The Comprehensive Sewer Policy provides for the cost effective and orderly expansion of the City. The plan helps the Metropolitan Council understand the timing, location, and magnitude of future flows into their system so that they can likewise plan for the cost effective and orderly expansion of the regional conveyance and wastewater treatment systems. This planning coordination conserves financial resources at both the local and regional level.
INTRODUCTION

Woodbury’s sanitary sewer system is designed to remove sewage from homes, businesses and institutions and deliver it to the Metropolitan Disposal System, which is owned and operated by Metropolitan Council Environmental Services (MCES). The Metropolitan Disposal System consists of interceptors, wastewater treatment plants (WWTP) and supporting infrastructure such as lift stations, siphons, valves and tunnels. Woodbury’s sanitary sewer system consists of pipes that serve neighborhoods and businesses, trunk sewer pipes that collect sewage from multiple neighborhoods, and lift stations that pump sewage from lower areas of the City where necessary. The City of Woodbury partners with MCES to route its sanitary sewage to the Metropolitan WWTP (hereafter referred to as the Metro WWTP) in St. Paul and the Eagles Point WWTP in Cottage Grove.

According to the Metropolitan Land Planning Act, a comprehensive plan must include a wastewater component (the Sanitary Sewer Chapter) covering the collection and disposal of wastewater generated by the community. Metropolitan Council has prepared the 2040 Water Resources Policy Plan (WRPP) to guide this effort, including required elements. The 2040 WRPP presents a framework for integrating wastewater, water supply, and surface water management into the overall Comprehensive Plan. This chapter describes management of the existing sanitary sewer system and the expansion of the system to serve future population growth. It also summarizes Woodbury’s larger Comprehensive Sewer Policy Plan (CSPP) and provides the information needed to meet both the 2040 WRPP requirements and the checklist of minimum requirements for Woodbury outlined in the Metropolitan Council’s Local Planning Handbook.

WASTEWATER PLAN

A complete wastewater plan that meets the Metropolitan Council’s requirements includes the following:

» Forecasts of employment and households tributary to each treatment plant in 10-year increments through 2040.
» A system map that describes Woodbury’s existing wastewater infrastructure and future expansion of the system to serve the 2040 growth plan.
» A system map showing areas that have or will receive public sewer and those areas that are not planned to have public sewer.
» Tabulation of design flows, projected flows and capacity for the City’s sanitary sewer infrastructure.
» Description of the management program for subsurface sewage treatment systems.
» Discussion of the extent, source and significance of inflow and infiltration into Woodbury’s sanitary sewer system.
» Requirements and standards for minimizing inflow and infiltration and for the disconnection of sump pump and foundation drain connections to the sanitary sewer system.
» An implementation plan that contains strategies, priorities, scheduling and financing mechanisms for eliminating and preventing excessive inflow and infiltration.
SANITARY SEWER GUIDING PRINCIPLES AND POLICIES

“One Water” vision - The City of Woodbury recognizes the connection between surface water, groundwater, and drinking water and the importance of considering impacts to all water resources when making decisions.

While the sanitary sewer chapter is inherently different from the water supply and surface water chapters because it deals with a waste stream rather than a resource, it is also similar in that decision making is guided by a vision of clean water for current and future residents.

For purposes of the Comprehensive Plan, all water issues are put into one of four categories: Resilience, Quantity, Quality, and Planning for the Future.

**Resilience**

Construct, operate and maintain the sanitary sewer system to be economically sustainable and to promote preservation and protection of water resources and efficient energy use. Best practices, including regular inspection and maintenance, and financial considerations of major maintenance and replacement of infrastructure are key to resiliency.

**Policy**

» Provide an efficient and cost effective sanitary sewer system that is equitably financed.

**Quantity**

Provide sanitary sewer system capacity that serves existing residents, allows for continued growth and minimizes inflow and infiltration.

**Policies**

» Plan, design and construct the sanitary sewer system according to the CSPP and appropriately plan for future growth of the system.

» Construct the sanitary sewer system to facilitate operation and maintenance.

» Operate the sanitary sewer system to prevent excessive inflow and infiltration and limit volume of clean water that is treated.

**Quality**

Operate the sanitary sewer system to meet Federal and State standards and Metropolitan Council Environmental Services requirements.

**Policies**

» Limit substances in the sanitary sewer that can lead to surface and groundwater quality concerns.

» Educate sanitary sewer users on appropriate disposal methods and discourage inappropriate wastes from being disposed in the sanitary sewer.

**Definition**

**Resilience:**

The capacity to respond, adapt and thrive under changing conditions.

