cost	Alternative 5 Cost
Site Preparation*	$292,000	$3,159,000	$3,526,000	$4,229,000	$4,394,000
Existing System Modifications	$1,900,000	$1,545,000	$1,727,000	$1,679,000	$1,966,000
New Pipe and Structures	n/a	$11,506,000	$12,549,000	$18,495,000	$18,617,000
Restoration	n/a	$1,378,000	$1,819,000	$1,491,000	$1,340,000
Well Relocation	n/a	$100,000	$100,000	$150,000	$150,000
Subtotal	$2,192,000	$17,688,000	$19,721,000	$26,044,000	$26,467,000
30% Construction Contingency	$658,000	$5,307,000	$5,917,000	$7,814,000	$7,941,000
Easements	n/a	$233,000	$173,000	$283,000	$337,000
Subtotal Capital Costs	**$2,850,000**	**$23,228,000**	**$25,811,000**	**$34,141,000**	**$34,745,000**
20% Engineering and Finance	$439,000	$4,646,000	$5,163,000	$5,209,000	$5,294,000
Total	**$3,289,000**	**$27,874,000**	**$30,974,000**	**$39,350,000**	**$40,039,000**

* Includes construction contractor mobilization/demobilization, administration, clearing and grubbing, road removals, etc.

Table 11: Project alternatives 20-year Net Present Worth (rounded up)

Project Alternative	Capital Costs	O&M Costs	Routine Cleaning Costs	Total NPV
Alternative 1 – Status Quo	$2.9	$1.2	$1.2	$5.3
Alternative 2 –One New Forcemain on new alignment	$23.3	$0.6	$1.9	$25.8
Alternative 3 – One New Forcemain on existing 7017 alignment	$25.9	$0.6	$1.9	$28.4

Project Alternative	Capital Costs	O&M Costs	Routine Cleaning Costs	Total NPV
Alternative 4 – Two New Forcemains on existing 8253-327 alignment	$34.2	$0.3	$1.5	$36.0
Alternative 5 – Two New Forcemains on new alignment	$34.8	$0.3	$1.5	$36.6

3.4 Cost Effectiveness

3.4.1 Asset Management Plan

The Met Council's Asset Management Plan is provided in Appendix E. Met Council documents and tracks its assets under the direction of the Environmental Services Management Team (ESMT). The ESMT's goal of asset management is to formalize business practices that will help Met Council minimize the life cycle cost of assets required to sustainably meet expected customer service levels while effectively managing risks. The ESMT designated the Asset Management Team (AMT) to ensure that the asset management strategies are implemented properly. The AMT recommends and provides guidance to the Task Forces in the areas of Business Case Evaluations (BCE), Reliability-Centered Maintenance (RCM), and Facility Ownership and Accountability (FOA).

The Met Council uses BCEs when developing alternatives for capital projects. The Environmental Services Maintenance and Operations staff utilize RCM to mitigate risks to infrastructure and equipment; they also use the Work and Asset Management (WAM) Work Order system for tracking the status of work orders, procurement, timekeeping, maintenance actions, and associated costs.

3.4.2 Energy Conservation Opportunities

Since this project does not include any powered equipment, there are no opportunities for energy conservation.

3.4.3 Renewable Energy Opportunities

Metropolitan Council Environmental Services did not consider renewable energy as a viable opportunity for these projects due to power source reliability. However, the Blue Lake WRRF employs many different renewable energy technologies, including six acres of solar farm to power the plant and the reuse of effluent wastewater for non-potable use in the facility.

3.4.4 Water Reuse Options

This project does not provide any opportunities for wastewater reuse within the project. However, once treated at the Blue Lake WRRF, the effluent water is reused for non-potable use throughout the plant.

3.4.5 Water Efficient Devices

Since this project does not include any fixtures that use potable water. Therefore, there are no opportunities for water conservation. Refer to the Comprehensive Plans prepared by each community for further water information on devices and programs.

3.4.6 Water Meters

While this project will replace a small number of private wells, this project does not affect any existing water meters. Therefore, there are no opportunities for updating water meters. Refer to the

Comprehensive Plans prepared by each community for further water information on devices and programs.

