City of Shakopee
Sanitary Sewer Master Plan

Shakopee, Minnesota

January 2019

Sanitary Sewer Master Plan

FOR

SHAKOPEE

Shakopee, Minnesota
January 2019

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

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B MCES Shakopee/Chaska Interceptor Cost-Share Agreement

C City Code Chapter 52

D Scott County Ordinance – "Subsurface Sewage Treatment System Ordinance No. 4"

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Sanitary Sewer Master Plan (the Plan) for the City of Shakopee has been updated in accordance with Metropolitan Council Environmental Services (MCES) guidelines. The document serves both as an inventory of the existing sanitary sewer system and as a guide to extending future sanitary sewer improvements into developing areas of the community. The Plan is intended to address the short-term and long-term needs of the City's sanitary sewer system and to demonstrate conformance with the MCES Thrive 2040 regional plan.

1.2 EXISTING SYSTEM

The existing sewer system consists of 39 miles of trunk gravity sewer (pipes 10 inches or larger in diameter), 99 miles of lateral gravity sewer, 3 lift stations (2 that are active), and 3 miles of force main (pressurized) sewer. In areas of the City that do not have municipal sewer, there are 714 individual septic systems.

MCES has 10 miles of interceptor sewers in Shakopee, ranging in size from 36 inches to 72 inches in diameter. In addition to serving Shakopee, the interceptor sewers also serve the cities of Chaska and Prior Lake. The interceptors convey wastewater to the Blue Lake Wastewater Treatment Plant (WWTP), located in Shakopee.

1.3 POPULATION AND EMPLOYMENT FORECASTS

The Sanitary Sewer Master Plan has been developed in part to portray the condition of the trunk sewer system under future flow conditions, assuming growth in the community continues to occur. Development of a forward-looking plan identifies anticipated system changes and achieves sustainable capital improvements programming. While there are a variety of ways to project future growth, assessing potential growth from a regional perspective provides a broader context and allows local growth forecasts to better align with regional growth models. The Thrive MSP 2040 plan, prepared by the Metropolitan Council, contains population, household, and employment projections in 10-year intervals for the City through the 2040 planning period. The Land Use Plan contained in the Envision Shakopee 2040 Comprehensive Plan was also used for correlating growth projections in population, households, and employment with Thrive MSP 2040 estimates.

1.4 SANITARY SEWER FLOW PROJECTIONS

Using population, household, and employment projections developed by the Met Council, correlated with proposed land uses identified in the Envision Shakopee Land Use Plan, and an ultimate service area for municipal sewer, future sanitary sewer flows were predicted. Predicted

flows were then allocated to the proposed trunk sewer system, to aid in routing and sizing of the future system. Data from previous comprehensive sewer planning efforts indicates that wastewater generation rates of 75 gallons per capita day (gpcd) for residential property and 800 gallons per acre (gal/Ac) for non-residential property are adequate for planning purposes.

1.5 TRUNK SYSTEM ANALYSIS

An analysis of the existing trunk sewer system, which includes gravity sewers 10 inches in diameter and larger and the lift station and force main inherited from MCES, indicates the system has adequate capacity to safely and efficiently convey existing wastewater flows to the MCES interceptors.

A capacity analysis was conducted for the existing and future trunk system to identify any areas of concern and to verify the selected pipe sizes for the future system. The analysis indicates the expanded system has adequate capacity to safely and efficiently convey existing and projected wastewater flows to the MCES interceptors, with a few isolated exceptions. The areas of exception can generally be described as reaches of pipe between manholes where pipe slopes are flatter than minimum design standards, creating a potential for blockages during low flow periods or minor surcharges during peak flow periods. For these locations, more frequent monitoring and cleaning of the affected sewer main is desirable.

1.6 INFILTRATION & INFLOW

Historically, infiltration and inflow has not been a significant issue for the City. The City was not placed on the MCES List of Communities with Observed Excess I/I and has not been assessed any penalties for I/I exceedance events. Average daily flows have been on a downward trend since 2011 and observed peak flows in the last 10 years have been well below the I/I goal established for the City by MCES. Since 2008, the City has been proactively taking steps to mitigate the impacts of I/I.

1.7 FUTURE SANITARY SEWER SYSTEM

A future trunk sewer system was developed and modeled to efficiently convey sewer flows estimated for each one of fourteen (14) sewer districts. The future trunk sewers were generally located by extension of existing trunk sewers or by topography. Gravity mains were programmed to the extent possible, with sewer depths ranging from 9-30 feet, peak flow velocities maintained at 2-10 feet per second, and pipe capacities kept at 80% or less in peak flow conditions.

Two alternates were identified for the southwesterly part of the master planning area, affecting future pipe sizing and routing in four (4) of the fourteen sewer districts. The first alternate is intended to maximize use of the existing trunk sewer system and to maximize the benefit realized from previous investments in the system. The second alternate is intended to capitalize on the

desirability of development and redevelopment along the US Highway 169 corridor south of County Road 69. Final selection of an alternate will be dependent on development patterns within the City, as well as timing of annexations and subsequent development in Jackson and Louisville Townships.

Any trunk sewer extensions into Jackson Township will be required to adhere to the orderly annexation agreement in place with the Township. It is anticipated an orderly annexation agreement with Louisville Township will need to be created and executed before any trunk sewer extensions could be made into the Township.

1.8 CAPITAL IMPROVEMENTS

Capital improvement costs were estimated for the future expansion of the trunk sewer system. Estimated costs, which include a 10% construction contingency and a 25% overhead rate for legal, engineering, and administration, are categorized by sewer district in Table 9-1. Capital improvement costs are also categorized in 10-year intervals in Table 9-2. Estimated costs are in 2018 dollars and do not include costs associated with easement or land acquisition. A detailed opinion of probable cost for trunk sewer improvements can be found in the Appendix.

2.0 INTRODUCTION

2.1 PURPOSE AND SCOPE

The Sanitary Sewer Master Plan (the Plan) for the City of Shakopee is intended to address the short-term and long-term needs of the City's sanitary sewer system and it has been updated in accordance with Metropolitan Council Environmental Services (MCES) guidelines. The Plan also is intended to demonstrate conformance with the Metropolitan Council's Thrive 2040 regional plan, as well as its 2040 Water Resources Policy Plan, ensuring that the regional wastewater system has adequate capacity to serve the future needs of the region. The Plan was last updated in 2008, in a document titled, "Comprehensive Sanitary Sewer System Plan".

This document serves both as an inventory of the existing sanitary sewer trunk system and as a guide to extending future sanitary sewer trunk improvements into developing areas of the community. Using population and employment growth forecasts through 2040, along with the Land Use Plan from the Envision Shakopee 2040 Comprehensive Plan, corresponding sewer flow projections were developed to aid in identifying potential deficiencies in the existing system and to determine the appropriate size of future trunk system improvements necessary to serve the ultimate service area.

The Plan also looks at the impact of future development in Jackson and Louisville Townships to the City's trunk sewer system, as sewer extensions into the townships will likely come from Shakopee. Much of the future development in the townships is expected to occur outside the 20-

year planning horizon required by the Metropolitan Council. An Alternative Urban Areawide Review (AUAR) is being conducted for the west end of the City. The AUAR document is expected to be completed by the fall of 2019.

Future trunk system improvements were determined, general routing of improvements was identified, and the cost of improvements were estimated.

3.0 EXISTING SANITARY SEWER SYSTEM

3.1 GENERAL

The existing sewer system consists of 39 miles of trunk gravity sewer (pipes 10 inches or larger in diameter), 99 miles of lateral gravity sewer, 3 lift stations (2 that are active), and 3 miles of force main (pressurized) sewer (see Figures 3-1 and 3-2). Of the 15,800 acres contained within the City (excluding public rights of way), approximately 7,250 acres in the City are served by municipal sewer. The City's collection system flows into one of two MCES interceptor sewers, which convey wastewater to the Blue Lake Wastewater Treatment Facility for treatment. The Blue Lake plant is located in the northeastern part of the City.

Rahr Malting Company has a private wastewater treatment facility, commissioned in 2012, that discharges treated effluent from its industrial processes directly to the Minnesota River. The facility has a separate permit with the Minnesota Pollution Control Agency (MPCA).

3.2 LIFT STATIONS & PRESSURE SYSTEMS

There are three lift stations in the City's collection system, only two of which are currently in operation. All three stations have submersible pumps with reinforced concrete wet wells.

The City assumed ownership of lift station L16 (along with the associated force main and downstream gravity interceptor) from MCES in 2009.

The Whispering Oaks neighborhood in the southeast part of the City has been connected to the City of Savage's sewer collection system through a lift station since 2003. In early 2018, the City of Shakopee completed a gravity sewer extension to the neighborhood, allowing the existing lift station to be decommissioned and taken out of service.

Capacity characteristics of each lift station are shown in Table 3-1.

Table 3-1 Lift Station Capacities

Lift Station	Present Capacity (MGD)	Ultimate Capacity (MGD)	Force Main Size (inches)	Capacity in GPM
L16[1]	5.33	5.33	16	3,700
Wal-Mart (L07)	1.44	1.44	8	1,000
Whispering Oaks [2]	0.13	0.13	4	90

[1] *The City assumed ownership from MCES in 2009.*
[2] *Lift station taken out of service in 2018.*

In 2014, a low-pressure collection system was installed in Cretex Avenue and Stagecoach Road between 70th Street and US Highway 169 to serve an industrial area that could not be effectively reached by gravity sewer. The system generally consists of a 3-inch collection force main (about 6500 feet in length), a series of air release, maintenance, and flushing manholes, and several 2-inch service connections. Since the original construction, additional services have been added.

3.3 MCES INTERCEPTORS

MCES has 10 miles of interceptor sewers in Shakopee, ranging in size from 36 inches to 72 inches. In addition to serving Shakopee, the interceptor sewers also serve the cities of Chaska and Prior Lake. The interceptors convey wastewater to the Blue Lake Wastewater Treatment Plant (WWTP), located in Shakopee (Figure 3-3).

In 1994, prior to extension of the Shakopee/Chaska interceptor from the Blue Lake facility to Chaska, the City of Shakopee entered into a cost-share agreement with MCES. A copy of the agreement can be found in the Appendix. Per the agreement, the City is responsible for a portion of the cost of the interceptor project. A portion of the City's cost share has been paid but there is another portion remaining to be paid. Payment of the outstanding balance is linked to future City growth and related usage of the interceptor. City staff and MCES staff are cooperatively monitoring new sewer connections and corresponding flows to determine when a final payment will be required.

3.4 INTERCOMMUNITY CONNECTIONS

The City has one existing connection to another community's sewer collection system. The Whispering Oaks neighborhood in the southeast part of the City has been connected to the City of Savage's sewer collection system through a lift station since 2003 and a joint powers agreement was executed between the two communities at that time. In early 2018, the City of

Shakopee completed an extension of gravity sewer to the Whispering Oaks neighborhood, allowing the existing lift station to be taken out of service by disconnecting the existing force main from the Savage system. The existing joint powers agreement was dissolved in 2018.