**Quantity:**

The amount of water needed and used both now and in the future.

**Quality:**

Federal and State standards are met for the designated end use.

**Planning for the Future:**

Ensure infrastructure is designed and developed to accommodate the future of Woodbury.

**Terms/Abbreviations**

CIP - Capital Improvements Plan
CSPP - Comprehensive Sewer Policy Plan
DNR - (Minnesota) Department of Natural Resources
FOG - fats, oils and grease
GPCD - gallons per capita per day
I/I - Inflow/Infiltration
MCES - Metropolitan Council Environmental Services
MGD - million gallons per day
MPCA – Minnesota Pollution Control Agency
SCADA - supervisory control and data acquisition
SSTS - subsurface sewage treatment systems
SWCI – South Washington County Interceptor
WONE – Woodbury, Oakdale, Northdale, East Oakdale
WRPP - Water Resources Policy Plan
WWTP – wastewater treatment plant
Planning for the Future

Support existing use while also planning for future growth through the use of the CSPP. The Comprehensive Plan and the CSPP ensure that appropriate infrastructure sizing for future development occurs. The CSPP also looks to the future for existing infrastructure and includes a plan for inspection, rehabilitation and replacement of the sanitary sewer as parts of the system start to reach their expected lifecycle. The CSPP also includes the details for financing sanitary sewer extensions and rehabilitation.

Continue to phase development based on the availability of services. It is most cost effective for the City to develop in areas with existing sanitary sewer. In addition, there are direct energy and financial savings if developing areas can be connected to the existing system using gravity fed pipe networks. Minimizing lift station use, both temporary and permanent, is a primary goal of design of the City’s sanitary sewer system. The availability of sanitary sewer will continue to be the driving factor in the City’s phasing plan.

Policies

» Plan, design and construct the sanitary sewer system with reserve capacity for localized higher residential densities or industrial sewer users.

» Reserve capacity can be used to connect areas that are currently unsewered if it becomes necessary in the future.

» Inspect and maintain the existing system for optimal performance and fund appropriately through usage fees.

» Implement a phased replacement plan that will lessen the financial and logistical burden of infrastructure replacement in the future.

» Restrict premature development in locations where sanitary sewer is currently not available but will be in the future.

» Appropriately fund the extension of sanitary sewer through area and connection charges.
EXISTING CONDITIONS

Resilience

More frequent and dramatic weather events, including larger rainfall events, will impact the City’s sanitary sewer system. The City can mitigate these impacts through proper planning, inspection, and repair and replacement of the system and its components. The first sanitary sewer lines in the City were constructed in the 1960s and 1970s and are in need of rehabilitation. The need for rehabilitation, compounded with increasing temperatures and more rainfall, could impact annual operation and maintenance costs for the City. It could also increase inflow and infiltration, leading to higher costs, as well as operation and maintenance costs at WWTPs.

Quantity

Figure 10-1 shows Woodbury’s existing and proposed sanitary sewer system. Sanitary sewer service and the phasing of services has historically guided Woodbury’s growth, more than any other infrastructure component. The existing system is generally north of Bailey Road except for those areas designated “V” along Woodbury’s eastern border with Afton. Woodbury defines trunk sanitary sewer as any pipe larger than 12-inches in diameter.

Figure 10-1 includes MCES Interceptors within the City limits. The MCES Interceptors include:

- Two legs of the WONE (Woodbury, Oakdale, Northdale, East Oakdale) Interceptor in the northwest part of Woodbury.
- The South Washington County Interceptor (SWCI) along Woodbury Drive beginning just south of Colby Lake and continuing south into Cottage Grove.
- A northeast interceptor from Lake Elmo, intended to serve future development along the Interstate 94 corridor.

Figure 10-1 also shows MCES meters at Woodbury borders. These meters measure flow from Woodbury before it leaves the community and are the basis of determining charges to Woodbury from MCES for use of the regional system. Woodbury passes these charges on to its residents through usage charges.

Also included in Figure 10-1 are areas currently served by sanitary sewer; growth areas that will have sanitary sewer in the future; and those areas that are currently planned to be served by subsurface sewage treatment systems (SSTS). Areas not served by Woodbury’s sanitary sewer system that are rather served by private septic systems are shaded yellow on the figure.

Figure 10-2 shows the area of the City tributary to each of the interceptors. In addition to the WONE and SWCI interceptors, Woodbury discharges wastewater to the Lower Afton and Carver Lake Interceptors. A small part of Woodbury in the extreme southwest corner discharges through Newport into MCES Interceptor 7102.

