

# 8 Public and Private Utilities

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The provision of public and private utilities is essential to a healthy community. Richfield offers high quality services for the benefit of its citizens including: water; sanitary sewer collection; surface water management (storm drainage and sewer.) These services as a group comprise the public utilities provided to the community. It is critical that these essential services are properly maintained to assure a safe and reliable service can be offered that makes Richfield an attractive place to live.

Private utilities such as gas, electric power, telephone, cable television and telecommunications provide essential services that occupy the public right of way to gain access to individual properties.

## Water Supply

The City's water supply system consists of a water treatment plant, deep wells, water towers and a water distribution system. Recent improvements to the water plant have upgraded the City's ability to provide

safe drinking water in an efficient manner. New technology is also being installed to increase accuracy of tracking water usage by individual users that will ensure all uses are fairly assessed and encourage water conservation.

### Water System Goal #1

Provide residents and businesses with affordable potable water that is safe and of high quality.

### Water System Goal #2

Provide a low-maintenance, efficient water system that supplies the long-term needs of residents and businesses.

### Water System Goal #3

Provide adequate water supply and pressure for residents and businesses.

### Water System Goal #4

Work with surrounding communities to provide an assured source of water in case of emergencies.

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Water System Goal #5

Provide adequate water services for areas designated for redevelopment.

Water System Goal #6

Promote water conservation and sustainability by reducing water demand, reducing the waste of water, improving the efficiency of the existing system, and educating the public on water conservation.

Water System Goal #7

Protect the groundwater supply from contamination.

The Richfield Water Supply Plan (Appendix 8A) is incorporated by reference and addresses all Minnesota Department of Natural Resources and Metro Council water supply requirements.

**Policies:**

1. Design and construct improvements to the water system that meet demands of redevelopment and for sufficient fire protection for the entire community.
2. Provide a minimal hydrostatic pressure of 50 psi.

3. Selectively increase the size of pipes in the distribution system for areas within the City where low water pressures exist.
4. Conduct a water rate study to adopt a conservation rate structure that promotes water conservation.
5. Support an appropriate level of state funding for interconnections and other physical water system improvements to ensure water supply reliability, natural resource protection, and/or safety and security, including economic security, of the region and state.
6. Investigate interconnection options with neighboring cities.

The City is constantly striving to improve or maintain the water supply system at a high standard of reliability. The City is considering additional improvements to the water system including:

- Possible increased pipe sizes in areas that the City is considering for redevelopment;
- Replacement of existing cast iron pipes that are known to be brittle with either ductile iron or plastic pipes(replacement may only occur with reconstruction or redevelopment);
- Coordination with surrounding cities to improve emergency preparation for the mutual benefit

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of all communities in the event of water supply disruptions;

- Implementation of the City's water conservation plan;
- Implementation of the City's wellhead protection program including source water monitoring to detect and respond to any contaminants ;
- Continued security measures to protect the water supply system from possible terrorist attack;
- Selectively increase the size of pipes in the distribution system for areas within the City where low water pressures exist; and,
- Increase High Service Pump capacity to improve water pressure on the east side of Richfield.

## Surface Water Management

The City prepared a Surface Water Management Plan in 2008. Its recommendations are included here by reference. The City has focused on addressing volume control of storm drainage and now is concentrating on improving the quality of water runoff. Richfield is also intent on limiting the number of storm ponds as a questionable use of valuable urban land and to reduce the burden of their maintenance on private development. The City is also exploring the use of

active chemical treatment to improve the quality of surface water runoff. The City has developed a number of goals, policies, and strategies for the management of storm water within the City. These goals, policies and strategies have been developed to complement any county, regional, or state goals and policies. The Surface Water Goals are as follows:

### Surface Water Goal #1

Protect surface water quality by reducing the use of pesticides and chemical turf treatments that contribute to water pollution.

### Surface Water Goal #2

Provide a public education program to alert the public on the importance of protecting storm ponds from harmful pollutants and ensure the proper disposal of solid and liquid wastes.

### Surface Water Goal #3

Perform a regular maintenance program of existing storm drainage facilities, including sump, catch basin and retention basin cleaning, to protect private property from flood damage and maintain high water quality.