3.5 INDIVIDUAL SEWAGE TREATMENT SYSTEMS

In areas of the City that do not currently have municipal sewer (approximately 8,550 acres), there are 714 individual septic systems (see Figure 3-4), according to Scott County records. Scott County is responsible for oversight and administration of individual septic systems in the City. By City ordinance, property owners have 3 years to connect to the City's collection system once sewer service has been provided to an area. Owners of failed septic systems are required to connect immediately to the City's collection system where municipal service is available.

3.6 LARGE SEWER USERS

While the City does not meter sewer flows from individual contributors, it is common to see a correlation between major sewer flow generators and major water users. Through a review of Shakopee Public Utility Commission (SPUC) water meter billing records from 2017, the top ten water users in the City were identified, as shown in Table 3-2.

Table 3-2 Major Water Customers (2017)

Customer	Water Purchased (Gallons)
Private #1	48,668,000
Public #1	40,043,000
Public #2	26,651,000
Private #2	25,497,000
Private #3	20,091,000
Private #4	18,888,000
Private #5	16,108,000
Public #3	15,692,000
Public #4	15,678,000
Private #6	12,852,000
Total	**249,168,000** [1]

[1] *Represents 15% of Total Water Sold by SPUC in 2017.*

Rahr Malting Company historically generates about 1 MGD of wastewater from its industrial processes. Since 2012, Rahr has treated its wastewater with its own onsite treatment facility and effluent from the treatment facility is discharged directly to the Minnesota River, bypassing the City's collection system.

3.7 EXISTING WASTEWATER FLOWS

MCES has three metering stations that measure wastewater flows entering and leaving the City. Meter Station M443A measures flows entering Shakopee from Chaska, Meter Station M404 measures flows entering Shakopee from Prior Lake, and Meter Station M402A/B measures flows entering the Blue Lake Treatment facility from Shakopee. Hourly, monthly, and annual flow data are captured by the metering system. Historical flow data for the 10-year period from 2008 – 2017 is shown in Table 3-3.

Table 3-3 Historical Wastewater Flow

Year	Population	Average Annual Flow (MGD)	Average Dry Weather Flow (MGD)	Peak Day Flow (MGD)	Average Annual Per Capita Flow (GPCD)	Average Dry Weather Per Capita Flow [1] (GPCD)
2008	35,630	3.22	3.18	4.97	90	89
2009	35,075	3.47	3.14	4.07	99	89
2010	36,946	3.82	3.37	4.99	103	91
2011	37,999	4.05	3.42	5.75	107	90
2012	38,765	3.42	3.25	5.42	88	84
2013	39,209	3.47	2.95	5.07	89	75
2014	39,552	3.09	2.83	7.04	78	72
2015	39,940	2.84	2.80	3.65	71	70
2016	40,521	2.82	2.74	4.20	70	68
2017	40,893	2.80	2.64	4.71	68	65
Average		**3.30**	**3.03**	**4.99**	**75.2[2]**	**70.0[2]**

[1] *Dry weather flow is for the months of January, February, November, and December.*
[2] *5-year average for 2013 – 2017.*

Historically, flows through the Whispering Oaks lift station that are discharged to the City of Savage collection system have not been metered. Now that a gravity extension to the neighborhood has been installed, flows from this neighborhood will be measured through Meter Station M402A/B.

3.8 SYSTEM CONDITION

According to City public works maintenance staff, the existing collection system is in good overall condition. As sewer mains age, some replacement and/or rehabilitation work is inevitable. Since 2008, the City has replaced 7.7 miles of gravity sewer mains and has lined 7.94 miles of existing

sewer (Figure 3-5). In addition to lining main line sewers, the City has also lined 370 service laterals.

There is an existing building at the site of lift station L16 that is no longer needed and should be demolished. The old wet well inside the building provides additional storage during peak flow conditions and should be preserved. A feasibility study should be conducted to assess the extent of removals and improvements needed at the site.

In the downtown area, many of the sewer mains have been lined, resulting in an extension of their useful service life. There are a number of service laterals in the downtown area that should also be lined, allowing for an extension of their useful life, greatly reducing the likelihood of their collapse and/or failure, and protecting other infrastructure in the area.

The telemetry system for lift station L16 and for the Wal-Mart lift station has reached the end of its useful life and is in need of an upgrade or replacement.

The existing lift station and force main in the Whispering Oaks neighborhood have been taken out of service. An evaluation of the lift station and force main needs to be conducted to determine the most efficient means of abandoning and decommissioning the facility.

The low-pressure system in Cretex Avenue and Stagecoach Road has experienced some issues with sewer backups during routine flushing and cleaning operations. Part of the problem stems from a lack of sufficient details and records provided for the service connections. Further analysis of the system is required to confirm the minimum and maximum operating pressure range, both during normal operation and during periodic maintenance procedures.

The collection system within the Valley Haven Mobile Home Park, near lift station L16, has several issues, including but not limited to, ongoing infiltration, inflow during Minnesota River flood events, lines located beneath mobile home units, and a bulkheaded connection point which eliminates the ability to clean and televise the line. Because of these issues, the system has been abandoned by the City and turned over to the property owner.

There is a section of sewer main along the Minnesota River that has been adversely affected by bank erosion along the river. Bank stabilization is needed to protect this segment of sewer.

There is a location where the MCES Chaska interceptor crosses County Road 15 that has noticeable odor issues. There also are several locations where corrosion in City sewer manholes immediately upstream of the MCES Chaska interceptor has been observed. City staff has discussed these issues with MCES staff and the situations are being monitored.

An analysis of the existing trunk sewer system, which includes gravity sewers 10 inches in diameter and larger and the lift station and force main inherited from MCES, indicates the system has adequate capacity to safely and efficiently convey existing wastewater flows to the MCES interceptors. One notable exception is an existing 18-inch main connecting to the MCES Chaska

interceptor underneath US Highway 169 at Canterbury Road. This segment of main, which has recently been lined and is being transferred to City ownership by MCES, does not have adequate capacity to convey flows generated from a full buildout condition. Available capacity of the trunk system is shown in Figure 3-6.

4.0 POPULATION AND EMPLOYMENT FORECASTS

4.1 GENERAL

The Sanitary Sewer Master Plan has been developed in part to portray the condition of the trunk sewer system under future flow conditions, assuming growth in the community continues to occur. Development of a forward-looking plan identifies anticipated system changes and achieves sustainable capital improvements programming. To appropriately identify future growth and the size and extent of a trunk sewer system needed to serve that growth, a forecast of development and associated population, number of households, and employment projections is required. While there are a variety of ways to project future growth, assessing potential growth from a regional perspective provides a broader context and allows local growth forecasts to better align with regional growth models.

4.2 METROPOLITAN COUNCIL PROJECTIONS

The Thrive MSP 2040 plan, prepared by the Metropolitan Council, contains population, household, and employment projections in 10-year intervals for the City through the 2040 planning period. Rather than developing its own growth forecast, the City has opted to use the growth projections created by the Metropolitan Council. The projections, which are City-wide and are not broken down into sub-areas or districts, are shown in Table 4-1.

Table 4-1 Metropolitan Council Projections - SHAKOPEE

Shakopee				
	Census	Met Council Projections		
	2010	2020	2030	2040
Population	36,946	47,800	55,900	62,600
Households	12,722	16,300	19,400	22,100
Employment	18,831	25,700	29,100	32,800

In its Thrive 2040 Plan, the Metropolitan Council has broken down population, household, and employment projections into sewered and unsewered components, where the sewered population is the number of residents served by the MCES regional collection system and the unsewered population is on individual collection/septic sewer systems. This information is contained in Table 4-2.

Table 4-2 Metropolitan Council Projections (Sewered & Unsewererd)

Forecast Year	Component	Population	Households	Employment
2010	MCES Sewered	34,646	11,942	18,831
2010	Unsewered	2,300	780	Unknown
2020	MCES Sewered	45,500	15,530	25,700
2020	Unsewered	2,300	770	Unknown
2030	MCES Sewered	53,650	18,650	29,100
2030	Unsewered	2,250	750	Unknown
2040	MCES Sewered	60,500	21,400	32,800
2040	Unsewered	2,100	700	Unknown

4.3 TOWNSHIP PROJECTIONS

At the time the City's 2030 Comprehensive Sanitary Sewer Plan was adopted in 2008, MCES was contemplating construction of a potential wastewater treatment facility in Louisville Township as part of its long-range plan. Consequently, the City's 2030 Plan looked at two scenarios for its future wastewater collection system: (1) Diverting a portion of its future collection system to a new treatment facility in Louisville Township; and (2) Routing all future flows from Louisville and Jackson Townships through the City's collection system to the Blue Lake treatment facility.

In recent discussions with MCES, they have indicated they have no plans for another treatment facility along the Minnesota River within a 2050 planning horizon. Without a new treatment facility, any extension of municipal sewer into Jackson and Louisville Townships would have to come through Shakopee. While the two townships are not currently served by municipal sewer, the City of Shakopee (consistent with previous comprehensive planning efforts) believes it is prudent to account for potential long-term development in the townships in planning for its sanitary sewer system. The City has an orderly annexation agreement in place with Jackson Township but does

not have an agreement in place with Louisville Township. Population, household, and employment projections for the two townships are shown in Table 4-3.

Table 4-3 Metropolitan Council Projections - TOWNSHIPS

Jackson Township				
	Forecast Year			
	2010	2020	2030	2040
Population	1,464	1,490	1,440	1,420
Households	486	500	510	510
Employment	168	340	430	530
Louisville Township				
	Forecast Year			
	2010	2020	2030	2040
Population	1,266	1,270	1,270	1,280
Households	425	440	450	450
Employment	298	420	450	460

5.0 SANITARY SEWER FLOW PROJECTIONS

5.1 GENERAL

Using population, household, and employment projections developed by MCES, in conjunction with proposed land uses and development phasing identified in the Envision Shakopee Land Use Plan, and an ultimate service area for municipal sewer, future sanitary sewer flows were predicted. Predicted flows were then allocated to the proposed trunk sewer system, to aid in routing and sizing of the future system.

Data from previous comprehensive sewer planning efforts indicates wastewater generation rates of 75 gpcd for residential property and 800 gal/Ac for non-residential property are sufficient for planning purposes.

5.2 LAND USE PLAN

The 2040 Envision Shakopee Land Use Plan served as the basis for development of sanitary sewer flow projections and analysis of the proposed trunk system (see Figure 5- 1). Undeveloped areas have a land use assigned to them. Assumed and proposed land uses for Jackson and Louisville Townships have been included in the analysis. Land use flow factors were used to allocate projected flows in both developed and undeveloped areas, enabling a system-wide model to be created.

5.3 SHAKOPEE MDEWAKANTON SIOUX COMMUNITY

For many years, the Shakopee Mdewakanton Sioux Community (SMSC) has been acquiring property in the vicinity of their reservation and this practice is expected to continue. As a sovereign nation, SMSC has the authority to self-determine how to provide municipal services to their members and they typically provide municipal sewer and water services to property under their control. Consequently, SMSC-controlled land has not been incorporated into the City's land use or infrastructure planning efforts.