The WONE, Carver Lake, Lower Afton, and 7102 Interceptors carry sewage to the Metro WWTP in St. Paul. The SWCI carries sewage to the Eagles Point WWTP in Cottage Grove.
Figure 10-1. Existing and Proposed Sanitary Sewer System

Trunk Sanitary Sewer
- Existing City Gravity Trunk Pipe
- Existing City Trunk Force main
- Existing MCES Gravity Pipe
- Proposed City Force main
- Proposed City Gravity Pipe
- Proposed City Gravity Pipe - Lateral

Existing Sanitary Sewer
- Existing Force main Pipe
- Existing Gravity Pipe
- Manhole

Lateral Node
Trunk Node
Lift Stations

5.0 MGD Intercommunity Peak Flow

Metropolitan Council Environmental Services (MCES) Meter
Unserved Area
Figure 10-2. Interceptor Service Areas

Legend
- Metropolitan Council Environmental Services (MCES) Meter
- Interceptor Service Areas
Inflow and Infiltration

Inflow and infiltration in the sanitary sewer system are of significant concern across the metropolitan area. Inflow is typically stormwater that directly enters the sanitary sewer system. Infiltration is typically caused by high groundwater that seeps into the system from aging pipe joints, deteriorating manholes, and openings in pipes. All water arriving at WWTPs must be treated whether it is sewage or “clean water” from groundwater or surface water inflow. Wastewater treatment plants require a substantial amount of energy to treat incoming flows. Treating this clean water wastes energy and increases greenhouse gas emissions. Limiting inflow and infiltration of clean water into the collection system directly reduces energy needs and operation costs. For that reason, the Metropolitan Council has operated an Ongoing Inflow/Infiltration (I/I) Program for many years. The Metropolitan Council does not provide additional capacity within its interceptor system to serve excessive I/I without recovering the costs of this oversizing from municipalities that contribute to the problem.

The Metropolitan Council establishes I/I thresholds for each community that uses its system. These are established by reviewing metered flows exiting a community and determining the ratio of peak flow to average flow. Communities that exceed this ratio are required to eliminate excess flow within a reasonable time frame. The Council has not identified Woodbury as a community with excessive I/I.

Woodbury’s sanitary sewer system is relatively new, and I/I has not been a significant issue to date. Currently, Woodbury generates dry weather flows of approximately 100 gallons per capita per day (gpcd) to the Metro WWTP and 60 gpcd to the Eagle Point WWTP. The higher Metro WWTP flow is due to the large number of commercial land uses in that area. Recent metering does not show significant variability from these values, even in the spring when higher amounts are expected. This would indicate limited I/I is occurring in Woodbury. The City’s implementation plan for mitigating I/I is included in the Implementation section at the end of this chapter.

The majority of the sanitary sewer system in the City is generally above the water table, except some trunks installed in the late 1960s and 1970s. Metropolitan Council asks municipalities to map developments and trunks constructed prior to the 1970s and determine whether I/I is an issue within these areas. In Woodbury, the pre-1970 era housing and sanitary sewers are generally located in the northwest corner of the City, west of Radio Drive. Pipe materials in that area include vitrified clay pipe (VCP) and reinforced concrete pipe (RCP). Clay pipe is particularly susceptible to I/I. However, Woodbury has determined that excess I/I is not a significant issue in these areas (a peak flow ratio of greater than four did not occur at any location).

The I/I rate was estimated based on average and peak month wastewater flow data provided by the Met Council, and calculated as the respective flow minus the base flow. The base flow was approximated as the minimum daily flow in each year. The estimated average I/I rate from 2013-2017 was four percent, and the estimated peak month I/I rate from 2013-2017 was thirteen percent.

In terms of private I/I sources, the northwest corner of the City described above includes clay service laterals which are susceptible to I/I. Only five percent of the residential properties in the City were constructed prior to 1970, and of these a handful have been evaluated for susceptibility to I/I in response to specific issues. Sump pumps and foundation drains are not allowed to be connected to the sanitary sewer system, and it is predicted that few illicit connections exist. The few illicit connections that may exist are likely in the same older portions of the City.
Figure 10-3. Sanitary Sewer Constructed Prior to 1970
**Quality**

Hazardous substances in the sanitary sewer system can result in environmental damage and human health risks. Some substances can corrode the City’s pipes and cause damage to lift stations. Other substances that are not typically considered hazardous can lead to major maintenance issues of sanitary sewer infrastructure. These include chlorides; fats, oils, and grease; and “flushable” wipes. Improperly maintained SSTS can also cause environmental damage and human health concerns.

