Chapter 7. Wastewater

Wastewater

7.0 History

The majority of Fridley's sanitary sewer system was installed in the late 1950's and continued through the 1960s and 1970s. The sewer lines are almost completely made from vitrified clay pipe commonly used in the early decades of collection system development.

For the last four decades, the City of Fridley has found the City's sewer system to be adequate to serve the City into the future as little residential or commercial/industrial growth was predicted. With the City being fully developed, the only concern was maintaining the current, aging system. Current projections show the City's population surpassing that of the 1980's by 2040. This is the first time this has occurred, and it is due to projected higher residential housing densities in redevelopment projects. Employment is also projected to grow with some large business sites such as Northern Stacks, Medtronic, and Industrial Equities which are ready for redevelopment.

7.1 Purpose

The purpose of this chapter is to establish goals to maintain the City's sanitary sewer system to prevent backups and to extend the life of the system.

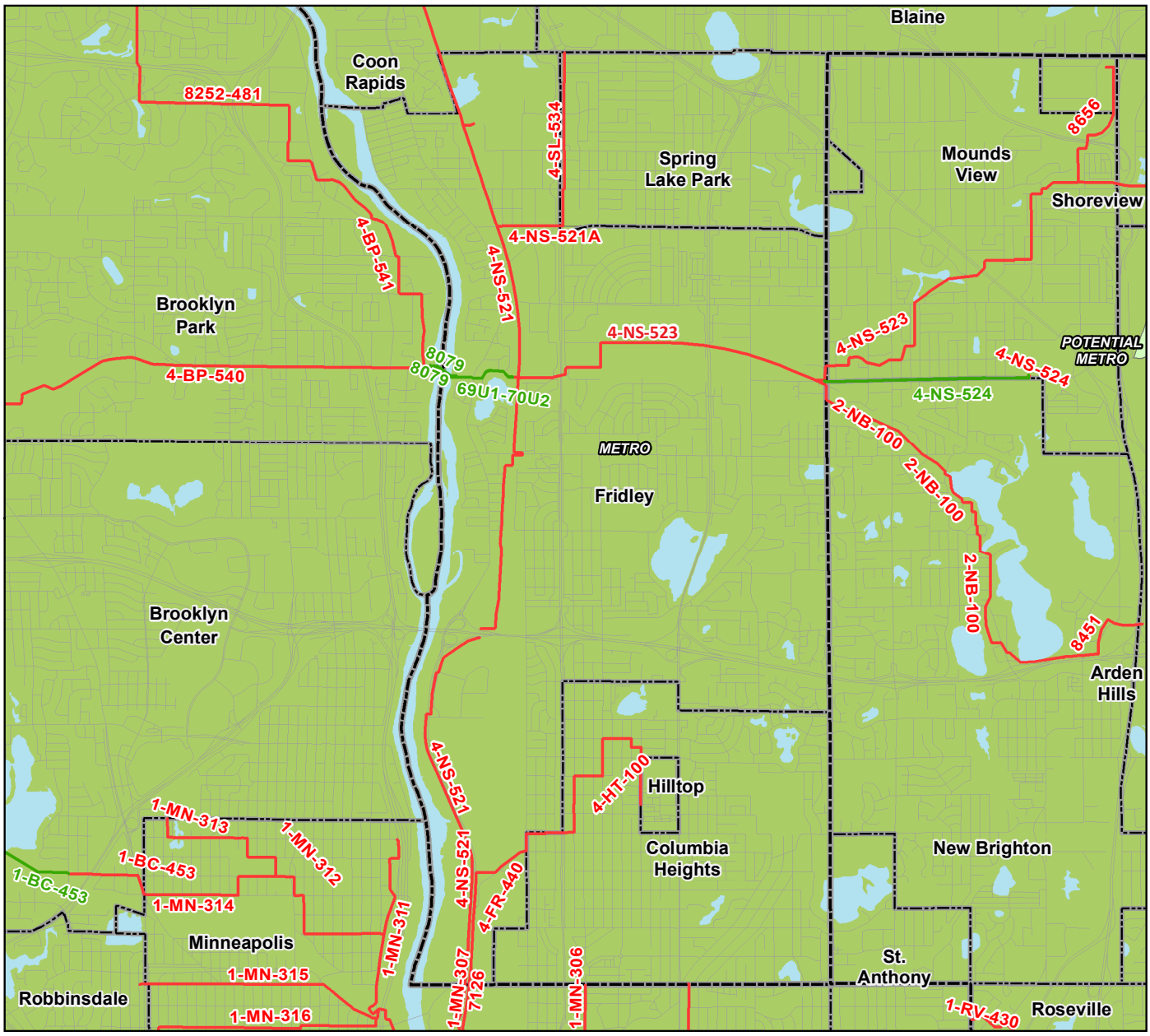
The City of Fridley has approximately 104 miles of sanitary sewer mains, 2360 sanitary manholes and 13 lift stations within its collection system. Policies identified in this chapter are intended to provide effective and efficient maintenance to the system. The City has developed and implemented policies that take into consideration public safety, budget and personnel.