5.4 SANITARY SEWER DISTRICTS

The ultimate sewer service area is divided into fourteen (14) districts. Sewer district boundaries were determined by existing topography and natural geographic boundaries (i.e., major roadways). For modeling purposes, each district was further subdivided into sub-districts, allowing for assignment of estimated sewer flows at specific points within each district. In undeveloped areas, proposed land use and gross developable acreages were utilized to determine estimated sewer flows. Gravity sewer mains, lift stations, and force mains required to accommodate projected flows were sized for peak flows in each sub-district.

The 14 sewer districts are described as: Northeast Shakopee (NES), North Shakopee (NS), North Central Shakopee (NCS), Northwest Shakopee (NWS), West Shakopee (WS), East Shakopee (ES), Southeast Shakopee (SES), Central Shakopee (CS), South Shakopee (SS), Jackson Shakopee (JS), South Louisville Jackson (SLJ), West Jackson (WJ), West Louisville Jackson (WLJ), and Southwest Louisville (SWL). The districts are shown in Figures 3-2 and 3-6. Characteristics of each district are described below:

5.4.1 Northeast Shakopee (NES)

This district lies within the City's existing service area and is comprised primarily of industrial land uses. Much of the district lies within the Minnesota River floodplain or within US Highway 169 right of way and is undevelopable. An MCES interceptor is located on the west end of the district. Within the last three years, a low-pressure system was installed to serve a portion of the district that lies north of County Road 101.

5.4.2 North Shakopee (NS)

This district is within the City's existing service area and has a variety of land uses, including entertainment, mixed employment, mixed residential, and industrial. Canterbury Park and Valley Fair are both located in the district and additional development around Canterbury Park is anticipated. The district is primarily served by a 36- or 42-inch trunk sewer along County Road 101, with some flows directed to the MCES interceptor along US Highway 169.

5.4.3 North Central Shakopee (NCS)

This district is fully developed, and its land uses include mixed use commercial and mixed employment. The district is served by several 10-inch and 12-inch trunk sewers that connect to the MCES interceptor along US Highway 169.

5.4.4 Northwest Shakopee (NWS)

This district is almost fully developed, and its land uses include the core downtown area, public institutions, and an array of residential and commercial uses. Redevelopment is anticipated in some parts of the district. The district is primarily served by several trunk sewers, ranging in size from 10 inches to 21 inches, that ultimately connect to lift station L16, the former MCES lift station which was transferred to City ownership.

5.4.5 West Shakopee (WS)

This district is almost fully developed, and its land uses are primarily residential, with some commercial and public institution uses contained in the district. The district is primarily served by a trunk sewer, ranging in size from 10 inches to 21 inches, that connects to the MCES interceptor along US Highway 169.

5.4.6 East Shakopee (ES)

About 60% of this district has been developed with a mix of residential, commercial and employment uses. The undeveloped part of the district is characterized primarily by rural residential uses with individual sewer treatment systems. The district is mainly served by two trunk sewers (one is a 15-inch line and the other ranges in size from 12 to 21 inches) that

connect to the MCES Prior Lake interceptor. Lift station 07 (capacity of 1000 gpm) is located in this district.

5.4.7 Southeast Shakopee (SES)

Although the MCES Prior Lake interceptor runs through this district, a very small portion of the district is currently served by municipal sewer. Most of the district is characterized by low density or rural residential uses with individual sewer treatment systems. The remainder of the district consists of open space. The Whispering Oaks lift station is located in this district. There are some small pockets in the district that will be difficult to reach with gravity sewer and these areas may ultimately be served by small localized lift stations.

5.4.8 Central Shakopee (CS)

About two-thirds of this district has been developed with a mix of commercial and residential uses. The undeveloped part of the district is either open space or rural residential with individual sewer treatment systems. The district is served by several trunk sewers, ranging in size from 10 to 18 inches, that connect to the MCES interceptor along US Highway 169.

5.4.9 South Shakopee (SS)

Only a very small portion of this district is currently served by municipal sewer. The district has essentially been split by land acquisitions made by the SMSC. The northerly part of the district is characterized by a mix of residential, commercial, and open space uses and is served by either a 10-inch trunk sewer or an 18-inch / 24-inch trunk sewer, both of which connect to the MCES interceptor along US Highway 169. The southerly part of the district is made up of rural residential and open space uses, with the rural residential areas utilizing individual sewer treatment systems. There are no existing trunk sewers in the southern part of the district.

5.4.10 Jackson Shakopee (JS)

About 40% of this district has been developed with a mix of residential and public institution uses. The undeveloped portion of the district is currently a mix of rural residential and open space uses, with the rural residential areas utilizing individual sewer treatment systems. The district is served by two trunk sewers that extend from the MCES interceptor along US Highway 169: (1) A 12-inch main in the westerly part of the district; and (2) A 12-inch to 18-inch main in the easterly part of the district.

5.4.11 South Louisville Jackson (SLJ)

Only a very small portion of this district has been developed, with a mix of commercial and residential uses near US Highway 169 currently served by municipal sewer. The undeveloped

part of the district is characterized by a mix of agricultural, rural residential, and open space uses with the rural residential areas utilizing individual sewer treatment systems. The district is served by two trunk sewers that extend from the MCES interceptor along US Highway 169: (1) A 24-inch main in Lusitano Street; and (2) An 18-inch to 27-inch main in the Windemere Farms subdivision.

5.4.12 West Jackson (WJ)

This district is undeveloped and is characterized by a mix of agricultural, rural residential, and open space uses with the rural residential areas utilizing individual sewer treatment systems. There are no existing trunk sewers in the district.

5.4.13 West Louisville Jackson (WLJ)

This district is largely undeveloped and is characterized by a mix of agricultural, rural residential, and open space uses with the rural residential areas utilizing individual sewer treatment systems. There is some commercial usage along the US Highway 169 corridor. The MCES connection to Chaska passes through this district.

5.4.14 Southwest Louisville (SWL)

This district is undeveloped and is characterized by a mix of agricultural, rural residential, and open space uses with the rural residential areas utilizing individual sewer treatment systems. There are no existing trunk sewers in the district.

5.5 PEAK FLOW FACTORS

The sanitary sewer system must be capable of handling anticipated wastewater flows during periods of peak activity, as wastewater flows tend not to occur evenly over a 24-hour period. Peak flows also can occur during periods of wet weather or during Minnesota River flood events. Wet weather and flood events can cause infiltration and/or inflow (I/I) into the sanitary sewer system. The design peak flow rate can be expressed as a variable ratio to the average flow rate. Graphical curves used to describe this ratio, called the Peak Flow Factor (PFF), typically indicate a decreasing ratio of peak flow to average flow as average flows increase.

MCES has developed PFF curves for the regional system, resulting from analysis of the extensive flow data in their system. Application of these curves was made to the model developed for the City's existing and future collection system. Table 5-1 contains the MCES peaking factors.

Table 5-1 Design Peaking Factor Table

MCES Flow Variation Factors for Sewer Design

Average Flow (MGD)	Peak Hourly Flow Factor	Average Flow (MGD)	Peak Hourly Flow Factor
0.00 – 0.11	4.0	1.90 – 2.29	2.8
0.12 – 0.18	3.9	2.30 – 2.89	2.7
0.19 – 0.23	3.8	2.90 – 3.49	2.6
0.24 – 0.29	3.7	3.50 – 4.19	2.5
0.30 - 0.39	3.6	4.20 – 5.09	2.4
0.40 – 0.49	3.5	5.10 – 6.39	2.3
0.50 – 0.64	3.4	6.40 – 7.99	2.2
0.65 – 0.79	3.3	8.00 – 10.39	2.1
0.80 – 0.99	3.2	10.40 – 13.49	2.0
1.00 – 1.19	3.1	13.50 – 17.99	1.9
1.20 – 1.49	3.0	18.00 – 29.99	1.8
1.50 – 1.89	2.9	over 30.00	1.7

MCES recognizes that peaking factors reflect the philosophy that most local and regional sanitary sewer systems have been designed for an average combined flow of 100 gallons per capita per day for residential, commercial, and industrial uses. Since actual average flows in the regional system are around 85 gallons per capita per day, MCES has adjusted the peak flow factors upward to accommodate the difference in design vs. average flow values. This adjustment has been used to identify the extent of I/I permitted in the system and to determine the peak flow metershed goals for an individual community. Table 5-2 summarizes the metershed goal peaking factors used by MCES.

Table 5-2 MCES Metershed Goal Peaking Factors
Wastewater Flow Variation Factors for Determining Infiltration/Inflow Mitigation Goals

Average Flow (MGD)	Peak Hourly Flow Factor	Average Flow (MGD)	Peak Hourly Flow Factor
<0.10	4.5	2.51 – 3.00	3.2
0.11 – 0.20	4.4	3.01 – 3.50	3.1
0.21 – 0.30	4.3	3.51 – 4.00	3.0
0.31 – 0.40	4.2	4.01 – 4.50	2.9
0.41 – 0.50	4.1	4.51 – 5.00	2.8
0.51 – 0.60	4.0	5.01 – 6.00	2.7
0.61 – 0.70	3.9	6.01 – 8.00	2.6
0.71 – 0.80	3.8	8.01 – 10.00	2.5
0.81 – 1.00	3.7	10.01 – 12.00	2.4
1.01 – 1.20	3.6	12.01 – 16.00	2.3
1.21 – 1.50	3.5	16.01 – 20.00	2.2
1.51 – 2.00	3.4	20.01 – 30.00	2.1
2.01 – 2.50	3.3	>30.00	2.0

5.6 WASTEWATER FLOW PROJECTIONS

When forecasting wastewater flows for developing communities, historical data may be of limited use in projecting future flows. Several factors, such as existing soil conditions in developing areas, changes in construction methods and materials, modifications in a city's development and subdivision policies, and variations in development and household density, can cause wastewater generation rates to vary substantially from historical averages.

The 10-year annual average per capita flow from Shakopee is 86 gallons per day (gpcd), while the overall average for the MCES regional system is 85 gpcd. It should be noted that since 2012,

when Rahr Malting commissioned its own wastewater treatment facility, the average per capita flow from Shakopee has dropped to 75 gpcd. This average is more than 10% below the MCES average for the region.

Flow projections for Jackson and Louisville Township were made and were included in the analysis, based on the hypothetical land uses shown in the Land Use Plan. Since MCES has indicated there are no plans for another wastewater treatment facility along the Minnesota River within a 2050 planning horizon, any future municipal sewer service to the two townships would have to come through Shakopee. Therefore, it is prudent to incorporate flow projections for the townships into the analysis for Shakopee.

Average annual wastewater flow projections (in 5-year increments) through 2040 are shown in Table 5-3.

Table 5-3 Average Annual Wastewater Flow Projections

Year	Projected Total Average Annual Flow (MGD)
	M402S[1]
2020	3.74
2025	4.09
2030	4.66
2035	5.17
2040	5.49

(1) Reflects net flow through meter station attributed to Shakopee

6.0 TRUNK SYSTEM ANALYSIS

6.1 GENERAL

In order to gain an understanding of the hydraulic capacity of the existing wastewater collection system, a hydraulic model of the existing trunk sewer system, which includes gravity sewers 10 inches in diameter and larger and the lift station and force main inherited from MCES, was developed. Use of the City's GIS database, along with water metering data furnished by SPUC, allowed wastewater flows to be allocated throughout the community. Future sewer flows were

estimated by using the Envision Shakopee Land Use Plan and wastewater generation rates were correlated with proposed land uses in undeveloped areas.