**Chlorides**

Monitoring shows that chloride levels are rising in surface waters and shallow groundwater in the Twin Cities Metropolitan Area. Chloride, a component in salt, is a problem that threatens freshwater aquatic life and could contaminate groundwater. Snow and ice management is one of two significant sources of chloride. The other source of chloride, and the one that most impacts the sanitary sewer system, is individual residential water softeners. Wastewater treatment plants are not designed for chloride removal. The only known methods of removing chloride in water is through reverse osmosis and distillation, which are costly and impractical for treatment plants. The hardness of the water in Woodbury is approximately 13.5 grains, which is considered moderately hard on a scale from 0 (does not need softening) to 15+ (extremely hard water). There are likely many individual home water softeners in Woodbury that contribute chloride to the sanitary sewer through normal household water use.

**Fats, oils and grease (FOG)**

Fats, oils and grease can accumulate in the sanitary sewer system from businesses and homeowners improperly disposing of them down the drain. These accumulations can cause blockages in the sanitary sewer system and has resulted in maintenance projects and jetting expenses throughout the City. The City has an established program that ranks properties as either high (restaurants), mid or low (residential) producers of FOG. City inspections are completed regularly for high producers. The current program requires the installation of grease traps and provides education on regular inspection and maintenance. The City issues citations as necessary. The existing program, while moderately effective, is not staffed and funded appropriately for the City’s projected growth through 2040.

**Wipes**

“Flushable” wipes are a growing concern for sanitary sewer system providers across Minnesota. These wipes, despite their name, are not flushable and cause blockages in the sanitary sewer system resulting in jetting and maintenance projects. There was proposed legislation in Minnesota during the 2017 legislative session to remove the word “flushable” from packaging, but it was not adopted.

**Subsurface Sewage Treatment Systems (SSTS)**

*Figure 10-4* shows the distribution of SSTS in Woodbury. As of June 2017, there were approximately 600 SSTS within the City limits. The only private SSTS located southwest of the intersection of Hudson Road and Settlers Ridge Parkway was closed in 2018 and is no longer in operation. In 2000, Woodbury transferred administrative responsibility for SSTS installation, inspection and enforcement to Washington County. The transfer of authority was a logical decision as Washington County already manages SSTS for most of the County and therefore can implement the program more efficiently than the City. Non-conforming systems or problem
Figure 10-4. Subsurface Sewage Treatment Systems (SSTS)

- Individual Sewer Treatment System (ISTS) Location
  Source: June 2017, Washington County
areas can be found within the County’s Comprehensive Plan and the SSTS program. Washington County manages SSTS in a manner that complies with or exceeds the requirements of Minnesota Pollution Control Agency (MPCA) requirements (Minn. Rules Chapters 7080-7083).

The County’s SSTS ordinance has been reviewed by the Minnesota Pollution Control Agency and is compliant with Minn. Rules Chapters 7080-7083. The ordinance provides the basis for the County’s SSTS program including requirements for: compliance inspections of existing systems, permitting and inspection of new systems, site review, maintenance requirements, and operating permits for advanced treatment systems (Type IV). The County’s SSTS regulations can be found in Washington County Ordinance 206, revised June 2018.
PLANNING FOR THE FUTURE

Future Trunk Sanitary Sewer

Figure 10-1 shows sanitary sewer trunk infrastructure that remains to be built to support Woodbury’s planned growth. The trunks that remain to be built are:

1. Valley Branch North Trunk
2. Valley Branch South Trunk*
3. Dale Road Trunk
4. Bailey Lake East Trunk
5. Extension of trunk through area C-42
6. Two legs of the Bailey Lake Trunk (Areas C-48 and C-49)

*These trunks do not need to be built to support Woodbury’s growth through 2040. They are needed for development past 2040.

Wastewater Projections

The Metropolitan Council requires municipalities to assign 2040 growth projections to Metropolitan Interceptor facilities. Woodbury has developed Table 10-1 and Table 10-2 to show the growth of population, households and employment to each of the two treatment plants, Eagles Point WWTP and Metro WWTP.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SEWERED POPULATION</th>
<th>SEWERED HOUSEHOLDS</th>
<th>SEWERED EMPLOYMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>47,293</td>
<td>16,923</td>
<td>11,333</td>
</tr>
<tr>
<td>2025</td>
<td>50,887</td>
<td>18,092</td>
<td>12,272</td>
</tr>
<tr>
<td>2030</td>
<td>54,480</td>
<td>19,260</td>
<td>13,211</td>
</tr>
<tr>
<td>2035</td>
<td>58,160</td>
<td>20,562</td>
<td>14,082</td>
</tr>
<tr>
<td>2040</td>
<td>61,840</td>
<td>21,863</td>
<td>14,953</td>
</tr>
</tbody>
</table>