3.4.7 Water Audits and/or Conservation Plans

There is no opportunity to perform water audits as part of this project. Refer to the Comprehensive Plans prepared by each community for further water information on devices and programs.

3.4.8 Nonmonetary Analysis

3.4.8.1 Sustainability and Climate Resilience

Under this facility plan, the system improvements include numerous strategies to address reliability and resiliency, including sewer flow modeling to estimate impact of wet weather flows. In addition, Metropolitan Council Environmental Services (Met Council) uses SCADA to monitor system flows. This allows Met Council to compare peak wet weather flow to average flows, identify emerging wet weather flow trends, and detect excessive inflow and infiltration. Met Council also uses a backup generator at lift station L21 to ensure 8283-327 remains in service in the event of a weather-related power outage. These tools and strategies ensure that the project will be reliable and resilient in the event of an extreme weather event.

3.4.8.2 Water Quality Objectives

This project will strengthen the reliability of the collection system, thereby ensuring that the sewer system can convey all the wastewater in the Lake Minnetonka service area to the Blue Lake WRRF for treatment that meets the effluent limits in their NPDES permit.

4. Evaluation of Alternatives

This section provides a comparison of life cycle (present worth) cost estimates for the alternatives and an assessment of each alternative including nonmonetary criteria identified here, and project phasing.

4.1. Evaluation Factors

Considering the design parameters and other factors, four proposed new forcemain alternatives were developed for evaluation against the status quo, as discussed below. Both monetary and non-monetary characteristics for the alternatives were considered.

Due to the environmentally sensitive nature of the Lake Minnetonka area, a release of wastewater due to a facility failure would create a threat to public safety and health, the environment, as well as pose a threat to private property and economic activity. Therefore, the “status quo” alternative is not recommended. Conversely, major construction for complete facility replacement involves greater community disruption, construction time, environmental risks, and capital cost than rehabilitation.

Alternative 1, This status quo alternative leaves the existing system as is (Figure 2). In this alternative, maintenance, rehabilitation of maintenance structures, and cleaning and inspection would be required to extend the system's useful life. In to extend the system's useful life, the system would need to be taken out of service every 10 years for cleaning and inspection to determine if any internal defects exist. Without a fully redundant system available, such actions would require construction of a temporary conveyance each time such maintenance is performed.

Alternate 1 does not meet the project objectives of reliability and operations flexibility. Furthermore, due to the environmentally sensitive nature of the Lake Minnetonka area, a release of wastewater in the event of a facility failure would create a threat to public safety and health, the environment, and also

threaten private property and economic activity. Therefore, the “status quo” alternative was not further developed.

Alternative 2, One New Forcemain on New Alignment. Alternative 2 involves constructing approximately 13,700 ft of new 30-inch forcemain following a new alignment. The proposed alignment of the new pipe (Figure 3). In this alternative, the existing 7017 forcemain and gravity interceptor remain in use, and no temporary conveyance is necessary for construction. This alternative includes cleaning and inspection of the existing 8253-327 forcemain, as well as maintenance structure rehabilitation. The addition of one new forcemain meets project objectives by providing a fully redundant forcemain system.

Alternative 3, One New Forcemain in Existing 7017 Alignment. Alternative 3 includes the addition of approximately 13,500 LF of 30-inch forcemain (Figure 3). In this alternative, the new pipe is placed in a similar alignment to the existing gravity interceptor 7017. Therefore, the existing 7017 forcemain is removed and the existing 7017 gravity pipe is no longer connected to L21. This requires a temporary conveyance pipe during construction. This alternative includes cleaning and inspection of the existing 8253-327 forcemain, as well as maintenance structure rehabilitation. The addition of one new forcemain meets project objectives by providing a fully redundant forcemain system.

Alternative 4, Two New Forcemains on Existing 8253-327 Alignment. This alternative constructs approximately 27,100 LF of two new 30-inch forcemain pipes on a the existing forcemain alignment (Figure 4). Because this alternative removes the existing 8253-327 forcemain during new pipe construction, temporary conveyance is needed. The addition of two new forcemains meets project objectives by providing a fully redundant forcemain system.