6.2 SYSTEM DESIGN RECOMMENDATIONS

Available capacity in the existing trunk system was analyzed using the hydraulic model and results are shown in Figure 3-6. After available capacity was determined, a layout of future trunk sewers was created. Using established design criteria for minimum pipe slopes and velocities, available ground surface elevation data from the GIS database, and installation depths ranging from 9 – 30 feet, pipe sizes for the future trunk system were developed and incorporated into the model. Limiting sewer depth to no more than 30 feet is prudent in areas where street right of way widths are typically 60 to 70 feet, as a deeper sewer line would be very difficult to maintain and replace in the future.

A capacity analysis was conducted for the existing and future trunk system to identify any areas of concern and to verify the selected pipe sizes for the future system. The analysis indicates the system has adequate capacity to safely and efficiently convey existing and projected wastewater flows to the MCES interceptors, with some isolated exceptions.

7.0 INFILTRATION & INFLOW

7.1 GENERAL

In 2003-04, the Metropolitan Council appointed a task force to study the impacts of excess infiltration and inflow (I/I) on the regional sewer system. Infiltration is described as ground water that enters the sewer collection system through defects in sewer pipes, pipe joints, manhole joints, or service laterals. Inflow is described as generally clean water (typically stormwater runoff) that enters the sewer collection system through connections to sump pumps, floor drains, roof drains, manhole covers, or cross connections to storm sewer pipes. The impact from I/I is that peak sanitary sewer flows are typically increased during and after rainfall events. The task force determined that the cost of treating the excess water entering the sewer system was much greater than the cost of eliminating the sources of excess water. As a result, MCES has developed a program that focuses on source removal of I/I at the local and regional level.

In 2009-10, the Metropolitan Council Demand Charge Task Force reviewed I/I program goals and considered implementation of a demand charge for communities with excess I/I. Instead of a mandatory demand charge, MCES staff were given discretion to institute a demand charge for a community if the respective community was not working toward meeting its I/I reduction goals.

The MCES 2040 Water Resources Policy Plan, initially adopted in May 2015 and subsequently amended, established I/I goals for all communities discharging wastewater to the regional system. The I/I goals were established on a metershed basis, where a metershed correlates with the

MCES metering location(s) for an individual community. Under this policy, communities with excessive I/I will be required to eliminate their excess I/I within a reasonable period of time.

The stated I/I goal is the maximum allowable discharge to the regional system, expressed as a peak hourly flow rate and defined in million gallons per day (MGD). The peak hourly flow rate is determined by multiplying the average daily flow by a peak hourly flow factor, where the average daily flow is based on 10 years of recent metering data. The average daily flow is then adjusted upward to account for future population growth. The system-wide metershed goal for Shakopee is shown in Table 7-1).

Table 7-1 Current MCES Metershed Goals

Monitoring Period: Jan 1 – Dec 31, 2019			
Metershed	Adjusted Total Daily Flow (MGD)	Peak Hourly Flow Factor	I/I Goal (MGD)
M402S	3.411	3.10	10.57

7.2 EXISTING I/I

Historically, infiltration and inflow has not been a significant issue for the City. The City was not placed on the MCES List of Communities with Observed Excess I/I and has not been assessed any penalties for I/I exceedance events. Average daily flows have been on a downward trend since 2011 and observed peak flows in the last 10 years have been well below the I/I goal established for the City by MCES.

Average dry weather flows can be compared to annual average and peak month flows to estimate the amount of I/I that enters the sewer system. A comparison of annual average flows to average dry weather flows in Shakopee for the last 10 years indicates that average flows in the dry weather months (November – February) make up 92% of the annual average daily flow. These results appear to indicate that infiltration is not a significant contributor to Shakopee's average sewer flows.

To understand whether groundwater plays a role during dry weather periods, average dry weather flows can be compared to water use records for the same period. These flows should closely correlate since rainfall events and lawn irrigation typically don't occur in the winter months.

By looking at sewer flows over the course of a year, it is possible to quantify I/I on an average basis. Without a significant amount of flow monitoring (i.e., metering) throughout the collection system, however, it is very difficult to determine the inflow contributions from peak instantaneous or peak hour events. A one-inch rainfall event could have a significant impact or a negligible impact, depending on the duration and intensity of the event, as well as its relationship to other

rainfall events. Typically, no two rainfall events are the same and, at best, only general patterns can be determined for specific rainfall amounts. Historically, there has been a limited amount of data collected by the City that can be used to correlate rainfall events with I/I.

As requested by MCES, an inventory of existing building stock age in the City was developed. Figure 7-1 identifies pre-1970 building stock, post-1970 building stock, and areas that are either undeveloped or where the age of buildings has not been documented.

Table 7-2 summarizes average flows, peak flows, the ratio of average dry weather flow to average annual flow, and the ratio of peak flows to average flows from 2008 – 2017. The ratio of peak flow to average flow falls well below the peaking factors used by MCES for the average flow that is being generated in Shakopee and the 10-year peak day flow average is less than 50% of the I/I goal established by MCES.

Table 7-2 Average Annual Wastewater Flow

Year	Population	Average Annual Flow (MGD)	Average Dry Weather Flow (MGD)	Peak Day Flow (MGD)	Avg Dry Flow to Avg Annual Flow Ratio	Peak Flow to Average Annual Flow Ratio
2008	35,630	3.22	3.18	4.97	0.99	1.54
2009	35,075	3.47	3.14	4.07	0.90	1.17
2010	36,946	3.82	3.37	4.99	0.88	1.31
2011	37,999	4.05	3.42	5.75	0.84	1.42
2012	38,765	3.42	3.25	5.42	0.95	1.58
2013	39,209	3.47	2.95	5.07	0.85	1.46
2014	39,552	3.09	2.83	7.04	0.92	2.28
2015	39,940	2.84	2.80	3.65	0.99	1.28
2016	40,521	2.82	2.74	4.20	0.97	1.49
2017	40,893	2.80	2.64	4.71	0.94	1.68
Average		**3.30**	**3.03**	**4.99**	**0.92**	**1.52**

7.3 COMMUNITY GOALS, POLICIES, AND STRATEGIES TO REDUCE I/I

The City of Shakopee is committed to reducing I/I in its sanitary sewer system, where feasible, and will continue to explore opportunities to eliminate I/I. Some of these opportunities include continuation of sewer replacement and sewer lining programs, where appropriate, consideration of a sump pump inspection program, continuation of a manhole sealing program, wet weather review and monitoring of problem areas, and provision of ongoing I/I education programs for its citizens.

7.4 COMMUNITY REQUIREMENTS AND STANDARDS TO MINIMIZE I/I

Chapter 52 of the City Code prohibits discharge from roof water, ground water, and natural precipitation to the sanitary sewer system. A copy of the chapter is in the Appendix.

Per City Code, design and construction of all new sanitary sewer lines must be reviewed and inspected by the City Engineer before the lines can be put into service. As part of the required inspection, new sewer lines must pass a deflection test and a pressure test and must be cleaned and televised.

7.5 MITIGATION PLAN

Since 2008, the City has been proactively taking steps to mitigate the impacts of I/I. These steps have included:

- Replacement of 7.7 miles (40,650 linear feet) of sanitary sewer mains, using PVC pipe to replace the existing vitrified clay pipe, at a total cost of $2,991,525.
- Lining of 7.94 miles (41,940 linear feet) of vitrified-clay sanitary sewer mains to seal leaking pipe joints and to preserve the integrity of the existing pipe at a total cost of $1,316,975.
- Lining of 370 sewer service laterals to seal leaking pipe joints and to preserve the integrity of the existing service lines at a total cost of $1,888,750.
- Partnering with MCES to rehabilitate (via cured-in-place-pipe lining) 7,200 linear feet of 42-inch trunk sewer (formerly the Shakopee Interceptor owned by MCES and transferred to the City) downstream of lift station L16.
- Sealing manholes in targeted areas that are susceptible to Minnesota River flooding.
- Eliminating an infiltration source in the Shakopee Valley RV Park discovered during a Spring 2011 flood event of the Minnesota River. The source pipe was disconnected and capped.

- Inspection and repair of manholes in street reconstruction and street rehabilitation project areas.
- Sealing of existing sewer manhole joints in street reconstruction project areas.
- Reviewing and updating City design standards every two years.
- Televising of nearly 105 miles of new or existing sanitary sewer pipe, which represents more than 75% of the City's system.
- Providing annual staff training on NPDES requirements and on illicit discharge program.
- Maintaining a map of targeted "trouble spots" to be checked during wet weather events.
- Providing resident education through a City blog site.

Many of the measures identified above are ongoing and will continue into the foreseeable future. As an example, the City's 2019-2023 Capital Improvement Plan contains several projects that continue the City's practice of lining sewer mains and services and repairing manholes in street reconstruction project areas. Other mitigation actions the City is planning or considering include:

- Installation of temporary flow meters to monitor wet weather flows in 2019 (planned).
- Adoption of an ordinance that prohibits discharge from sump pumps, foundation drains, and rain leaders to the sanitary sewer system (planned).
- Adoption of an ordinance requiring the disconnection of existing sump pumps, foundation drains and rain leaders from the sanitary sewer system (planned).
- Installation of permanent flow meters at key locations in the system to assist in monitoring sewer flows, especially during wet weather periods (planned).
- Expansion of education efforts for property owners to better understand I/I impacts (planned).
- Implementation of a sump pump inspection program (to be considered).
- Investigation of a point of sale inspection program (to be considered).

8.0 FUTURE SANITARY SEWER SYSTEM

8.1 FUTURE TRUNK SEWER SYSTEM

Using the wastewater flow projections identified in Chapter 5, a future trunk sewer system was modeled to efficiently convey sewer flows estimated for each sewer district. The future trunk sewers were generally located by topography or by extension of existing trunk sewers. Gravity

mains were programmed to the extent possible, with sewer depths ranging from 9-30 feet, peak flow velocities maintained at 2-10 feet per second, and pipe capacities kept at 80% or less in peak flow conditions.

For the southwesterly portion of the master planning area, two alternates were considered, affecting future pipe sizing and routing in four (4) of the fourteen sewer districts. Districts affected by the two alternates include Northwest Shakopee, South Louisville Jackson, West Louisville Jackson, and Southwest Louisville. The first alternate is intended to maximize use of the existing trunk sewer system and to maximize the benefit realized from previous investments made in the system. The second alternate is intended to capitalize on the desirability of development and redevelopment along the US Highway 169 corridor south of County Road 69. The final selection of an alternate will be largely dependent on the following factors:

- Timing of redevelopment along the County Road 69 corridor in the Northwest Shakopee district. If redevelopment along this corridor occurs before development in the West Louisville Jackson district takes place, extension of a 12-inch trunk sewer from an existing 10-inch trunk sewer in 3rd Avenue West could be made to support redevelopment (Alternate 1). If development in the West Louisville Jackson district occurs first, sewer flows from the County Road 69 corridor could be routed to the West Louisville Jackson district (Alternate 2).