1 Metropolitan Council’s Woodbury Community Page (April 2018) 2 Values Interpolated

Table 10-1. Woodbury Projections for Sewered Areas to Eagles Point WWTP

Population Projections

The population projections provided in this chapter derive from the Metropolitan Council’s WRPP and are consistent with the City’s vision for the future population. However, the population projections used in the Water Supply planning efforts were supplied from the DNR and differ slightly from the values provided by the Metropolitan Council. Since the Metropolitan Council is the primary agency regulating sewer capacity and the DNR is the primary authority regulating water appropriation, the City of Woodbury has decided to maintain consistency with the primary regulatory authority by using two population projections.
The anticipated average wastewater flows from the individual sewersheds are determined by applying unit flow rates to each of the land use categories present within the sewershed. These loading rates are provided in Table 10-3.

Table 10-2. Woodbury Projections for Sewered Areas to Metro WWTP

The anticipated average wastewater flows from the individual sewersheds are determined by applying unit flow rates to each of the land use categories present within the sewershed. These loading rates are provided in Table 10-3.

Table 10-3. Wastewater Flow Projections

1 Net Acre is calculated as Gross acres minus major road ROW (Collector/Arterial) and wetlands.
Table 10-4 and Table 10-5 translate population, household, and employment growth into projected average wastewater flow to each treatment plant based on the flows in Table 10-3. It is important to note that the total projected flow is higher than the 2040 projected water use outlined in the Water Supply chapter. The wastewater projected flows are based on historical water use, which has increased with population growth. The projected water use applies the goal of flat water usage based on the City’s efforts to increase water efficiency. Flows due to I/I are also accounted for in the analysis and design of the trunk sanitary sewer system.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>CITY PROJECTED AVERAGE FLOW TO THE SOUTH WASHINGTON COUNTY INTERCEPTOR AND EAGLE POINT WWTP (MGD)</th>
<th>MCES PROJECTED AVERAGE FLOW TO THE EAGLE POINT WWTP (MGD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2.19</td>
<td>-</td>
</tr>
<tr>
<td>2010</td>
<td>2.48</td>
<td>2.9</td>
</tr>
<tr>
<td>2015</td>
<td>3.15</td>
<td>-</td>
</tr>
<tr>
<td>2020</td>
<td>3.62</td>
<td>3.31</td>
</tr>
<tr>
<td>2025</td>
<td>4.08</td>
<td>-</td>
</tr>
<tr>
<td>2030</td>
<td>4.55</td>
<td>3.61</td>
</tr>
<tr>
<td>2035</td>
<td>4.78</td>
<td>-</td>
</tr>
<tr>
<td>2040</td>
<td>5.01</td>
<td>3.81</td>
</tr>
</tbody>
</table>

1 Metropolitan Council Environmental Services Data, assumes 3% reduction/decade from 2010 billed flows (2017)  
2 Based on meter data  
3 Values interpolated  
MGD – million gallons per day

Table 10-4. Wastewater Flow Projections to the Eagle Point WWTP

<table>
<thead>
<tr>
<th>YEAR</th>
<th>CITY PROJECTED AVERAGE FLOW BY INTERCEPTOR (MGD)</th>
<th>CITY PROJECTED AVERAGE FLOW TO THE METRO WWTP (MGD)</th>
<th>MCES PROJECTED AVERAGE FLOW TO THE METRO WWTP (MGD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CARVER LAKE</td>
<td>W.O.N.E.</td>
<td>LOWER AFTON</td>
</tr>
<tr>
<td>2006</td>
<td>1.06</td>
<td>1.14</td>
<td>0.15</td>
</tr>
<tr>
<td>2010</td>
<td>1.26</td>
<td>1.30</td>
<td>0.18</td>
</tr>
<tr>
<td>2015</td>
<td>1.26</td>
<td>1.50</td>
<td>0.18</td>
</tr>
<tr>
<td>2020</td>
<td>1.57</td>
<td>1.47</td>
<td>0.17</td>
</tr>
<tr>
<td>2025</td>
<td>1.57</td>
<td>1.47</td>
<td>0.17</td>
</tr>
<tr>
<td>2030</td>
<td>1.57</td>
<td>1.47</td>
<td>0.17</td>
</tr>
<tr>
<td>2035</td>
<td>1.57</td>
<td>1.47</td>
<td>0.17</td>
</tr>
<tr>
<td>2040</td>
<td>1.57</td>
<td>1.47</td>
<td>0.17</td>
</tr>
</tbody>
</table>