7.2 Sanitary Sewer System Description

Regional System

Fridley is served by the Metropolitan Disposal System, owned and operated by the Metropolitan System, which is owned and operated by the Metropolitan Council. The wastewater flow from the City of Fridley is treated at the Metropolitan Wastewater Treatment Plant located in St. Paul. Three Metropolitan Council Environmental Services (MCES) interceptors convey wastewater generated by the City of Fridley, and passing through Fridley from the west, north and east, to interceptor 7126. These three interceptors in Fridley are referred to as the 4-FR-440, 4-NS-521, and 4-NS-523 interceptors.

Figure 7.1 Regional Wastewater System Long-Term Service Areas



Existing Interceptors

- Gravity
- Forcemains
- County Boundaries
- City and Township Boundaries
- NCompass Street Centerlines
- Lakes and Rivers

Treatment Plant Service Areas

	Current	Potential
Rural Centers		
Metro		
Blue Lake		
Seneca		
Empire		
Eagles Point		
St. Croix Valley		
Hastings		
Rogers		
East Bethel		

- Shakopee Mdewakanton Sioux Community
- Scott Co. Urban Expansion
- Scott Co. Rural Center Expansion
- Wildlife Mgmt. Area

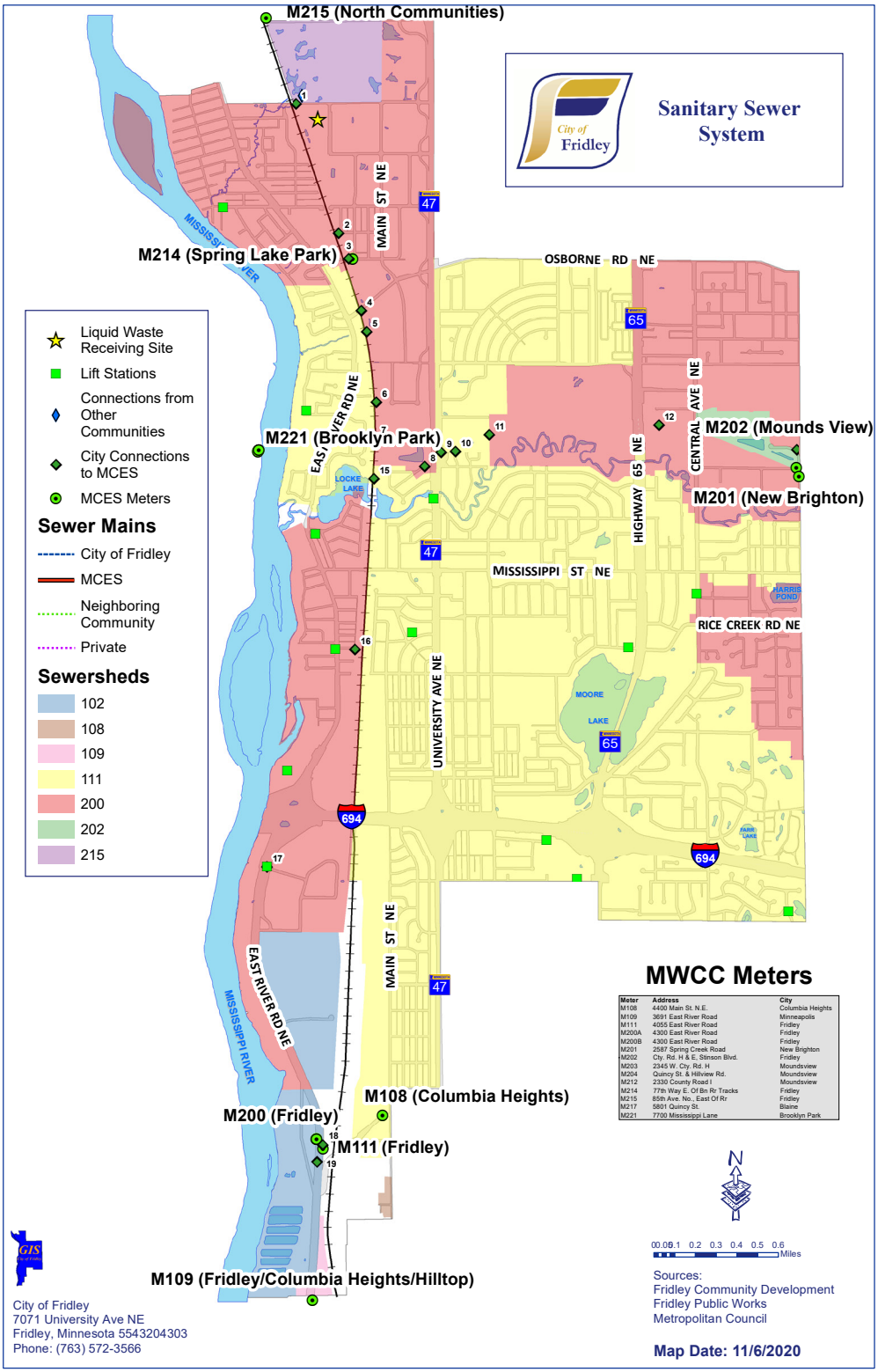
Orderly Annexations

- Rural Centers Pre-2030
- Blue Lake Pre-2030
- Rural Centers Post-2030
- Blue Lake Post-2030
- Empire Post-2030