Alternative 5, Two New Forcemains on New Alignment. This alternative constructs approximately 27,300 LF of two new 30-inch forcemain pipes in a different alignment from the existing 8253-327 forcemain (Figure 4). The two new pipes would be constructed within the same trench. Since the existing forcemain remains in place during construction no temporary conveyance is needed. The existing 8253-327 forcemain is removed after construction of the new forcemains. The addition of two new forcemains meets project objectives by providing a fully redundant forcemain system.

4.1.1. Costs

Capital construction and life-cycle costs for each of the alternatives were calculated using costing tools provided by the planning team (construction costs) and by the Metropolitan Council Environmental Services (Life-cycle Cost Tool). A summary of construction costs for the alternatives is shown in Tables 10 and 11. The tables shown under each alternative provide a comparison of each alternative’s costs. All cost estimates are expected to be accurate within -15% to +30%.

Cost analysis assumptions:

- 80-year useful life for gravity sewers
- 40-year useful life for lift stations and forcemains.
- O&M on the existing forcemain alone: 8 operator hours per week
- O&M on one new and one existing forcemain: 4 operator hours per week.
- O&M on two new forcemains: 2 operator hours per week.
- Cleaning and inspection of existing DIP forcemain (once every 10 years): $27 per foot
- Cleaning and inspection of new PVC forcemain (once every 10 years): $18 per foot

Factors such as corrosion, damage, and excessive inflow/infiltration may shorten the service lives of facilities leading to the need for replacement before their anticipated service life has elapsed.

4.1.2. Nonmonetary Factors

Nonmonetary factors are key components of each alternative's evaluation process. Non-monetary criteria are listed below.

4.1.2.1. Nonmonetary Analysis

Table 12 summarizes the monetary and nonmonetary factors for each alternative. Alternatives 2 and 3 had the more favorable nonmonetary rankings. In the table (+) is an advantage, (o) is neutral, (-) is a disadvantage

Table 12: Non-monetary Factors for Each Alternative

Criteria	Alternative 1 Status Quo	Alternative 2 1 New FM on New Alignment	Alternative 3 1 New FM on 7017 Alignment	Alternative 4 2 New FMs on 8253-327 Alignment	Alternative 5 2 New FMs on New Alignment
Meets Project Goals	No	Yes	Yes	Yes	Yes
Nonmonetary Factors		(-)	(+)	(+)	(+)
Community-Easements/Wells		Medium (o)	Medium (o)	High (-)	High (-)
Community-Traffic		Medium/Low (+)	Medium (o)	Medium (o)	Medium/Low (+)
Community -Trees		Medium (o)	Medium (o)	Medium (o)	High (-)
Environmental Impact		Medium (o)	Medium (o)	High (-)	High (-)
Contamination/Haz. Materials		Low (+)	Low (+)	Low (+)	Low (+)
Cultural Resources		Low (+)	Low (+)	Low (+)	Low (+)
Wetland and Floodplain		Low (+)	Low (+)	Low (+)	Low (+)
Endangered Species		Low (+)	Low (+)	Low (+)	Low (+)
Constructability-Geotechnical		Medium (o)	Medium/Low (+)	Medium (o)	High (-)
Constructability-Temp. Conv.		Low (+)	Medium (o)	High (-)	Low (+)
Constructability-Utilities		Medium (o)	Medium/Low (+)	High (-)	Medium (o)
Implementation-Schedule		Medium (o)	Medium (o)	Long (-)	Long (-)
Implementation-Permitting		Medium (o)	Medium (o)	Medium (o)	Medium (o)
Operability/Maintainability		Low (+)	Medium (o)	Best (+)	Best (+)
Capital Cost		Lowest (+)	Low (o)	High (-)	Highest (-)
O&M Cost		Medium (o)	Medium (o)	Low (+)	Low (+)
Life Cycle		Medium (o)	Medium (o)	High (+)	High (+)
Conclusion	Not Recommended		Recommended		

5. Recommended Plan

The alternative evaluation in Section 4 resulted in the recommended alternative discussed below.