1 Metropolitan Council Environmental Services Data. Assumes 3% reduction/decade from 2010 billed flows (2017)  
2 Based on meter data  
3 Reflects calculated existing flow. The rest of the district is unserved area

Table 10-5. Wastewater Flow Projections to Metro WWTP
Intercommunity Flows

Figure 10-1 shows the locations where Woodbury has sanitary sewer flows that enter another community or another community has sanitary sewer flows that enter Woodbury. Neighboring communities review Woodbury’s Comprehensive Plan and determine if these projected flows can be accommodated within their system plans. The flows in Figure 10-1 do not differ significantly in magnitude from Woodbury’s 2030 Comprehensive Plan. Table 10-6 summarizes these intercommunity flows. The average design flows displayed in the table are based on meter data where applicable. Meter data was available for the average design flows only. Peak design flows listed are based on the City’s flow calculations (consistent with MCES peak hourly flow factors for sanitary sewer design and based on the Cities calculations). There is not a direct correlation (e.g. peak flow factor doesn’t apply) between the metered average design flows and the peak flows since two different sources of data are used.

The City has intercommunity sewer service agreements with the City of Newport and the City of Cottage Grove. The agreements and figures showing the area included in the agreements can be found in Appendix A.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FROM</th>
<th>TO</th>
<th>AVERAGE DESIGN FLOW (MGD)</th>
<th>PEAK DESIGN FLOW (MGD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W2.3</td>
<td>Oakdale</td>
<td>Woodbury</td>
<td>2.62</td>
<td>6.75</td>
</tr>
<tr>
<td>C55.1</td>
<td>Woodbury</td>
<td>Cottage Grove</td>
<td>2.52</td>
<td>10.99</td>
</tr>
<tr>
<td>C58.1</td>
<td>Cottage Grove</td>
<td>Woodbury</td>
<td>0.151</td>
<td>0.59</td>
</tr>
<tr>
<td>C54.1</td>
<td>Woodbury</td>
<td>Cottage Grove</td>
<td>0.09</td>
<td>0.36</td>
</tr>
<tr>
<td>CL6.6</td>
<td>Woodbury</td>
<td>Maplewood</td>
<td>1.57</td>
<td>4.55</td>
</tr>
<tr>
<td>CL8.1</td>
<td>Woodbury</td>
<td>Maplewood</td>
<td>0.11</td>
<td>0.46</td>
</tr>
<tr>
<td>W4.1</td>
<td>SE Oakdale, Lake Elmo</td>
<td>Woodbury</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>W2.2</td>
<td>Woodbury</td>
<td>Maplewood</td>
<td>1.54</td>
<td>4.13</td>
</tr>
<tr>
<td>LA.5</td>
<td>Woodbury</td>
<td>Maplewood</td>
<td>0.17</td>
<td>0.66</td>
</tr>
<tr>
<td>NA</td>
<td>Woodbury</td>
<td>Newport</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1 2016 metered flow from Metropolitan Council meter no. M021
2 2016 metered flow from Metropolitan Council meter no. M017. Does not include Oakdale or Lake Elmo flow into W.O.N.E.
3 No data available
4 From 2009 Cottage Grove Sewer Plan
5 2016 metered flow from Metropolitan Council meter no. M075
6 Data carried over from 2009 CSPP
7 Area not served by Woodbury sanitary sewer system

Table 10-6. Intercommunity Flows
IMPLEMENTATION

Resilience

Regular inspection of the sanitary sewer system provides the City with information on necessary maintenance and upgrades of the system. Along with inspection, maintenance, repair, and limiting I/I, safeguarding operations should be investigated in the face of severe weather and increasing precipitation. Examples include generators at lift stations where the sewer is not gravity-fed, limits to how many lift stations are allowed as areas become serviced and improvements in the supervisory control and data acquisition (SCADA) network. It will also be important to maintain an emergency response plan for response to sanitary sewer overflows.

While the City maintains responsibility over the pipes and connections that make up the sanitary sewer network, it is equally important that the Metropolitan Council continues to make improvements to resilience and processes at the WWTPs that are cost-effective and limit harmful discharges. Metropolitan Council’s Wastewater Sustainability Policy of the WRPP reads, “The Council shall conduct its regional wastewater system operations in a sustainable manner as is economically feasible. Sustainable operations relates not only to water resources but also to increasing energy efficiency and using renewable energy sources, reducing air pollutant emissions, and reducing, reusing, and recycling solid wastes.”

Quantity

Performance measures are used to measure the quality of sanitary sewer service provided to residents. Indicators used on an annual basis to measure sanitary sewer system service include: the number of sewer backups, number of sanitary sewer overflows, and MCES I/I determinations and work plan assignments.