City System

The City of Fridley owns and operates a separate sanitary sewer system that consists of approximately 542,750 linear feet of pipe varying in size from 4-inch diameter to 33-inch diameter. Mains are all essentially 8-inch diameter and larger. The system also includes approximately 2,350 manholes. The sanitary sewer system is a partially gravity flow system, which is possible due to the depth of the MCES interceptors. However, Fridley's sanitary sewer system also includes 13 sanitary lift stations that pump wastewater flows from localized areas to the gravity system. The locations of the lift stations are shown in Figure 7.2. The average wastewater flow for the City in 2016 was 4.8 million gallons per day.

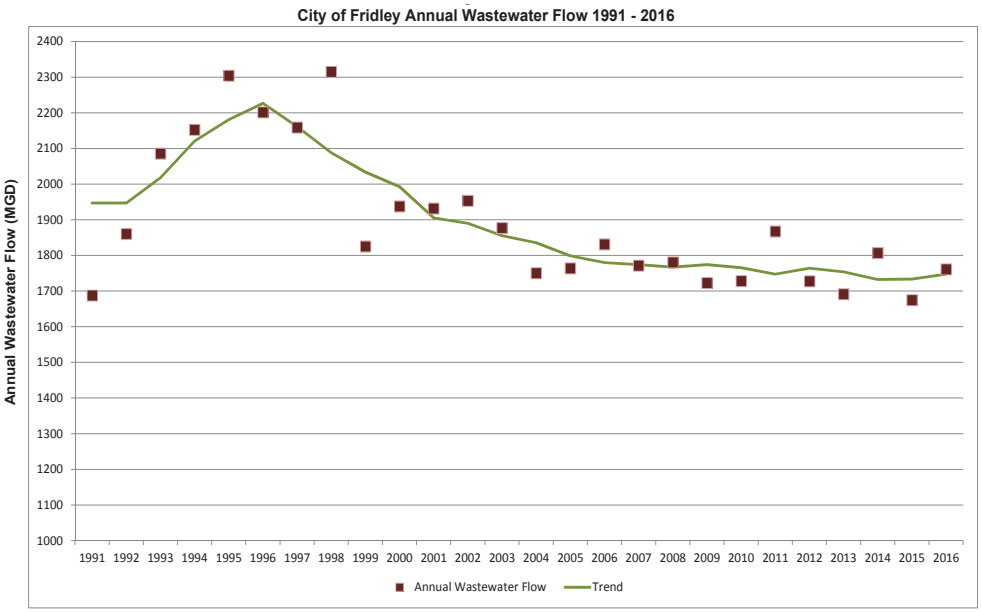
Figure 7.2 Sanitary Sewer System



As illustrated by Figure 7. 3, overall sanitary sewer flow has peaked in the late 1990s and has had significant reductions through 2011. Sanitary sewer flows have leveled off since that time. There remains an excess amount of inflow/infiltration that the City should prioritize in addressing to reduce flows into a range allowing normal inflow/infiltration (see Figure 7.8).

Based upon the current Metropolitan Council projections for population, households and employment, the existing sanitary sewer system in Fridley is adequate to serve projected residential and commercial/industrial growth through the year 2040.

Figure 7.3 Annual Wastewater Flow 1991-2016



7.3 Projected Wastewater Flow Volume

The projected wastewater flows for the years 2020, 2030, and 2040 are based on the following assumptions:

Residential Wastewater Flow

Projected population multiplied by a unit wastewater generation figure of 75 gallons per capita per day (gpcd).