### Surface Water Goal #4

Explore innovative ways to improve the quality of surface water and evaluate the effectiveness of existing treatment methods at reasonable cost.

**Policies:**

1. Sweep all streets at least twice each year.
2. Design conveyance structures to accommodate a ten-year storm event and storage facilities to accommodate a one hundred year event.
3. Demonstrate chemical treatment of surface waters as an innovative way to improve their quality and minimize their harm to the environment.
4. Complete storm water improvements scheduled for First Avenue and 73rd Street, a Lift Station/Outlet for Augsburg Pond to limit flooding in central Richfield, the treatment pond around Richfield Lake and increase storm drainage that will be needed when I-494 is reconstructed.
5. Research a variety of treatment methods to assess their effectiveness to improve water quality at a reasonable cost
6. Continue regular maintenance of storm ponds and drainage facilities to reduce damage to property and protect water quality.
7. Educate residents in responsible water quality management and ensure proper disposal of solid and liquid wastes.
8. Eliminate illegal connections to the storm water system.

**Sanitary Sewage**

Richfield’s sanitary sewage collection and pumping system has not undergone major upgrades in the past ten years and is considered to be in fair to good condition. The current sanitary collection system, as shown in Figure 8.1, is adequate to handle peak average daily flows (ADF) both now and in the future based on Metropolitan Council forecasts shown in Table 8.1 below.

**Table 8.1 Population, Household and Employment Trends**

Year	Population	Household	Employment
2010	37,700	16,500	17,100
2020	41,300	18,000	17,600
2030	45,000	19,500	18,100

*Source: Metropolitan Council*

By the end of the year 2010, the City of Edina wastewater flows will be routed through a relief interceptor which will relieve capacity issues from Metro Council Environmental Services (MCES) Interceptor 1-RF-491 for peak wet weather flows experienced during intense rainfall periods (producing Inflow/Infiltration). Most of Richfield’s growth areas are in the vicinity of the MCES Interceptor 1-RF-491 (Figure 8.2).

Essentially at this time, MCES Interceptor 1-RF-491 has limited capacity all through Richfield, especially critical is the immediate segment downstream (northeast) of Best Buy. The new MCES relief line interceptor will reduce the flows in the existing interceptor (1-RF-491) by conveying the City of Edina's wastewater around Richfield. The other area of concern is immediately downstream of Lift Station No. 4 (south of Diagonal Boulevard along 13th Avenue up and along Diagonal Blvd to 15th Avenue). The new interceptor will address this issue as well.

The new sanitary sewer interceptor from Edina will extend from the southwest corner of Richfield to Cedar Avenue at Diagonal Boulevard on the east side and is proposed to be built in 2009-2010. This

new interceptor sewer will increase sewage capacity considerably and allow Richfield to handle increased land use densities along I-494 and Highway 77 consistent with the Comprehensive Plan.

As a developed community, the City provides sanitary sewer service to all developed property within its boundaries. There are no unsewered areas.

The City will reduce inflow and infiltration (I/I) into the sewage collection system in order to maintain the MCES Design Peak Hour to Average Daily Flow (P/A) Ratio of 2.5. The ratio is the number that the MCES uses to determine the allowable peak hour flow rate for the Richfield collection system at MCES surcharge.

Table 8.2 Wastewater Average Daily Flow Projections

MCES Interceptor	2010		2015		2020		2025		2030	
	MCES Total Flow (MGD)	Richfield's Contribution (MGD)****	MCES TotalFlow (MGD)	Richfield's Contribution (MGD)****	MCES Total Flow (MGD)	Richfield's Contribution (MGD)****	MCES TotalFlow (MGD)	Richfield's Contribution (MGD)****	MCES Total Flow (MGD)	Richfield's Contribution (MGD)****
1-RF-490*	7.36	2.68	7.40	2.72	7.44	2.76	7.47	2.79	7.51	2.83
1-RF-491**	5.47	1.16	5.47	1.16	5.48	1.17	5.48	1.17	5.49	1.18
1-RF-492***	0.91	0.91	0.94	0.94	0.96	0.96	0.98	0.98	1.01	1.01
M130	8.27	3.59	8.33	3.65	8.40	3.72	8.46	3.78	8.52	3.84