- Timing of a trunk sewer extension from an existing 24-inch trunk sewer in Lusitano Street in the South Louisville Jackson district. Extension of this trunk sewer, which is the driving factor for Alternate 1, would need to be made through several neighborhoods that have already been developed into large rural residential lots. Further development of many of these properties to support the extension of municipal sewer will be challenging. According to Envision Shakopee documents, this is an area that isn't planned to go through the orderly annexation process with Jackson Township until 2050. If the trunk sewer extension is made before development in the Southwest Louisville district occurs, future sewer flows in the Southwest Louisville district could be routed to the trunk extension (Alternate 1). If the trunk sewer extension is not made, future sewer flows in the Southwest Louisville district would need to be routed through the West Louisville district to the MCES Chaska interceptor (Alternate 2).

- Timing of development along the US Highway 169 corridor in the West Louisville Jackson district. If development in this district precedes extension of the trunk sewer in Lusitano Street in the South Louisville Jackson district, trunk sewer improvements along the US Highway 169 corridor would need to be sized to accommodate future flows from the Southwest Louisville district (Alternate 2).

- Timing of development along the US Highway 169 corridor in the Southwest Louisville district. If development in this district precedes extension of the trunk sewer in Lusitano Street in the South Louisville Jackson district, sewer flows generated in the district would

need to be routed along the US Highway 169 corridor to the West Louisville Jackson district and ultimately to the MCES Chaska interceptor (Alternate 2).

- Timing of an orderly annexation agreement with Louisville Township. Municipal development within the township boundaries is not likely to occur without execution of an agreement between the two jurisdictions.

The future trunk sewer system for Alternate 1 is shown in Figures 8-1A and 8-1B. The future trunk sewer system for Alternate 2 is shown in Figures 8-2A and 8-2B. Recommended trunk sewer improvements for each sewer district are summarized below:

8.1.1 Northeast Shakopee (NES)

While there is some undeveloped property in this district, there are no additional trunk sewer improvements planned, as the undeveloped areas can be adequately served by the extension of lateral sewers.

8.1.2 North Shakopee (NS)

Extension of a 12-inch and 10-inch trunk sewer in Shenandoah Drive from Barenscheer Boulevard in the southwestern part of the district is required to support additional development along the west side of Canterbury Park.

8.1.3 North Central Shakopee (NCS)

There are no additional trunk sewers planned for this district.

8.1.4 Northwest Shakopee (NWS)

There is a segment of existing trunk sewer that could have its capacity exceeded if additional development occurs on the west end of the district. The affected segment is the 10-inch trunk sewer in 3rd Avenue West between County Road 69 and Adams Street. Projected peak flows through this line will result in the pipe flowing at about 95% of its capacity, which is greater than a desired pipe flow at 80% of capacity. As redevelopment occurs along the County Road 69 corridor, flows should be monitored in this segment of pipe to verify capacity will not be exceeded.

Under Alternate No. 1 (Figure 8-3B), a 12-inch trunk sewer would be extended southwesterly under and along County Road 69 from the existing 10-inch trunk sewer at 3rd Avenue West to Chaparral Drive and would serve an area of mixed employment use along the corridor.

Under Alternate No. 2, the future development area identified in the preceding paragraphs would be served by a 12-inch trunk sewer in the West Louisville Jackson district and the Northwest Shakopee district boundary would be adjusted accordingly.

Redevelopment is anticipated in some parts of the district. Depending on the location and extent of redevelopment, the existing sewer system impacted by redevelopment may need to be evaluated more closely to determine whether any capacity issues are created.

8.1.5 West Shakopee (WS)

There are no additional trunk sewers planned for this district but there is a segment of existing trunk sewer that could have its capacity exceeded if additional development occurs on the west end of the district. The affected segment is a 10-inch trunk sewer near the intersection of Vierling Drive and Marystown Road. Projected flows through this line will result in the pipe flowing at about 90% of its capacity, which is greater than a desired pipe flow at 80% of capacity. As redevelopment occurs along the County Road 69 corridor, flows should be monitored in this segment of pipe to verify capacity will not be exceeded.

8.1.6 East Shakopee (ES)

To serve the mixed employment and suburban edge residential areas near the City of Savage border on the east end of the district, a 700 gpm lift station and 6-inch force main is required. The lift station would likely be sited near the intersection of Hansen Avenue and Maras Street and the force main would discharge to the existing 12-inch trunk sewer at the intersection of Stagecoach Road and Hansen Avenue. A 10-inch trunk sewer would need to be extended from the lift station southerly along 16th Avenue to Preserve Trail to serve the suburban edge residential area.

8.1.7 Southeast Shakopee (SES)

While there is some undeveloped or unsewered property in this district, there are no additional trunk sewer improvements planned, as the undeveloped and unsewered areas can be adequately served by the extension of lateral sewers, either from the Prior Lake interceptor in Pike Lake Road or from the existing 15-inch trunk sewer at the intersection of Horizon Drive and Foothill Trail.

8.1.8 Central Shakopee (CS)

Extension of a 10-inch trunk sewer along Marschall Road will be required to serve the suburban edge residential area in the southwest part of the district. The 10-inch sewer would extend westerly from an existing 12-inch trunk sewer near the intersection of Independence Avenue and Valley View Drive.

8.1.9 South Shakopee (SS)

The district has essentially been split by land acquisitions made by the SMSC. In the northerly part of the district, undeveloped areas lying west of Canterbury Road will be served by one

of several existing stubs from the 24-inch trunk sewer in Canterbury Road. Two of the existing stubs are 10-inch trunk sewers.

The southerly part of the district would be served by extending a trunk sewer southerly from the existing 18-inch trunk sewer at the intersection of Canterbury Road and Valley View Road. The future trunk sewer would ultimately extend southerly to the vicinity of Marschall Road and County Road 14 and would range in size from 12 inches at the southerly end to 18 inches at the northerly end. A 300 gpm lift station and 4-inch force main would be required to serve the suburban edge residential and rural transition areas on the south end of the district. A 10-inch trunk sewer may need to be extended southwesterly from the lift station, depending on how much of the land in this area is acquired by SMSC.

There is a segment of existing 18-inch trunk sewer under US Highway 169 at Canterbury Road that has limited capacity. While a full buildout of the northerly part of the district is not expected to exceed the capacity of this pipe segment, development of the southerly portion of the district will exceed existing pipe capacity and will require installation of a relief sewer under the highway. The timing of future trunk sewer extensions and resulting flows will need to be monitored to better determine when a relief sewer will become necessary.

8.1.10 Jackson Shakopee (JS)

Extension of a 12-inch trunk sewer southerly from the high school to the vicinity of Link Drive and 130th Street West is needed to serve the suburban edge residential and public institution areas in the southwesterly part of the district.

Extension of a 10-inch trunk sewer southerly in Jennifer Lane from an existing 12-inch trunk sewer at Samara Street to the vicinity of Wood Duck Trail is needed to serve the suburban residential area on the north side of O'Dowd Lake.

8.1.11 South Louisville Jackson (SLJ)

Under Alternate No. 1, extension of the 24-inch trunk sewer in Lusitano Street would be required to serve the easterly and southerly portions of the district and to ultimately receive flows from the Southwest Louisville district. The 24-inch trunk sewer would be extended southerly to the vicinity of Marystown Road and Pribyl Pond Lane north of Thole Lake. A 2,700 gpm lift station and 12-inch force main would be required to serve the suburban edge residential and rural transition areas on the south end of the district and to convey flows from the Southwest Louisville district. From the lift station, a 24-inch trunk sewer would be extended southerly to the intersection of Marystown Road and 150th Street West. From this intersection, a 10-inch trunk sewer would be extended southerly about ½ mile and a 21-inch trunk sewer would be extended westerly to Zumbro Avenue.

Under Alternate No. 1 (Figure 8-3A), extension of the 18-inch trunk sewer in Windermere Way south of Tamarack Road is needed to serve the mixed residential area north of 130th Street and the suburban residential area south of 130th Street. The 18-inch trunk sewer would be extended southerly to a point southwesterly of Rosewood Circle and Marystown Road.

Under Alternates No. 1 and No. 2, extension of the 18-inch trunk sewer in Tamarack Road west of Windermere Way is needed to serve the mixed residential area in the northwesterly part of the district. This trunk sewer would also receive flows from the West Jackson district. The description of this trunk sewer alignment is found in the West Jackson district summary.

Under Alternate No. 2, extension of a 12-inch and 10-inch trunk sewer from the 24-inch trunk sewer in Lusitano Street would be required to serve the easterly portion of the district. The trunk sewer would be extended southerly to the vicinity of Marystown Road and Pribyl Pond Lane north of Thole Lake.

Under Alternate No. 2, extension of the 18-inch trunk sewer in Windermere Way south of Tamarack Road is needed to serve the mixed residential area north of 130th Street and the suburban residential area south of 130th Street. The 18-inch trunk sewer would be extended southerly to a point southwesterly of Rosewood Circle and Marystown Road. From that point, a 700 gpm lift station and 6-inch force main would be required to serve the suburban edge residential and rural transition areas on the south end of the district. From the lift station, a 12-inch trunk sewer would be extended southerly to the intersection of Marystown Road and 150th Street West. From this intersection, a 10-inch trunk sewer would be extended southerly about ½ mile.

8.1.12 West Jackson (WJ)

As described in the future trunk sewer improvements for the South Louisville Jackson district, extension of the 18-inch trunk sewer in Tamarack Road west of Windermere Way is needed to serve the mixed residential, suburban residential, suburban edge residential, and rural transition areas in the West Jackson district. The trunk sewer would extend southwesterly and southerly, ultimately terminating in the vicinity of 145th Street West and Zumbro Avenue. Pipe sizes would range from 10 inches on the southerly end to 18 inches on the northerly end of the line.

A 900 gpm lift station and 8-inch force main is required on the west side of the district. The lift station would be located in the vicinity of Peregrine Circle and Skyline Circle and would pump flows to the previously-described trunk sewer, with the point of discharge being near Old Brickyard Road and 133rd Street West. From the lift station, a 12-inch trunk sewer would be extended northerly to 133rd Street West, a 10-inch trunk sewer would be extended southerly and southeasterly about 3,500 feet, and a 10-inch trunk sewer would be extended easterly beyond Steve Drive.

8.1.13 West Louisville Jackson (WLJ)

Under Alternate No. 1 (Figure 8-3B), a 2,600 gpm lift station and 12-inch force main would be required to serve the district. Flows from the Southwest Louisville district would be routed to the South Louisville Jackson district to the east. The lift station would be located on the south side of US Highway 169 about ½ mile west of Marystown Road and would pump flows to an existing 18-inch trunk sewer west of Windermere Way. Projected flows to the 18-inch sewer indicate this pipe segment will be at 95% of capacity, which is above a desired capacity of 80%. There also is a 27-inch trunk sewer immediately downstream of the 18-inch segment that, when combined with projected flows received from other trunk sewers in the area, would be at 88% of pipe capacity. As development in the district proceeds, flows through the 18-inch and 27-inch segments would need to be monitored to verify pipe capacities are not exceeded. From the lift station, a 24-inch trunk sewer would be extended southwesterly to the vicinity of US Highway 169 and Highway 41 / Chestnut Boulevard. From that junction, a 10-inch trunk sewer would extend southerly to 133td Street West and a 21-inch trunk sewer would extend under US Highway 169 to Dem Con Drive. An 18-inch trunk sewer would extend southerly in Dem Con Drive to 130th Street and a 12-inch trunk sewer would extend northerly along US Highway 169 to a point about 1700 feet northerly of Highway 41 / Chestnut Drive.