Table 7.1 Forecasts by Metershed

	Metershed	2010	2020	2030	2040
Population	M109 / All	7,390	7,958	8,583	8,827
	M200 / 4-NS-521	9,806	10,392	11,209	11,616
	M200 / 4-NS-523	10,012	10,950	11,808	12,057
	M200 / All	19,818	21,342	23,017	23,673
	Total	**27,208**	**29,300**	**31,600**	**32,500**
Households	M109 / All	4,930	5,415	5,900	6,030
	M200 / 4-NS-521	2,895	3,303	3,540	3,620
	M200 / 4-NS-523	3,285	3,482	3,860	3,950
	M200 / All	6,180	6,785	7,400	7,570
	Total	**11,110**	**12,200**	**13,300**	**13,600**
Employment	M109 / All	11,252	12,430	12,780	13,400
	M200 / 4-NS-521	5,858	6,951	7,636	7,928
	M200 / 4-NS-523	4,223	4,319	4,484	4,772
	M200 / All	10,081	11,270	12,120	12,700
	Total	**21,333**	**23,700**	**24,900**	**26,100**

Note:

1. *4-NS-521 is the east/west interceptor generally located in Locke Park*
2. *4-NS-523 is the north/south interceptor generally located along the BNSF railroad*

Commercial/Industrial Flow

Projected developed acres multiplied by a unit wastewater generation figure of 1,350 gallons per acre per day (gpad). Commercial and industrial development is the basis of the following development projections:

Table 7.2 Land Development Projections

Year	2017	2030	2040
Acres Developed Commercial/Industrial Land	1,623	1,645	1,645
Acres Available Vacant Land	108	36	36

In 2017, only 108 acres of vacant commercial/industrial land remained undeveloped. For purposes of projecting wastewater flow, it has been assumed that two thirds of this acreage will be developed by the year 2030. Population and household projections can be found in Figure 6 on the Demographics section of this plan on p. 20.

With the exception of water used for such outdoor purposes such as lawn sprinkling, garden watering, and car washing during the summer months, water consumed is returned to the sanitary sewer system as wastewater. Water consumption is, therefore, a predictor of wastewater generation. Wastewater flow projections should be based on the average daily water consumption unit values.

Table 7.3 Flow Projections

2040 Plan Wastewater Flow Projections			
	Projected Wastewater Flow In MGD		
	2020	2030	2040
Total for City of Fridley			
Residential: (population x 75 gpcd)	2.20	2.37	2.44
Commercial / Industrial: (developed acres x 1,350 gpad)	2.19	2.22	2.22
Total Flows	4.39	4.59	4.66
City of Fridley Service Area 1 = Metershed M109			
Residential: (population x 75 gpcd)	0.60	0.64	0.66
Commercial / Industrial: (developed acres x 1,350 gpad)	0.60	0.61	0.61
Total Flows	1.19	1.25	1.27
City of Fridley Service Area 2 = Metershed M200			
Residential: (population x 75 gpcd)	1.60	1.73	1.78
Commercial / Industrial: (developed acres x 1,350 gpad)	1.59	1.62	1.62
Total Flows	3.19	3.34	3.39

Notes:

1. "gpcd" refers to gallons per capita per day while "gpad" refers to gallons per acre per day.

2. Metershed M111 is not included in this analysis due to its small contribution of flow (<0.5%) from privaterailroad property

Table 7.3 projects wastewater flows for the years 2020, 2030, and 2040 based on the population projections, estimates of commercial and industrial land use and the unit wastewater generation values that were presented in this section.

These are additionally broken down by the two service areas shown in Table 7.3 on the left.

Table 7.4 Capacity and Design Flows for Existing Sewers/Lift Stations

Capacity and Design Flows for Existing Sewers/Lift Stations

			Estimated Flows		
Lift Station	Lift Station Capacity	Avg Flow	2020 Peak Flow	2030 Peak Flow	2040 Peak Flow
	MGD	MGD	MGD	MGD	MGD
Rice Creek	1.008	0.547	0.920	0.962	0.976
Cheri Lane	0.144	0.011	0.033	0.035	0.035
Riverwood	0.173	0.017	0.050	0.052	0.053
Apex	0.432	0.099	0.296	0.310	0.314
Locke	0.144	0.010	0.031	0.032	0.033
Georgetown	0.173	0.013	0.038	0.040	0.041
Innsbruck	0.158	0.011	0.034	0.036	0.037
Embers	0.288	0.049	0.146	0.153	0.155
Wickes	0.864	0.418	0.702	0.734	0.745
62nd Ave	0.612	0.159	0.318	0.333	0.338
Vets	0.173	0.015	0.044	0.046	0.047
Sylvan	0.288	0.047	0.142	0.149	0.151
64th Ave	1.008	0.575	0.966	1.010	1.026