\*Flow before 1-RF-490 intersects 1-RF-492

\*\*Flow before 1-RF-491 intersects 1-RF-490

\*\*\*Flow before 1-RF-492 intersects 1-RF-490

\*\*\*\*Contains MAC Flow

The design flows are presented in Table 8.2. Richfield's Average Daily Flow design flows will be 3.59 million gallons per day (mgd) in 2010 and will increase to 3.84 mgd by 2030. Using MCES peaking factor (P/A) calculated for Richfield based on the design flows, the peak hour flow rate in 2030 would be 9.60 mgd (3.84 time 2.5). The existing MCES interceptor system (1-RF-490) will be able to handle the current and future design ADF and peak flow rate after they construct the relief line alongside MCES Interceptor 1-RF-491 which will carry the City of Edina's wastewater flows.

The City of Richfield is already fully developed. The Average Daily Flow design flow number for the year 2030 is based on the City's projected land use in that year. The number takes into account all planned development in Richfield for the next 20 years.

Based on Richfield's water records and the assumption that all water accounts would be connected to sanitary sewers, the number of sewer connections would be 10,726 and be equal to the number of water accounts in Richfield. The number of sewer connections is broken down as follows:

**Table 8.3 Number of Sewer Connections by Interceptor**

	# of Sewer Connections	Direct Connections To MCES Interceptor
MCES Interceptor 1-RF-490	5,540	213
MCES Interceptor 1-RF-491	3,587	307
MCES Interceptor 1-RF-492	1,599	0
Totals	10,726	520

The City of Richfield does not own a wastewater treatment plant and, therefore, does not need an NPDES permit to operate one. Figure 8.1 shows all the sanitary sewer piping owned by the City of Richfield and their sizes. All of the Richfield collection system is connected to the MCES interceptor collection system and transported through Minneapolis and Saint Paul to the MCES Pig's Eye Wastewater Treatment Facility.

Regarding inter-community sewer connections, Metropolitan Airports Commission (MAC) property and approximately 35 to 40 residential units or equivalents from Edina enter the Richfield sanitary sewer system. MAC property is identified on Figure