Under Alternate No. 1, a 300 gpm lift station and 6-inch force main would be required to serve the Bonnevista Terrace Mobile Home Park area on the west side of County Road 69. The lift station would pump flows to the future 12-inch trunk sewer on the north side of Highway 41 / Chestnut Street. A 10-inch trunk sewer may need to be extended northeasterly from the lift station, if high-intensity development occurs in this area.

Under Alternate No. 1, extension of a 12-inch trunk sewer southwesterly under and along County Road 69 from the existing 10-inch trunk sewer at 3rd Avenue West to Chaparral Drive is needed to serve the mixed employment area along the west side of County Road 69. This trunk sewer extension would be made in the Northwest Shakopee district. Flow capacity of the existing 10-inch trunk sewer will need to be reviewed in conjunction with extension of the 12-inch trunk sewer.

Under Alternate No. 2, a 4,700 gpm lift station and 16-inch force main would be required to serve the district, as well as to receive and convey flows from the Southwest Louisville district. The lift station would be located on the south side of US Highway 169 about ½ mile west of Marystown Road and would pump flows to the existing 42-inch MCES Chaska interceptor sewer at Marystown Road. A direct connection to the MCES interceptor would be required, because the 18-inch trunk sewer in Windemere Way and the 27-inch trunk sewer immediately downstream of the 18-inch segment that would not have adequate capacity to carry the flows generated by a full buildout of the overall planning area. From the lift station, a 36-inch trunk sewer would be extended southwesterly to the vicinity of US Highway 169 and Highway 41 / Chestnut Boulevard. From that junction, a 10-inch trunk sewer would extend southerly to

133rd Street West and the 36-inch trunk sewer would extend under US Highway 169 to Dem Con Drive. A 27-inch trunk sewer would extend southerly in Dem Con Drive to 130th Street and would receive flows from the Southwest Louisville district. In addition, an 18-inch trunk sewer would extend northerly along US Highway 169 to a point about 1700 feet northerly of Highway 41 / Chestnut Drive.

Under Alternate No. 2, a 900 gpm lift station and 8-inch force main would be required to serve the Bonnevista Terrace Mobile Home Park area on the west side of County Road 69 and the mixed employment uses further north along the County Road 69 corridor. The lift station would pump flows to the future 18-inch trunk sewer on the north side of Highway 41 / Chestnut Street. A 15-inch and 12-inch trunk sewer would need to be extended northeasterly from the lift station to serve the mixed employment use area.

8.1.14 Southwest Louisville (SWL)

Under Alternate No. 1 (Figure 8-3C), a 2,200 gpm lift station and 12-inch force main would be required to serve the district. The lift station would be located in the vicinity of US Highway 169 and 150th Street West and would pump flows along 150th Street West to a future 21-inch trunk sewer in the South Louisville Jackson district. From the lift station, a 15-inch trunk sewer would be extended northerly along US Highway 169 to a point about 1.25 miles north, a 15-inch trunk sewer would be extended northwesterly under US Highway 169 to a point about ½ mile north of 145th Street West, a 15-inch trunk sewer would be extended southerly along US Highway 169 to a point about ¾ mile south, and a 10-inch trunk sewer would be extended easterly in 150th Street West about 1 mile.

Under Alternate No. 2, a 2,200 gpm lift station and 12-inch force main would be required to serve the district. The lift station would be located in the vicinity of US Highway 169 and 150th Street West and would pump flows along US Highway 169 to a future 27-inch trunk sewer in the West Louisville Jackson district. From the lift station, a 15-inch trunk sewer would be extended northerly along US Highway 169 to a point about 1.25 miles north, a 15-inch trunk sewer would be extended northwesterly under US Highway 169 to a point about ½ mile north of 145th Street West, a 15-inch trunk sewer would be extended southerly along US Highway 169 to a point about ¾ mile south, and a 10-inch trunk sewer would be extended easterly in 150th Street West about 1 mile.

The trunk sewer system will be expanded as development proceeds. The hydraulic sewer model should be updated on an ongoing basis, as future development is proposed and as actual information for proposed development becomes available.

Any trunk sewer extensions into Jackson Township will be required to adhere to the orderly annexation agreement in place with the Township. It is anticipated an orderly annexation agreement with Louisville Township will need to be created and executed before any trunk sewer extensions could be made there.

8.2 INDIVIDUAL SEWAGE TREATMENT SYSTEMS

In areas of the City that do not currently have municipal sewer, there are 714 individual sewage treatment systems. It is expected this number will decrease as municipal sewer extensions are made in the future and as existing septic systems fail, which requires a subsequent connection to municipal sewer. By City ordinance, property owners have 3 years to connect to the City's collection system once sewer service has been provided to an area. Owners of failed septic systems are required to connect immediately to the City's collection system where service is available.

Scott County is responsible for oversight and administration of individual septic systems in the City. The County Ordinance, titled "Subsurface Sewage Treatment System Ordinance No. 4", was adopted in 2010 and it complies with Minnesota Pollution Control Agency Standards (Minn. Rules 7080, 7081, 7082, and their amendments). A copy of the Scott County Ordinance is found in the Appendix.

9.0 CAPITAL IMPROVEMENTS

9.1 GENERAL

The City of Shakopee is committed to providing and maintaining a sanitary sewer collection system that meets the City's current and future needs and that is in conformance with MCES goals and projections. Future capital improvements programming will explore ways to improve and protect the sanitary sewer system. Development of a Capital Improvements Plan (CIP) serves as a guide in targeting specific improvements to match the needs of the community. Since the needs of the City are often dynamic, a CIP also must be dynamic and subject to change, making regular review of the CIP a necessity. The timing of future trunk system improvements will be dependent on a variety of factors, such as development pressure, failing onsite septic systems, changes in regulatory requirements, funding availability, annexations, etc.

Preventative maintenance is extremely important in the life of a sanitary sewer system. Monthly and annual inspections of manholes and pipes, SCADA monitoring, inspections of mechanical and electrical equipment, and monitoring of annual operation and maintenance costs will be conducted to ensure the system is operating as intended.

9.2 FUTURE TRUNK SYSTEM COSTS

Capital improvement costs were estimated for the future expansion of the trunk sewer system in a full buildout condition. Estimated costs, which include a 10% construction contingency and a 25% overhead rate for legal, engineering, and administration, are categorized by sewer district in Table 9-1. Future trunk sewer improvement costs are also categorized in 10-year intervals in Tables 9-2 and 9-3. Estimated costs are in 2018 dollars and do not include costs associated with

easement or land acquisition. A detailed opinion of probable cost for trunk sewer improvements can be found in the Appendix.

Table 9-1 Full Buildout Capital Improvement Plan Summary By District

District	Estimated Trunk System Cost	
	Alternate No. 1	Alternate No. 2
NES	$0	$0
NS	$165,000	$165,000
NCS	$0	$0
NWS	$184,000	$0
WS	$0	$0
ES	$822,000	$822,000
SES	$0	$0
CS	$272,000	$272,000
SS	$2,198,000	$2,198,000
JS	$307,000	$307,000
SLJ	$4,808,000	$2,773,000
WJ	$2,827,000	$2,827,000
WLJ	$3,693,000	$5,927,000
SWL	$3,103,000	$3,093,000
TOTAL	**$18,379,000**	**$18,384,000**

Table 9-2 Alternate 1: Future Trunk Sewer Costs in 10-Year Intervals

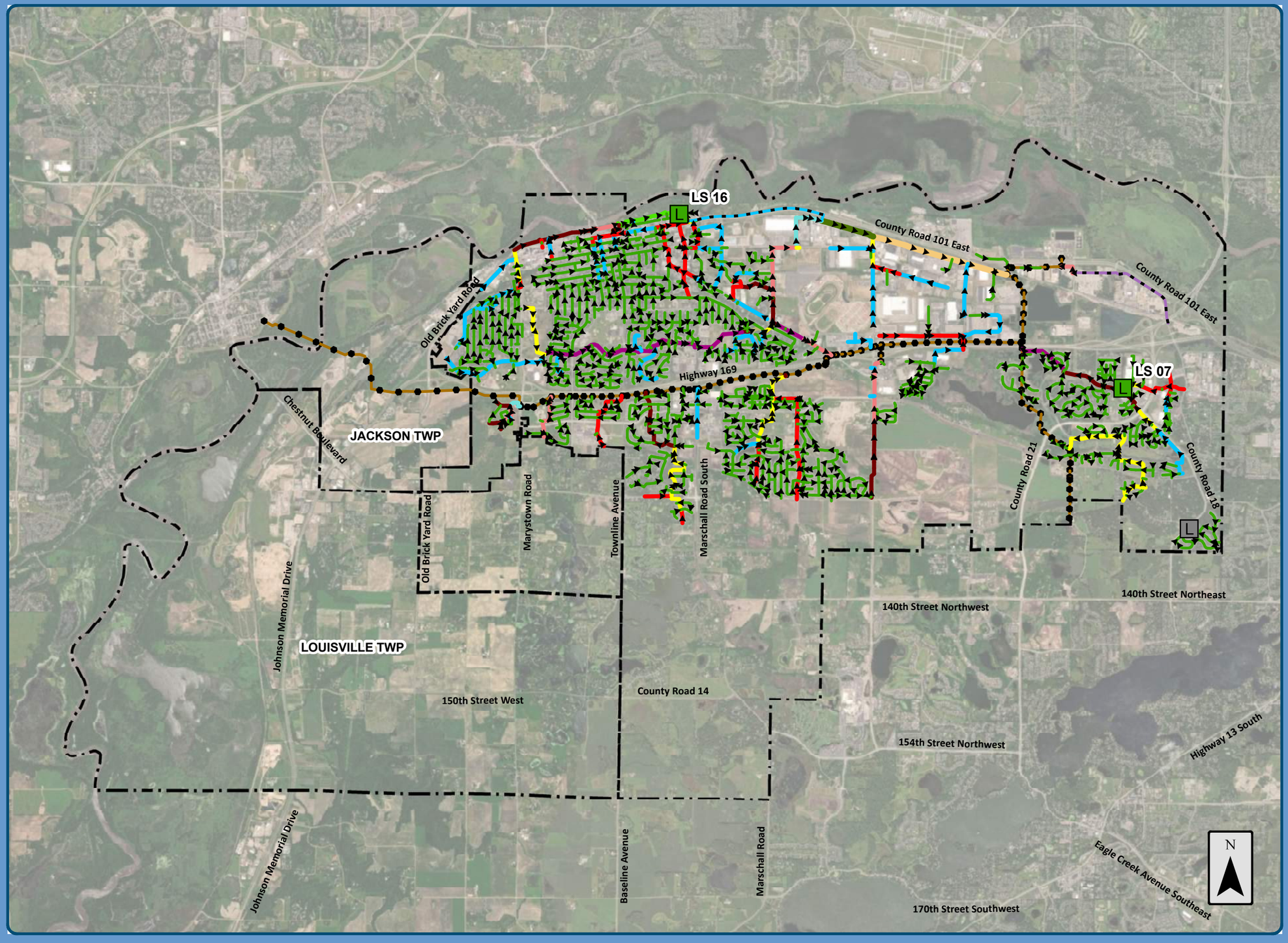
District	Alternate No. 1: Estimated Trunk System Cost			
	2018-2020	2020-2030	2030-2040	Post-2040
NES	$0	$0	$0	$0
NS	$165,000	$0	$0	$0
NCS	$0	$0	$0	$0
NWS	$0	$0	$184,000	$0
WS	$0	$0	$0	$0
ES	$0	$0	$0	$822,000
SES	$0	$0	$0	$0
CS	$0	$0	$272,000	$0
SS	$0	$1,106,000	$0	$1,092,000
JS	$0	$0	$0	$307,000
SLJ	$556,000	$0	$0	$4,252,000
WJ	$525,000	$0	$0	$2,302,000
WLJ	$0	$0	$2,041,000	$1,652,000
SWL	$0	$0	$0	$3,103,000
TOTAL	**$1,246,000**	**$1,106,000**	**$2,497,000**	**$13,530,000**