			Estimated Flows		
Connection to Interceptors	Pipe Diameter	Pipe	Roughness	Pipe	Pipe Capacity
	in	Material	n	Slope	MGD
1 (2A114)	12	CIP	0.012	0.28%	2.042
2 (2A002)	10	CIP	0.012	0.40%	1.501
3 (1A004)	12	PVC	0.010	0.26%	2.362
4 (Private)	6	VCP	0.014	1.00%	0.521
5 (2B262)	8	CIP	0.012	6.00%	3.207
6 (2B245)	10	PVC	0.010	0.50%	2.014
7 (2B242)	4	PVC	0.010	0.98%	0.245
8 (2B238)	6	VCP	0.014	1.00%	0.521
9 (3A032)	12	VCP	0.014	0.40%	2.092
10 (3A302)	18	PVC	0.010	1.00%	13.656
11 (3A502)	8	PVC	0.010	2.00%	2.222
12 (2D267)	8	CIP	0.012	0.43%	0.858
13 (3B010)	8	VCP	0.014	0.37%	1.691
14 (3B004)	8	PVC	0.010	0.60%	1.217
15 (1B002)	12	VCP	0.014	0.26%	1.687
16 (1C002)	8	CIP	0.012	Force Main	0.612
17 (1D004)	8	CIP	0.012	Force Main	0.864
18 (1D076)	12	VCP	0.014	0.28%	1.751
19 (1D202)	10	PVC	0.010	0.35%	1.685

Note: Locations of Connections to MCES Interceptors are shown in Appendix H

7.4 Infiltration and Inflow

Infiltration and inflow are sources of clear water that enters a sanitary sewer system. Because it is clear water that does not have to be treated, it should be excluded from the sanitary sewer system to reduce conveyance and treatment costs. Infiltration is groundwater which enters the sanitary sewer system from such means as defective pipe joints, manhole walls, and broken pipes. Inflow is stormwater which enters the sanitary sewer system from such sources such as roof leaders, cellars, yard, and foundation drains, and through manhole covers.

City Ordinance 1044 enacted in 1995 (Chapter 403 City Code) prohibits introduction of clear water flow into the sanitary sewer system (see Appendix F): "*No water from any roof, surface, ground, sump pump, footing tile, or other natural precipitation shall be discharged into the sanitary sewage system*." The ordinance further requires disconnection of connections that allow clear water flow into the sanitary sewer system. The City performed a citywide inspection of properties for compliance during the late 1990s and continues to inspect properties jointly with other inspection activities.

The sources, extent, and significance of existing inflow and infiltration in sewer systems operated and maintained by the City, customers (services), and MCES is unknown at this time. A future analysis of the sanitary sewer systems in the City of Fridley will be necessary to determine this with dependable accuracy. Our best estimate is Inflow/Infiltration makes up at least 20% of the City's sanitary sewer flow, based on information included in Appendix G, which shows flow metering for the most recent three-year period using the new MCES flow metering tool provided to cities. This number is excessive and costly on an annual basis, approaching $1 million per year if estimates are accurate, and costing the average household approximately $100 per year. Further flow analysis and mitigation activities are warranted and will be continued and undertaken as described following.

It is notable that pipe diameter-miles of these three components of sanitary sewer systems (a measure of area) are estimated to be relatively equivalent as follows, and therefore should be analyzed in tandem.

Table 7.5 Inflow and Infiltration Estimate (2016 and more recent data)

			Flow
			MGD
2016 Flow:	1747.7 million gallons		4.788
Residential Flow Estimate (includes base I/I):	75 gpcd * 28,547		2.141
Commercial Flow Estimate (includes base I/I):	1350 gpad * 1,623		2.191
Total Estimated Flow:			4.332
Excess Inflow/Infiltration:	4.788 - 4.322 =		0.456
			10.5%
2017-2019 Flows from MCES Data of Three Metersheds			
Base Flows			
M109:	40	MG/month	1.32
M111:	0.77	MG/month	0.03
M200:	110	MG/month	3.62
Total Baseflow:			4.96
Peak Above Base Flow			
M109:	15	MG/month	0.49
M111:	0.83	MG/month	0.03
M200:	14	MG/month	0.46
Total Peak Flow, Excess Inflow/Infiltration:			0.98
			19.8%

- Fridley City Mains: Approximately 820 in.(dia.)-miles
- Fridley Services: Approximately 1130 in.(dia.)-miles
- MCES Interceptors: Approximately 900 in.(dia.)-miles

With this information, estimating the amount of Inflow/Infiltration from the three systems above based on the exposed area of these systems, we would expect the breakdown of these sources to be in the ranges shown in Table 7.6. Significant Inflow/Infiltration is believed occurring from each category of pipe system.

The proportion of area of MCES interceptor in the City of Fridley is notably very high, as the confluence and passage of several large regional interceptors are located in our community. Much of this system is susceptible and exposed to shallow groundwater, and one set of four interceptor pipes cross the Mississippi River on the riverbed; any water intrusion from these large diameter interceptors is included in our community flow.