Figure 8.1 Sanitary Sewer Piping

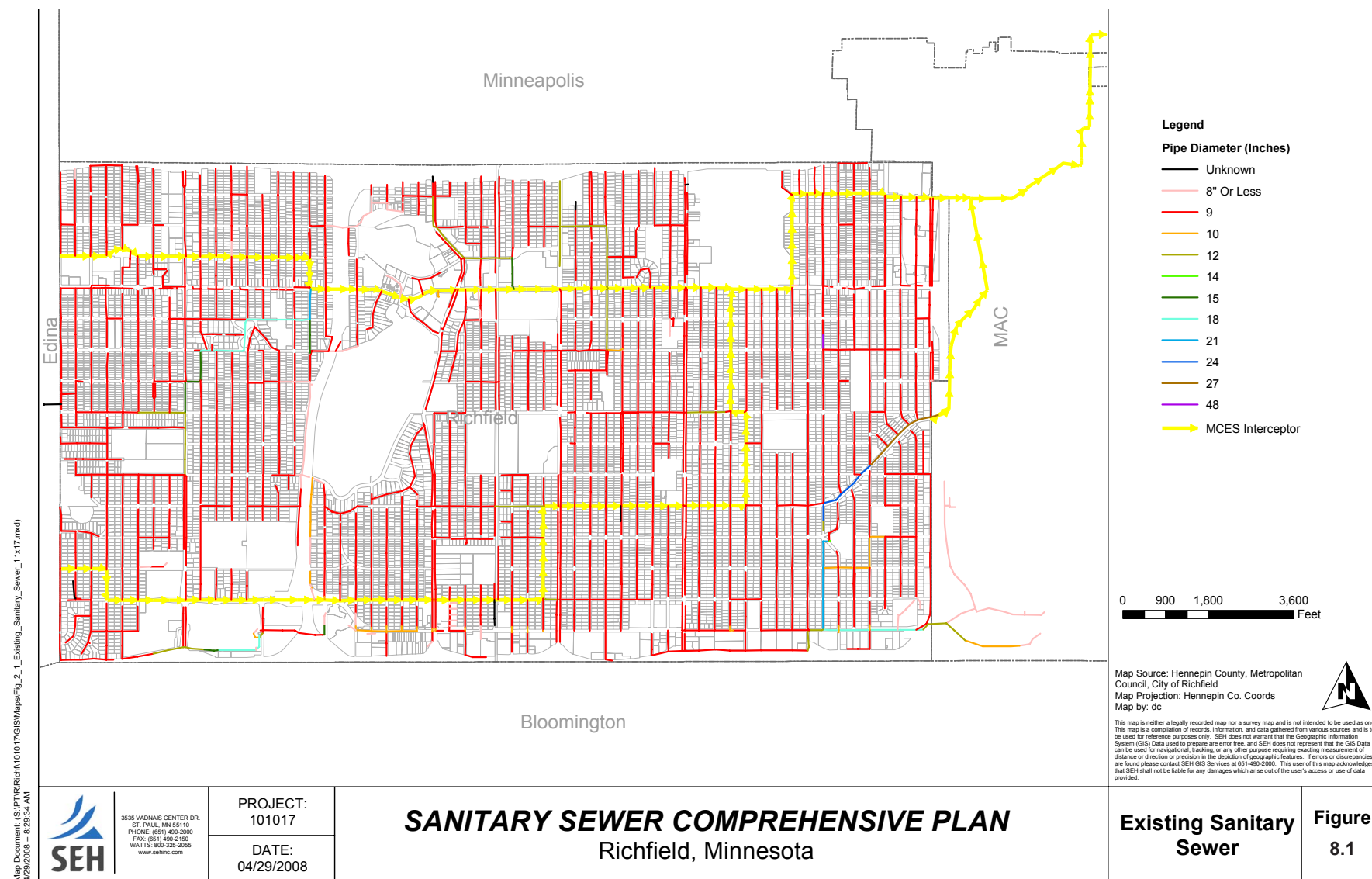
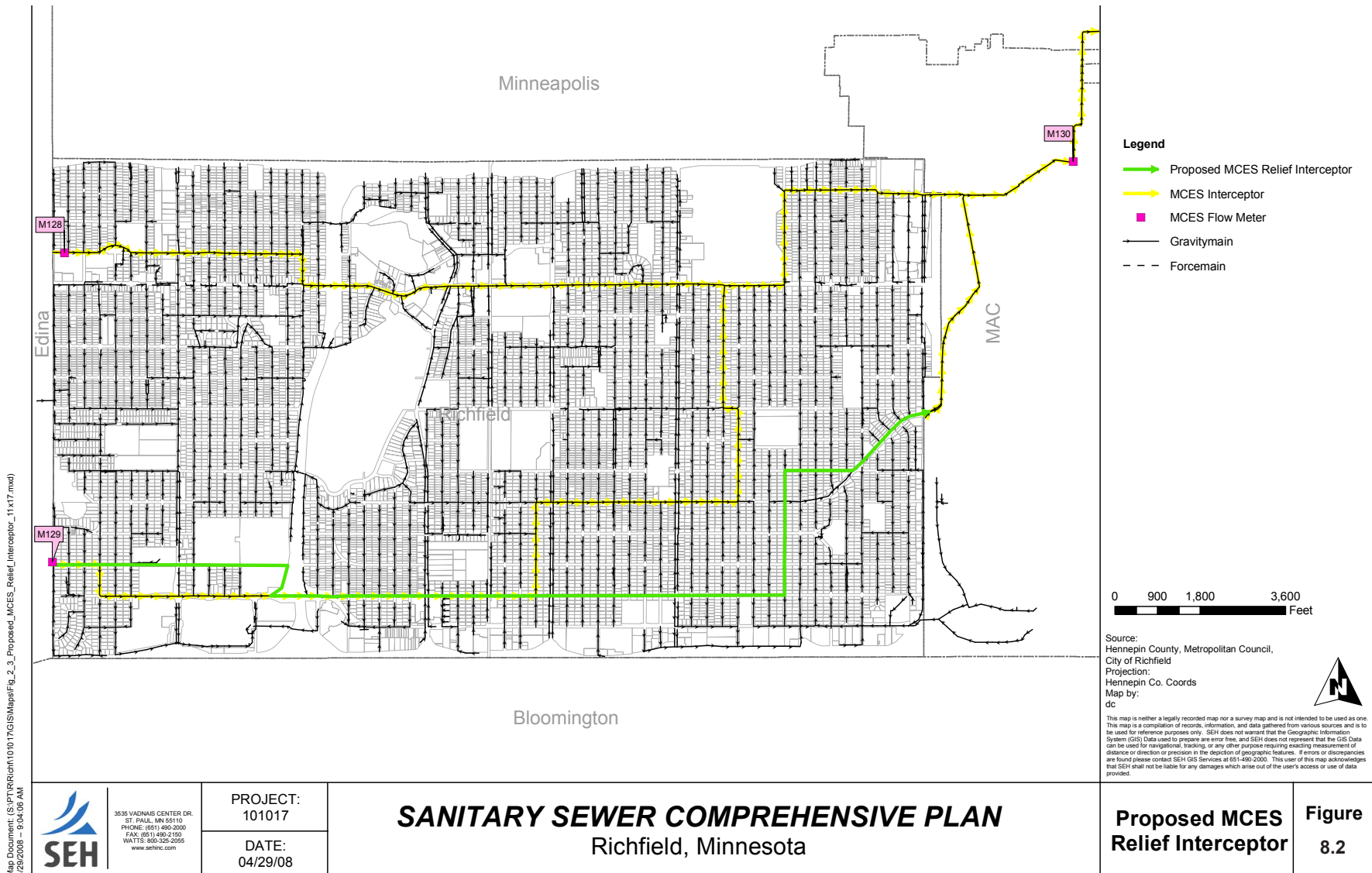