Inflow and Infiltration

Woodbury’s current I/I implementation program consists of the following:

» City ordinance excerpted below prohibits roof and foundation drains to be connected to the sanitary sewer system. The City will pursue an ordinance requiring the disconnection of existing foundation drains, sump pumps, and roof leaders from the sanitary sewer system within six months of the adoption of this plan.

  • Sec. 23-73. - Storm water, sump pumps, etc.: “It shall be unlawful for any owner, occupant or user of any premises to direct into or allow any storm water, surface water, ground water, well water or water from industrial or commercial air conditioning systems to drain into the sanitary sewer system of the city. No rain spout, or other form of surface drainage and no foundation drainage or sump pump shall be connected or discharged into any sanitary sewer.”

» Woodbury conducts annual sewer line televising and makes repairs, using lining and other techniques, where problems are indicated. Per the City’s maintenance standards, one tenth of the City’s sewer system is televised each year, totaling approximately 120,000 linear feet. All new public sanitary sewer is also televising before being placed in service.

» As part of roadway rehabilitation projects, sanitary sewer in the project area is televised and assessed for rehabilitation or replacement. Post-roadway rehabilitation televising is also done to ensure no damage has occurred to infrastructure during the project.
Figure 10-5. Trunk Sewer Assessment and Rehabilitation Program Projects
» The City is currently in the midst of a 6-year trunk televising and lining program expected to be complete in 2023. Figure 10-5, Trunk Sewer Assessment and Rehabilitation Program Projects shows the areas of implementation of the program.

» The City reviews flows annually as part of its budget and Capital Improvements Plan (CIP) preparation. Woodbury’s expenditures on controlling I/I take the form of televising and repairs. Typical repairs include manhole ring and casting replacements and pipe repairs. Woodbury’s major expenditure in controlling I/I is the sewer televising and lining program.

» In 2018 the City spent approximately $1.5 million on the Tamarack Sewer Trunk Project. The City routinely spends approximately $100,000 annually on repair projects and televising efforts. Three additional trunk projects have been identified and scheduled for 2020, 2023 and 2026.

As pipes continue to age, the City anticipates I/I to become a more significant issue. The City will review additional I/I reduction implementation opportunities such as sump pump inspections alongside planned water meter replacement and/or increases to televising standards.

Quality

Chlorides

The City may consider centralized water softening treatment in the future, which would reduce the chloride load at regional wastewater treatment facilities. The City will also encourage residents and businesses to install high efficiency water softeners (which use less salt) and to use water more efficiently through education and incentives.

Fats, Oils, and Grease (FOG)

Woodbury has an ordinance in place restricting FOG discharge concentrations. The City also monitors the extent of FOG accumulation in the sanitary sewer system and issues corrective action notices as necessary. The ordinance and related policies will be reviewed and updated as appropriate. The City will continue to use education and outreach, in addition to enforcement, as a primary tool for reducing FOG.

The City’s FOG program will continue to grow to match the growth of business in Woodbury and will require additional resources, including staff and funding.

Wipes

Education is the primary tool used currently to address the problems caused by “flushable” wipes. Ordinance creation to address this issue and an enforcement program may be needed in the future. The City will continue to support statewide legislative action on the issue.

Subsurface Sewage Treatment Systems Management

Washington County Public Health and Environment manages SSTS for the entire County, including Woodbury. The City will continue to partner with the County to minimize surface and groundwater contamination caused by failing septic systems.

The potential for a significant number of new SSTS within Woodbury is relatively low; most new homes are planned to be served by sanitary sewer. In addition, the sanitary sewer in southern Woodbury is sized appropriately to accommodate service to the Rural Estate areas if necessary in the future.
Planning for the Future

Future Trunk Sanitary Sewer

Figure 10-1 discussed previously in this Chapter, identifies the existing and proposed sanitary sewer system. The precise phasing of Woodbury’s sanitary sewer trunks will be based on the land use and phasing plan developed in Chapter 4 of this Comprehensive Plan.

Much of the northeast area of Woodbury (sewer districts V-1, V-2, V-3 and V-4) is guided as non-residential development (Place to Work) and may include businesses that are high water users and thus heavy users of the sanitary sewer system. As discussed earlier, Woodbury has built its sanitary sewer system with an increment of excess capacity by planning for 1,500 gallons of sewage per day per acre for the Places to Work land use. As development has occurred, the businesses that have come to Woodbury have not generated this much sewage flow so excess capacity exists within the system for locally heavier sewer use. Excess capacity is geographically variable and would need to be verified through sewer metering if a heavy sewer user were to build in the northeast area. If the actual use exceeded system capacity for quantity or quality, on-site quantity and quality controls would be needed to protect the City’s system.