5.1. Description of Recommended Project

To maintain system capacity, improve system reliability, minimize potential for overflows and service interruptions that could pose a threat to public safety, health, and the environment; and increase operational flexibility it is recommended that Alternative 3 be implemented.

Alternative 3 includes the addition of approximately 13,500 LF of 30-inch forcemain (Figure 3). In this alternative, the new pipe is placed in a similar alignment to the existing gravity interceptor 7017. Therefore, the existing 7017 forcemain is removed and the existing 7017 gravity pipe is no longer connected to L21. This requires a temporary conveyance pipe during construction. This alternative includes cleaning and inspection of the existing 8253-327 forcemain, as well as maintenance structure rehabilitation. The addition of one new forcemain meets project objectives by providing a fully redundant forcemain system. In this alternative, the new pipe is placed in a similar alignment to the existing gravity interceptor from MH 11 10 to Cartway Lane. On W 62nd St., the new pipe will parallel the existing forcemain, with a 10-ft distance between centerlines. Gravity Interceptor 7017 will be relocated approximately 10-ft off centerline of the new 30-inch forcemain pipe. Near Cartway Lane, the gravity interceptor will be reconnected to an existing MH for continuation of gravity system 7017 eastward along W 62nd St., and the new pipe will continue in a new alignment for the remainder of the 11,900 LF, matching Alternative 2.

This alternative includes cleaning and inspection of the existing forcemain, as well as MH rehabilitation as necessary. In addition, both temporary conveyance for gravity service interruptions and temporary road placement on W 62nd St. will be required to construct the new forcemain.

5.2. Project Cost Estimates

The capital cost estimate for the recommended alternative for the Interceptor 8253-327 Sanitary Sewer Improvements Project is $25.9 million. See Table 11.

This project will be funded by Public Facilities Authority loans. The loans will be paid by regional sanitary sewer connection Service Availability Charge (SAC) fees and sewer user charges. This project results in a net increase to Municipal Wastewater rates (region wide annual sewer cost per household) of $0.77 per household to pay for capital costs. These projects also add $33.14 to the SAC rate. Increased SAC rates and Municipal Wastewater rates on capital costs are paid until debt service is paid off after 20 years.

5.3. Project Delivery and Schedule

Interceptor 8253-327 Sanitary Sewer Improvements Project is programmed as a 10-year capital improvements project extending from 2024 to 2029, with final design beginning in 2025 as shown in Table 13 below. Details of construction schedules will be further developed during the design phase.

Table 13: Project Implementation Schedule

Activity	Project Schedule
Metropolitan Council Authorizes Public Hearing	October 2025
30 Day Comment Period	November-December 2025
Public Hearing	December 2025
Facility Plan Revised in response to public comments	December 2025-January 2026
Metropolitan Council Adopts Facility Plan	January 2026
Facility Plan Submittal Deadline	March 6, 2026
MPCA Facility Plan and EW Approval	June 2026
Final Design	2026-2027
Construction	2028-2030

Details of construction schedules will be developed during the design phase, and will consider issues such as:

- Type of construction (e.g. horizontal directional drilling or open cut).
- Coordination with other nearby projects (e.g. City of Shorewood, City of Chanhassen, City of Victoria, Hennepin County, Carver County, MnDOT, Hennepin County Regional Rail Authority, Three Rivers Park District and the Minnehaha Creek Watershed District.).
- Coordination with other Metropolitan Council Environmental Services projects and staff availability.
- Community considerations (e.g. school schedules, parks and recreation peak use periods, special events, traffic disruption, snow removal).
- Maintaining emergency route access.
- Land acquisition and well relocation.
- Paving/surface restoration periods.
- Environmental issues.

This facility plan will be submitted to the Minnesota Pollution Control Agency (MPCA) in 2026 for review in conjunction with an application for placement on the Project Priority List for funding through the Clean Water Revolving Loan Fund beginning in fiscal year 2027.