Figure 8.2 Sanitary Sewer Proposed MCES Relief Interceptor





8.1. Richfield has no plans to alter its City boundaries and, therefore, will not affect inter-community connections.

So far, the City of Richfield has not exceeded the peak flow rate established by the MCES. Overall, the City has done a good job to date. The City has been examining its sanitary sewer collection system through the development of a computer model to isolate areas in the sewer system which may need additional capacity. One way to add capacity is to effectively manage inflow and infiltration (I/I.) The results of the flow monitoring data the City is collecting for the sanitary sewer model will help the City identify areas with high Inflow and Infiltration volumes. The City could use this data for further investigation by performing smoke testing and/or private property building inspections in areas identified with high peak flow rates during wet weather periods as necessary to isolate specific sources of I/I in the Richfield sanitary sewer collection system. The results of future flow monitoring will determine the need for further investigation.

**Sanitary Sewer Goal #1-** Provide high quality sanitary sewer service to the residents and businesses of Richfield in the most economical manner possible.

**Sanitary Sewer Goal #2-** Provide sanitary sewer service that meets the requirements of the 2030 population and employment forecasts of the City.

**Sanitary Sewer Goal #3-** Take all necessary measures to maintain the Metropolitan Council Environmental Services Design Peak Hour to Average Daily Flow (P/A) Ratio of 2.5 to avoid paying an MCES surcharge.

#### **Policies:**

1. The City will take all measures necessary to protect the capacity of the interceptor sewers that service the residents and businesses of Richfield in the most economical manner possible.
2. The City will work with MCES staff to monitor the metered flows from the Richfield system.
3. The City will continually monitor the sanitary sewer system to identify points of Inflow/Infiltration.
4. The City will continue to eliminate points of Inflow/Infiltration to the sanitary sewer system on public property, and require the elimination of Inflow/Infiltration on private property.
5. Design trunk sewer expansions in relation to the proposed land use intensities outlined in the Land Use Element of the Comprehensive Plan.