Table 9-3 Alternate 2: Future Trunk Sewer Costs in 10-Year Intervals

District	Alternate No. 2: Estimated Trunk System Cost			
	2018-2020	2020-2030	2030-2040	Post-2040
NES	$0	$0	$0	$0
NS	$165,000	$0	$0	$0
NCS	$0	$0	$0	$0
NWS	$0	$0	$0	$0
WS	$0	$0	$0	$0
ES	$0	$0	$0	$822,000
SES	$0	$0	$0	$0
CS	$0	$0	$272,000	$0
SS	$0	$1,106,000	$0	$1,092,000
JS	$0	$0	$0	$307,000
SLJ	$556,000	$0	$0	$2,217,000
WJ	$525,000	$0	$0	$2,302,000
WLJ	$0	$0	$4,954,000	$973,000
SWL	$0	$0	$0	$3,093,000
TOTAL	**$1,246,000**	**$1,106,000**	**$5,226,000**	**$10,806,000**

FIGURES

Figure 3-1	Existing System
Figure 3-2	Existing Trunk Sewer
Figure 3-3	Treatment Facilities & MCES Systems
Figure 3-4	Septic Systems
Figure 3-5	Lined or Reconstructed Sewer
Figure 3-6	Existing Trunk Sewer – Available Capacity
Figure 5-1	Envision Shakopee Land Use Plan
Figure 7-1	Existing Building Inventory
Figure 8-1A	Future Trunk Sewer - Alternate 1 Diameter
Figure 8-1B	Future Trunk Sewer - Alternate 1 Available Capacity
Figure 8-2A	Future Trunk Sewer - Alternate 2 Diameter
Figure 8-2B	Future Trunk Sewer - Alternate 2 Available Capacity
Figure 8-3A	Alternate Comparison South Louisville Jackson (SLJ) District
Figure 8-3B	Alternate Comparison West Louisville Jackson (WLJ) District
Figure 8-3C	Alternate Comparison Southwest Louisville (SWL) District



Lift Stations

- Active
- Abandoned

Forcemain

- 3-inch
- 8-inch
- 16-inch

Gravity Main

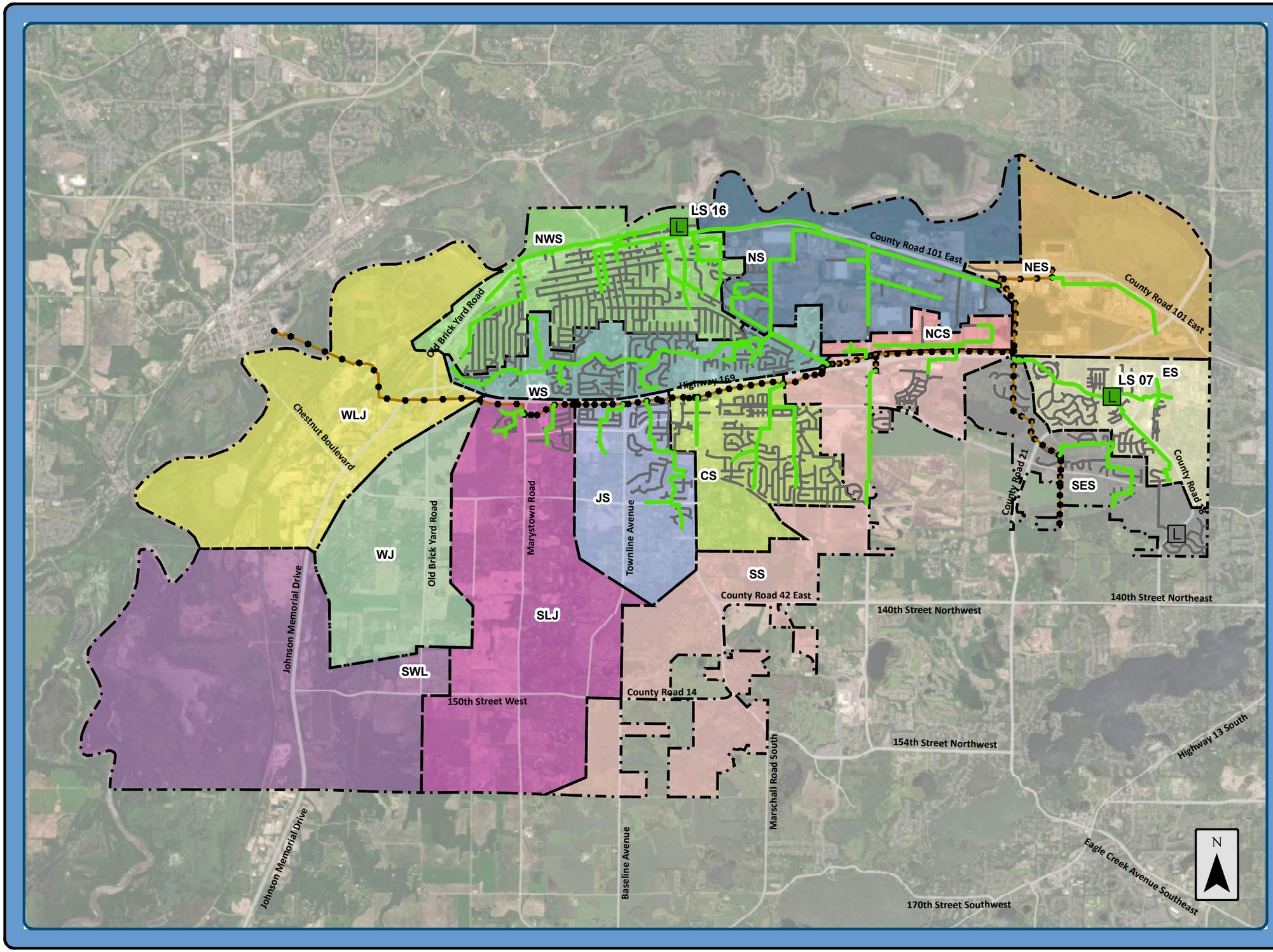
- 8-inch
- 10-inch
- 12-inch
- 14-inch
- 15-inch
- 18-inch
- 21-inch
- 24-inch
- 26-inch
- 27-inch
- 30-inch
- 36-inch
- 42-inch
- MCES Interceptor
- City Limits/Township

City of Shakopee Sanitary Sewer System

Existing System

Figure 3-1

AE2S
Advanced Engineering and Environmental Services, Inc.



Lift Stations

- Active
- Abandoned
- Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor

Sewer District Boundaries

Sewer Districts

- (CS) Central Shakopee
- (ES) East Shakopee
- (JS) Jackson/Shakopee
- (NCS) North Central Shakopee
- (NES) Northeast Shakopee
- (NS) North Shakopee
- (NWS) Northwest Shakopee
- (SES) Southeast Shakopee
- (SLJ) South Louisville Jackson
- (SS) South Shakopee
- (SWL) Southwest Louisville
- (WJ) West Jackson
- (WLJ) West Louisville Jackson
- (WS) West Shakopee

City of Shakopee Sanitary Sewer System

Existing Trunk Sewer

Figure 3-2

AE2S
Advanced Engineering and Environmental Services, Inc.

F MCES Treatment Facilities

F Private Treatment Facilities

M MCES Meter Station

MCES Interceptor

City Sewer

City Limits/Township

City of Shakopee Sanitary Sewer System

Treatment Facilities & MCES Systems

Figure 3-3

AE2S
Advanced Engineering and Environmental Services, Inc.