Table 7.6 Estimated Percentages of Wastewater Volume

Flow Type	2020 Flow (MGD)		2030 Flow (MGD)		2040 Flow (MGD)	
Residential	2.20		2.37		2.44	
Commercial	2.19		2.22		2.22	
Excess Inflow/Infiltration (Est.)	1.32		1.15		0.93	
City of Fridley (Range)	0.20	0.46	0.17	0.40	0.14	0.33
Services (Range)	0.46	1.05	0.40	0.92	0.33	0.75
MCES (Range)	0.07	0.39	0.06	0.34	0.05	0.28

Flow Type	2020 Flow (%)		2030 Flow (%)		2040 Flow (%)	
Residential	38.5%		41.3%		43.6%	
Commercial	38.4%		38.7%		39.7%	
Excess Inflow/Infiltration (Est.)	23.1%		20.0%		16.7%	
City of Fridley (Range)	3.5%	8.1%	3.0%	7.0%	2.5%	5.8%
Services (Range)	8.1%	18.5%	7.0%	16.0%	5.8%	13.3%
MCES (Range)	1.2%	6.9%	1.0%	6.0%	0.8%	5.0%

Table 7.7 Age of Residential Housing Stock

Year Built	Number of Units	Percent
Pre 1969	6,209	56%
Post 1970	4,881	44%
Total	11,090	100%

Source: US Census 2018 ACS 5-Year Estimate

Estimated Inflow/Infiltration contributions from services are anticipated to be a large proportion of total Inflow/Infiltration. From a review of city building permits it is estimated that 6,269 residential services (78%) were constructed prior to 1975 when PVC services began to be installed universally. Approximately 17% of these identified pre-PVC services have been inspected by the City using closed-circuit televising. It is noted that the City provides this service free of charge to residents and promotes these inspections during project meetings and whenever else possible.

The City has had a formal Inflow/Infiltration study completed in the past, and this has been used to provide insight into areas that may be focused upon. In addition, the City has had a long-standing program of lining portions of sanitary services in the rights-of-way during the 1990s and 2000s. Since that time, the City has purchased and used equipment to perform smoke testing and flow metering by City personnel to identify sources/areas contributing substantial Inflow/Infiltration.

The City has also accelerated its utility metering replacement program (from 15 years to 5 years), completing installation of all residential and commercial property with remote-reading capable metering in 2018 which will enable comparison of water consumption and wastewater flow. An audit of large commercial metering is ongoing currently.

The City has encouraged and facilitated lining and reconstruction of its own sanitary sewer system, sanitary sewer services, and MCES interceptors in Fridley. The City has budgeted approximately $300,000 annually in its Capital Investment Plan to perform lining of sanitary sewers. This has been augmented in recent years with the MCES bond-funded grant, which is a program that helps move the City toward its goal of lining half of its system by 2050 (as its system reaches 100 years of age). Scope for rehabilitation of this infrastructure has been aggressive but has been underfunded by approximately $315,000 per year and has not resulted in the flow reduction results hoped for. The City continues to apply funding for infrastructure rehabilitation through its limited Capital Investment Plan resources coupled with MCES infrastructure grants and other funds which allow for greater reinvestment in our sanitary sewer infrastructure. Coupling those programs together, the City will still run short of this overall goal, and additional funding will be needed to provide an additional estimated $8.4 million investment in its collection system by 2040 to meet its rehabilitation and flow goals.

The City of Fridley has one of the most complex community metering systems in the metro, being at the confluence of several large interceptor systems. The City continues to work with MCES staff to ensure that metering for the community provides an accurate representation of our community wastewater flow. The City will need the Met Council's partnership and resources in analyzing Inflow/Infiltration and providing for cost-effective mitigation in City, private, and MCES interceptor systems. A much more detailed analysis will be required to determine contributions to I/I in Fridley and to determine specific component and location contributions, and to develop the most effective mitigation strategies. The City plans to work with MCES very closely to develop a partnership where Inflow/Infiltration can be dealt with effectively.

The City has established the following operations strategies to identify sources of inflow/infiltration:

- Smoke Testing Program-identify opportunities for I/I mitigation on private sewers
- Lateral Service Televising- identify opportunities for I/I mitigation on private sewers
- Televising of Main Lines- identify opportunities for I/I mitigation on City mains
- Flow Metering and Monitoring- identify opportunities for I/I mitigation on City mains and private sewers
- Compliance inspections when entering basements or discharge points of properties.

Strategies used to mitigate known inflow/infiltration in the City of Fridley's Sanitary Collection System as soon as practical currently include:

- Sanitary Sewer CIPP Main Repair
- Sanitary Main Line Grout Injection
- Sanitary Sewer Reconstruction/Replacement
- Sanitary Manhole Sealing
- Sanitary Manhole Structure Rehabilitation
- Sanitary Manhole Structure Reconstruction/Replacement

Strategies used to mitigate known inflow/infiltration in private sewers as soon as practical include:

- City provided lateral televising program for residents
- Smoke testing in areas indicating high flows or groundwater intrusion
- Enforcement of sump pump and foundation drain ordinance prohibiting clear water discharge to sanitary sewer
- Televising service laterals in annual street reconstruction project and sanitary sewer project areas
- Facilitation of Met Council Grants for residential service lateral repairs/replace program to reduce I/I
- Sewer lateral repair financing and incentive program (voluntary assessment)

- Public Outreach and Education (e.g. sewer service maintenance door hangers)
- Voluntary Inspections (current) and Point of Sale Inspections (future implementation)

The City has implemented these strategies in-house, evaluating neighborhoods on a case-by-case basis while utility metering is upgraded and large-diameter sewer rehabilitation by the City and MCES has been completed in recent years. The City was hopeful that much of the work to date by itself and MCES would make in impact on flow rates, but unfortunately, the results have not been evident to date. The City will be therefore undertaking a more formal Inflow/Infiltration study within the coming 3-5 years, coordinating (and hopefully participating with) MCES.