6. Provisions for sufficient sewer system capacity must be made to serve the intensity of new development and redevelopment before final development approvals are granted by the City.
  7. Periodically review and evaluate the sewer collection system, MCES treatment plant capacity, and the accuracy of metered flow data provided by MCES in relation to the confirmed community growth and development.
  8. A determination of who is responsible for the payment of reconstruction of sewer facilities will be made if insufficient capacity is available to serve the intensity of new development or redevelopment.
  9. Funding priorities will be placed on maintaining the existing municipal sanitary sewer system.
  10. Consider replacing old sanitary sewer pipe at the time of road reconstruction or redevelopment.
  11. A financial analysis will be prepared prior to the reconstruction of any portion of the sanitary sewer system.
  12. Funding future sewer facility improvements will continue to be identified in the Capital Improvements Plan.
  13. To maintain operating efficiency, minimize sewage blockage, and reduce the potential for ill.
  14. Continue to improve the City's maintenance and inspection program.
- A review of the sanitary sewer system shows the following improvements are needed:
- Development/Monitoring of a plan to reduce excessive inflow and infiltration (I/I) of the sewage collection system to meet the Metro Council's I/I goals for the City;
  - Regular inspection and repair of manholes to minimize inflow and infiltration;
  - Consideration of the use of plastic pipe to replace vitreous clay pipe as a means to reduce inflow and infiltration;
  - Support a program to replace old pipe due to age and back ups;
  - Continue vigilance to clean the sewer lines on a regular basis to minimize sewage back ups; and,
  - Continue use of televised inspection of lines and mechanical removal of roots to control root intrusion and prevent service interruption.

Table 8.4 Richfield Sanitary Sewer System

## Annual Expenditure

## Operations and Maintenance, and Capital Improvements

Activity	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Annual O & M										
Jetting, root sawing, televising sewers, lift station maintenance.	\$1,218,670	\$1,255,230	\$1,292,890	\$1,331,670	\$1,371,620	\$1,412,770	\$1,455,150	\$1,498,810	\$1,543,770	\$1,590,090
Total	\$1,218,670	\$1,255,230	\$1,292,890	\$1,331,670	\$1,371,620	\$1,412,770	\$1,455,150	\$1,498,810	\$1,543,770	\$1,590,090
Sewer Line Repair (lining)	\$55,000	\$55,000	\$60,000	\$60,000	\$65,000	\$65,000	\$70,000	\$70,000	\$75,000	\$75,000
I/I Flow Reduction	\$65,000	\$75,000	\$70,000	\$65,000	\$60,000	\$55,000	\$50,000	\$50,000	\$50,000	\$50,000
Lift Station Improvements	\$75,000	\$65,000	\$55,000	\$40,000	\$40,000	\$50,000	\$50,000	\$60,000	\$65,000	\$70,000
Total	\$195,000	\$195,000	\$185,000	\$165,000	\$165,000	\$170,000	\$170,000	\$180,000	\$190,000	\$195,000
Total Annual Cost To City	\$1,413,670	\$1,450,230	\$1,477,890	\$1,496,670	\$1,536,620	\$1,582,770	\$1,625,150	\$1,678,810	\$1,733,770	\$1,785,090

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## 10-Year Capital Improvement Plan for Sanitary Sewers

Based on the improvements discussed above, the City has prepared a 10-Year Capital Improvement Plan for its Sanitary Sewer System that is presented in Table 8.4. The plan implements many of the sanitary sewer policies listed in this section of the Comprehensive Plan.

### Private Utilities (OR Gas/Electric Power and Telecommunications)

Private utilities such as gas, electric power, phone, cable television and telecommunications use the public right of way to provide these essential services to the community. The City regulates them through franchise agreements and a permit system that allows them to use the public right of way.

Under the City's Zoning Ordinance new private development or major rehabilitation requires public utilities to be placed under ground to improve aesthetics, reduce service interruption and remove obstacles for safe travel. In the past the City has encouraged private utilities to be placed underground. Considerable discussion has occurred recently on the cost of placing these utilities underground.

The City is studying the redesign of its arterial corridors. As part of the study, issues of the placement of utilities above ground or below and the means to finance the cost to place utilities underground will be addressed.

Private Utility Goal #1- Encourage the placement of private utilities under ground whenever streets are reconstructed or new private development occurs.

#### **Policies:**

1. Develop a policy on financing the cost to place utilities underground.
2. Reevaluate utility placement policy as part of City's Arterial Streets Study.

## Appendix 8A

Richfield Water Supply Plan

(see separate document)

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