A major policy change in the Cities 2030 CSPP was to add reserve capacity to the local sanitary sewer system to allow for flexibility for redevelopment, pockets of increased development density, and rural area development to higher density. These rural areas, which include the SWCI (future) interceptor service area, are not part of the proposed urban area in the 2040 Comprehensive Plan. Rather, the Bailey Lake Trunk sanitary sewer that runs northwest from the South Washington County Interceptor is oversized to accommodate this area, if necessary in the future due to changing conditions, change in land use type, or major SSTS failures. If or when these areas are brought into the MUSA, the City will work to meet minimum density requirements in place at that time, as well as be consistent with the Council’s MUSA Implementation Guidelines, to be in conformance with regional wastewater system plans and consistent with regional land use policies.

The City will continue to use the CSPP and this chapter to develop the sanitary sewer system in the most cost efficient manner and minimize the use of lift stations. This policy will continue to be the driving factor for the development phasing plan. The City will continue to manage growth and development based on the availability of existing and future sanitary sewer service. Development will occur in an orderly manner as City infrastructure becomes available.

Maintenance with Roadway Rehabilitation Program

Every year, the City completes roadway rehabilitation projects in neighborhoods where repairs are deemed necessary. As part of this work, the City reviews the condition of the water and sewer infrastructure under these roadways so that necessary repairs can be coordinated with the roadway repairs. This approach minimizes disruption to residents and is cost effective. Most roadway projects in the past have not required major water or sewer improvements. As water and sewer infrastructure ages, significant repairs, including full replacement, should be anticipated. Under previous policy, property owners shared in the cost of these major repairs and replacement via special assessments; the costs for total replacement resulted in assessments of $10,000 or more for some property owners.

The City updated this policy in 2017 such that major repairs and replacements are now funded through an increase in the Water and Sanitary Sewer Utility Fund rates. To cover the potential shift in these costs, the following changes were implemented:
1. The base water rate and City sewer rate increased.
2. The City’s operating portion of the sanitary sewer charge increased.

**Funding**

Woodbury will continue to finance expansion of the overall system through area and connection charges. Area charges are assessed to new development and are collected at the time of development to fund expansion of the system. To accurately and fairly calculate area charges, development phasing will continue to be based on the availability of sanitary sewer to a project area, and development before the availability of sanitary sewer will not be allowed. Woodbury’s financial model for area charges incorporates the time value of money and an inflation factor for construction costs. With every Comprehensive Plan, Woodbury reevaluates area charges and determines rate revisions based on the sanitary sewer infrastructure that needs to be built to support planned growth.

Utility charges fund the operation, maintenance, rehabilitation and replacement of the existing system. The City has already had a number of replacement projects and has incorporated depreciation and replacement into the financial model that determines sanitary sewer utility rates. Woodbury’s Sanitary Sewer Capital Improvement Plan is included in the CSPP. Table 10-7 shows the City’s Capital Improvement Plan through the year 2040.

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*Table 10-7. Capital Improvements*
INSPECTION AND LINING PROGRAM

The City’s annual sanitary sewer televising, assessment, and repair program covers approximately one-tenth of sanitary sewer lines less than 12-inches in diameter. With aging lines, substantial rehabilitation and/or replacement of vitrified clay and reinforced concrete sanitary sewer pipe is expected. Much of this rehabilitation and replacement is being coordinated with the road rehabilitation program, maximizing opportunity and financial value and minimizing disruption in neighborhoods.

The City has also developed and is currently implementing a trunk sewer line assessment and rehabilitation program. The trunk sewer line program is a six-year program scheduled for completion in 2023. See Figure 10-5 for the location of lines that are included in this program. The program covers approximately 16 miles of 12-inch and greater sanitary sewer line and includes infrastructure installed between the 1960s to present. Several sections of the City’s trunk infrastructure has met or will soon be meeting maximum life expectancy.

The trunk sewer line program is being implemented due to the age of the existing trunk system; minimal previous inspection and maintenance of these trunk lines; and because these trunk lines serve as the main collection and conveyance points of sewage from the City. Failure of a trunk line would have a substantial impact on the ability of the City to provide effective sanitary sewer service for residents. Some of the trunk sections were constructed below wetlands or in high groundwater areas, making them susceptible to I/I. This program will effectively address I/I in the trunk lines.

View of sanitary sewer line before rehabilitation

View of sanitary sewer line after rehabilitation