The City will need to develop a funding strategy for mitigation, and seeks outside funding programs such as the Met Council I/I Grant Program to make up its projected $8.4 million shortfall in its collection system. The City will also encourage the Met Council and other partners to provide innovative sources of funding to deal with Inflow/Infiltration sources from both private services and interceptors.

7.5 Septic Systems

The Fridley City Code requires that all properties be connected to the sanitary sewer system. There are no known individual sewage treatment systems (ISTS or septic systems) in the City of Fridley. When a property is discovered to not be connected to the municipal sewer system, the City ensures they are brought into compliance. If there is a financial hardship, the City can offer an emergency loan or five year assessment.

Table 7.8 Future Connections to Sanitary Sewer

Forecast Year	Forecast Component	Population	Households	Employment
2010	MCES Sewered	27,208	11,110	21,333
2010	Unsewered	0	0	0
2020	MCES Sewered	29,300	12,200	23,700
2020	Unsewered	0	0	0
2030	MCES Sewered	31,600	13,300	24,900
2030	Unsewered	0	0	0
2040	MCES Sewered	32,500	13,600	26,100
2040	Unsewered	0	0	0

7.6 Sanitary Sewer System Maintenance

This section outlines the projects designed to improve and maintain the City's sanitary system since the 2030 Comprehensive Plan update. It also serves as a more detailed explanation of objectives listed in Section 7.8.

In 1995, the City commissioned a lift station evaluation study of the City's 13 lift stations. The study outlined corrective measures for each of the lift stations to extend their service life for an additional 15 to 20 years. Following the study, the City of Fridley began a phased program to upgrade each of the lift stations. Five lift stations have been completely retrofitted with new lift stations. Mechanical repairs consisting of new valves and check valves, new motors, motors rebuilt, have taken place in six other stations. All of Fridley's lift stations are now furnished with pressure sensitive and radar transducers. The installation of the transducers has eliminated the older style pump controls, compressors and bubbler system, essentially replacing all of the old electrical panels. All lift stations are monitored by a SCADA (system control and data acquisition) computerized system, which provides up to the minute data, as well as monitors for alarms. SCADA was updated with new software and radio upgrades in 2014. In 2017, the City of Fridley contracted to complete a lift station needs assessment for future planning, improvements, and cost analysis for budgetary purposes.

In July of 2004, the City's Sewer Department purchased a main line televising camera. This camera has been used for televising all street projects and televising in the City's general cleaning areas. The Sewer Department now has a software program that has been incorporated with the televising equipment. The software program is a valuable tool as it allows for a complete database of all televising reports. All of the data is now stored on internal and external hard drives.

In June of 2014, the City's Sewer Department purchased a new service lateral camera. The service lateral camera is used to televise private sewer laterals in street projects as well as for individual residents that have constant sewer issues. Televising service laterals also addresses infiltration issues. The service line televising has been an ongoing program since 2000.

The Sewer Department has a very aggressive sewer cleaning program implemented over the past several years. The City's sanitary sewer system is divided into five areas based on flow characteristics; it is the Sewer Division's objective to clean the five areas within a two-year period. The Sewer Department has met these goals since the year 2000 when the maintenance program changed operations and maintenance guidelines. These changes have greatly reduced the number of sanitary sewer overflows.

The Sewer Department has replaced and added many new pieces of equipment and tools that have allowed the City to be much more efficient and capable of reaching department goals.

The City purchased a new jetting machine in 2018, a new main line televising system in 2004, and new software program for televising in 2014. A new service line camera was purchased in 2014. The City purchased a combination sewer jet/vacuum cleaner and hydro excavator in 2014.

The City of Fridley contracts for rehabilitation of sanitary main lines. Since 1996, the City has utilized CIPP (cured in place lining) to address aging infrastructure. In 2018, the City of Fridley will be completing a $1.2 million lining project.

One of the City's stated policies for maintenance of the existing sanitary sewer is:

"The City should continue to systematically inspect sanitary mains and service lines in residential paving program areas."

The City recognizes the importance of maintaining its sanitary sewer system and the need to exclude infiltration/inflow, as addressed in Section 7.4. The activities outlined above are indicative of the on-going efforts of the City since 2000.

Regional Maintenance

Metropolitan Council Environmental Services (MCES), operator of the metro-area wastewater collection and treatment system, is making improvements to approximately 2.8 miles of aging and deteriorating regional sanitary sewer facilities that serve homes and businesses in Fridley. There were no direct costs or special assessments for this work on the north area interceptor project in Fridley

7.7 Policies

There are several policies that have been established to guide how Fridley's sanitary sewer collection system can help maintain the vision of keeping Fridley *safe, vibrant, friendly, and stable:*

- Use available technology to ensure every property in the City is connected to the sanitary sewer system and accurately paying for the service they receive.
- Continue use of advanced technology as a preventative measure for sewer maintenance of the community.
- Continue to clean sanitary sewer main lines on a two-year (or less) rotation.
- Televise sanitary mains and inspect structures prior to road reconstruction. Rehabilitate sanitary mains and manholes in conjunction with projects based on condition assessment.
- Televise sanitary sewer laterals for residents assisting property owners with condition assessment and make suggestions for repairs and maintenance.
- Utilize best available technologies to identify and reduce inflow and Infiltration (e.g. City-owned CCTV equipment, structure and main CIPP lining, etc.)

7.8 Goals and Objectives

It is the overall goal of the City to provide sanitary sewer collection services that maintain the vision of Fridley remaining a *safe, vibrant, friendly, and stable* community for families and businesses.

The objectives to accomplish that goal are:

1. Maintain an adequate sanitary sewer collection system
2. Maintain a cost effective sanitary sewer collection system
3. Balance the needs of growth, environmental protections, public safety, and health in the management of the sanitary sewer collection system

7.9 Action Steps and Summary

The following conclusions and action steps have been developed based upon the current data and system conditions.

Sewer charges are based upon water usage. The City of Fridley has converted residential water meters to automatic readers with new flow meters, which allows the City to more accurately charge sewer rates, based upon water usage levels. The remote reading capabilities are currently in commercial and industrial properties as well, however, their meters are up to several decades old and likely less accurate.

- **Action Step:** Install new water meters with updated automatic reading capabilities in commercial and industrial properties in order to charge more accurate sewer rates, based upon usage, as the City does for residential properties.

The City recently conducted a rate study for water and sewer rates. Regular analysis of rate structure and sustainability of rates is important to provide a utility that is resilient.

- **Action Step:** The City should conduct a water/sewer rate study every five years to review rate structure and provide rates that incorporate sustainable capital planning and promotion of conservation.

The City has established a minimum reserve funding policy for its utilities, which is directly relative to its annual operating budget and planned capital expenditures. This reserve provides for a utility that can meet its objectives without drastic rate changes.

- **Action Step:** The City should review and meet its reserve funding policy annually using the best cost projections available.

By the year 2050, the City's sewer system will be 100 years old, which is at the expected life of this infrastructure. While ideally the entire system would be replaced at this time, rehabilitation methods can extend the life of carefully selected infrastructure elements.

- **Action Step:** The City shall replace or rehabilitate 50% of the sanitary sewer system by the year 2050.

The City has established a goal to mitigate inflow and infiltration where practical and cost effective. This is currently done through programs such as sump pump inspections, smoke testing, flow testing, and CCTV inspections, which are authorized legislatively and through department policy.

- **Action Step:** The City should maintain and regularly update its inflow/infiltration mitigation program to mitigate excess system flows and reduce long-term costs to ratepayers.
- **Action Step:** In conjunction with MCES, initiate a detailed Inflow/Infiltration study to identify sources of clear water flow in the City's sanitary collection system, and to identify mitigation strategies that can be funded to reduce Inflow/Infiltration. This study should be completed within the next 3-5 years, and develop mechanisms to fund an implementation plan for mitigation.

One way the City can help prevent failures of the sewer services and reduce inflow-infiltration is to inspect private connections.

- **Action Step:** Investigate feasibility of point of sale inspections on private sewer connections, including providing financing options in case property owners cannot afford to make necessary improvements.

It is imperative to ensure sufficient capacity is available in its interceptors and trunk lines owned and operated by the City and Met Council.

- **Action Step:** The City should partner with Met Council to ensure that the interceptors and trunk lines serving the City are capable of handling peak flows to avoid bypass events.

Summary

Fridley is served by the regional wastewater system that is owned and operated by the Metropolitan Council. Three Metropolitan Council Environmental Services interceptors convey wastewater generated within the City of Fridley and pass large flows from other communities through the City of Fridley. To manage Fridley's generated sanitary sewer flows, the City owns and operates a sanitary sewer collection separated system from storm sewers. The existing sanitary sewer collection system is adequate to manage the projected residential and commercial/industrial growth through the year 2040. Close coordination with the Metropolitan Council Environmental Services is recommended to ensure that interceptors passing through Fridley are adequately maintained and provide sufficient capacity to the City of Fridley through the year 2040.