N

Rahr Malting

Blue Lake WWTF

M402A/B

M443A

M404

Shakopee/Chaska Interceptor

Prior Lake Interceptor

JACKSON TWP

LOUISVILLE TWP

1st Avenue East

County Road 101 East

Highway 169

Adams Street South

County Road 18

County Road 21

Old Brick Yard Road

Marystown Road

Townline Avenue

Marschall Road South

Johnson Memorial Drive

140th Street Northwest

140th Street Northeast

150th Street West

County Road 14

154th Street Northwest

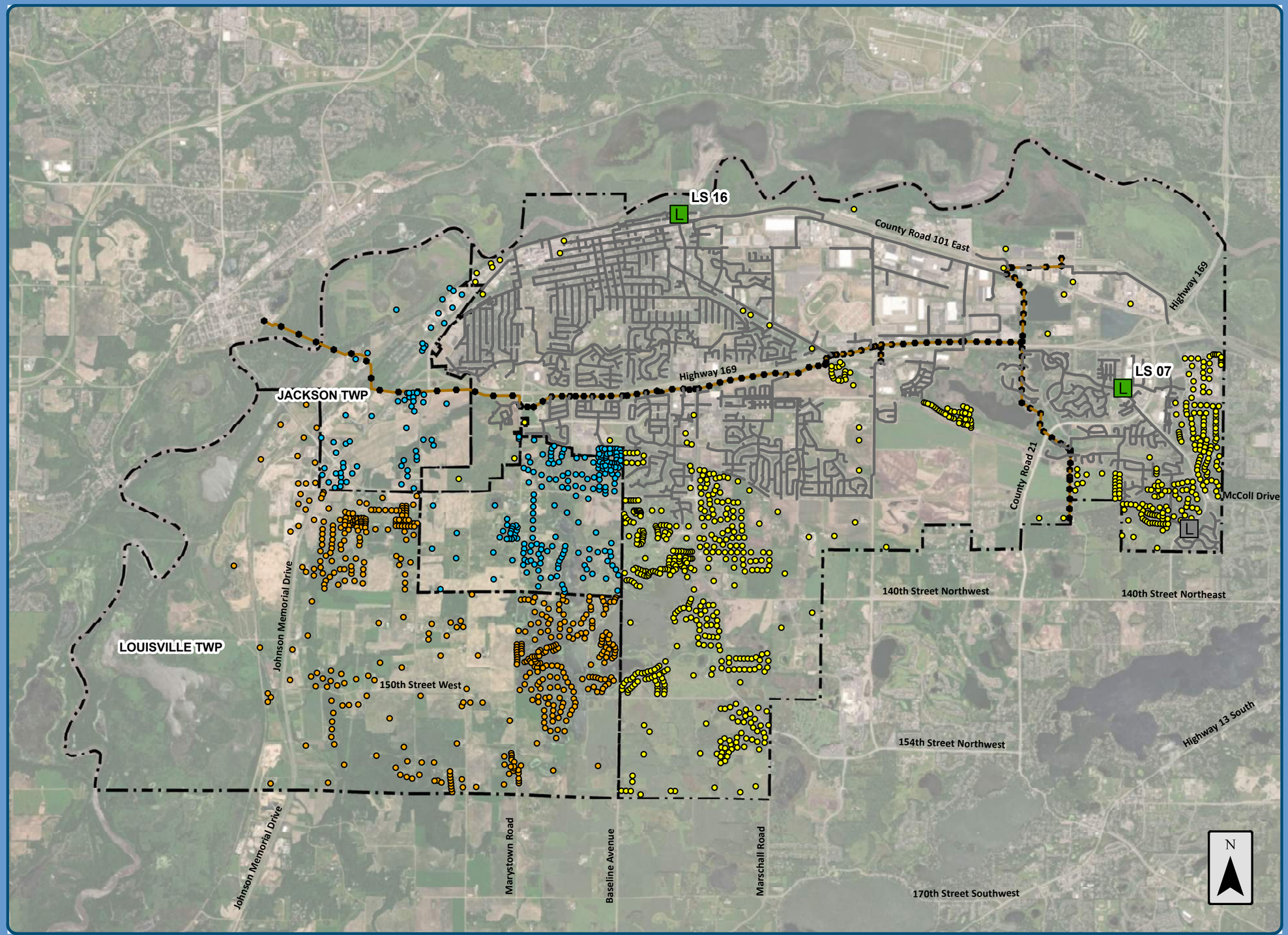
Highway 13 South

Baseline Avenue

Marschall Road

Eagle Creek Avenue Southeast

170th Street Southwest



Lift Stations

- Active
- Abandoned
- MCES Interceptor
- Existing City Sewer
- City Limits/Township

Septic Systems*

- Shakopee City Limits
- Jackson Township
- Louisville Township

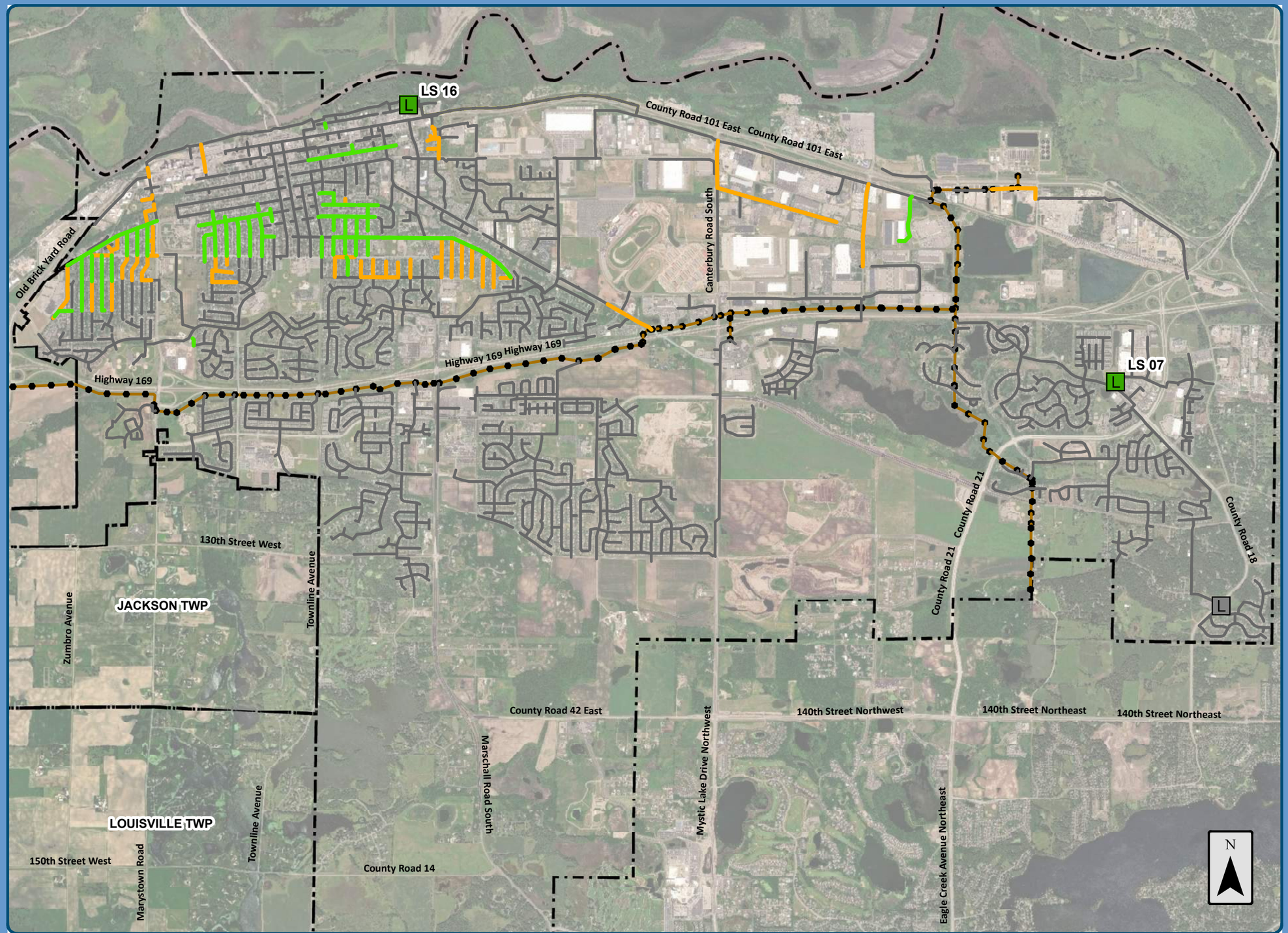
* Septic systems are shown per Scott County GIS

City of Shakopee Sanitary Sewer System

Septic Systems

Figure 3-4

AE2S
Advanced Engineering and Environmental Services, Inc.



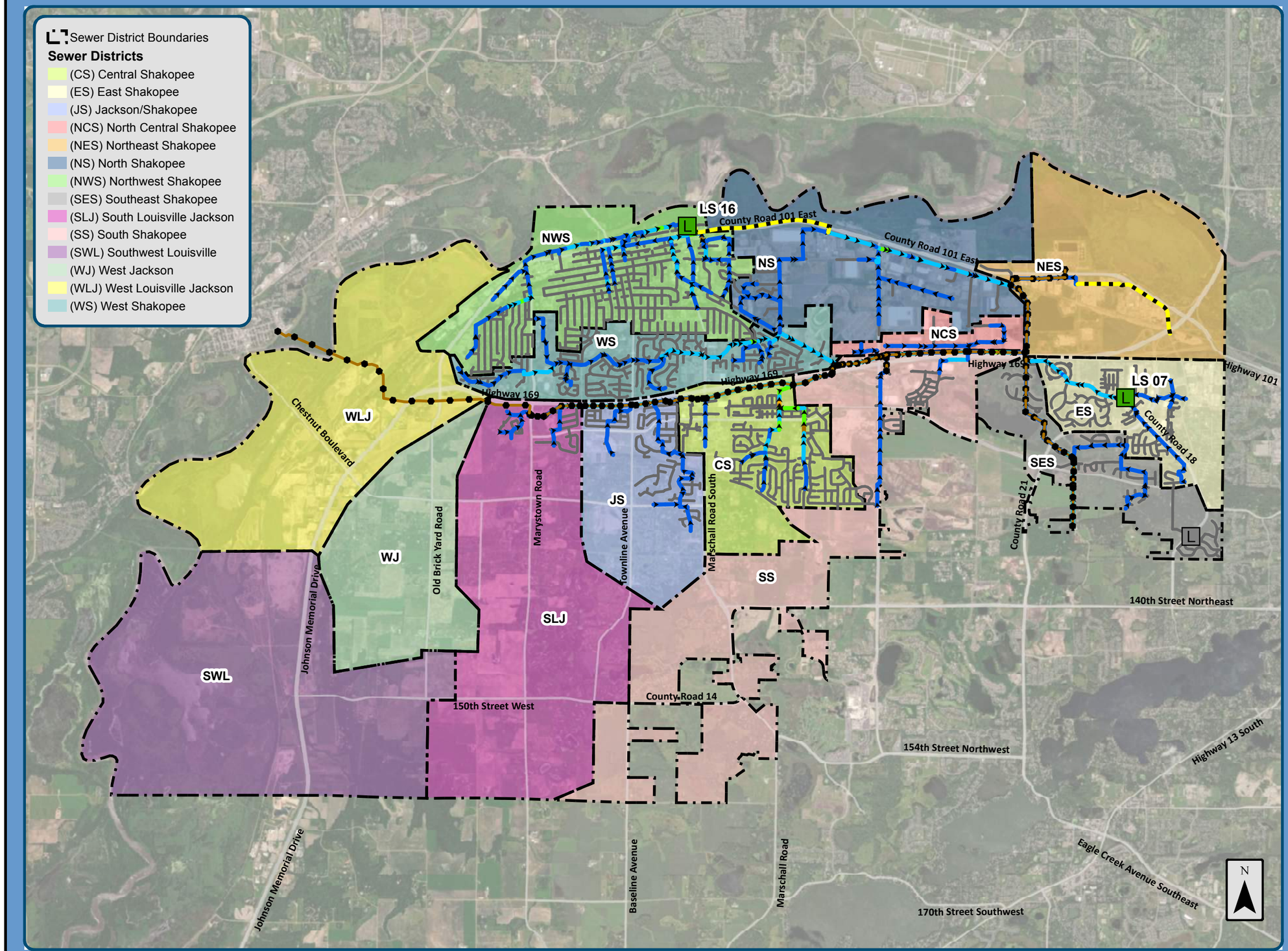
Active
Abandoned
Reconstructed (since 2008)
Lined (since 2008)
Existing City Sewer
MCES Interceptor
City Limits/Township

City of Shakopee Sanitary Sewer System

Lined or Reconstructed Sewer

Figure 3-5

AE2S
Advanced Engineering and Environmental Services, Inc.



City of Shakopee Sanitary Sewer System

Existing Trunk Sewer Available Capacity

Figure 3-6

AE2S
Advanced Engineering and Environmental Services, Inc.

Draft - August 2018

1st Avenue East

County Road 101 East

Highway 169

Chestnut Boulevard

JACKSON TWP

Marystown Road

County Road 21

Johnson Memorial Drive

LOUISVILLE TWP

150th Street West

Marschall Road South

N

City/Township Boundary

Future Land Use

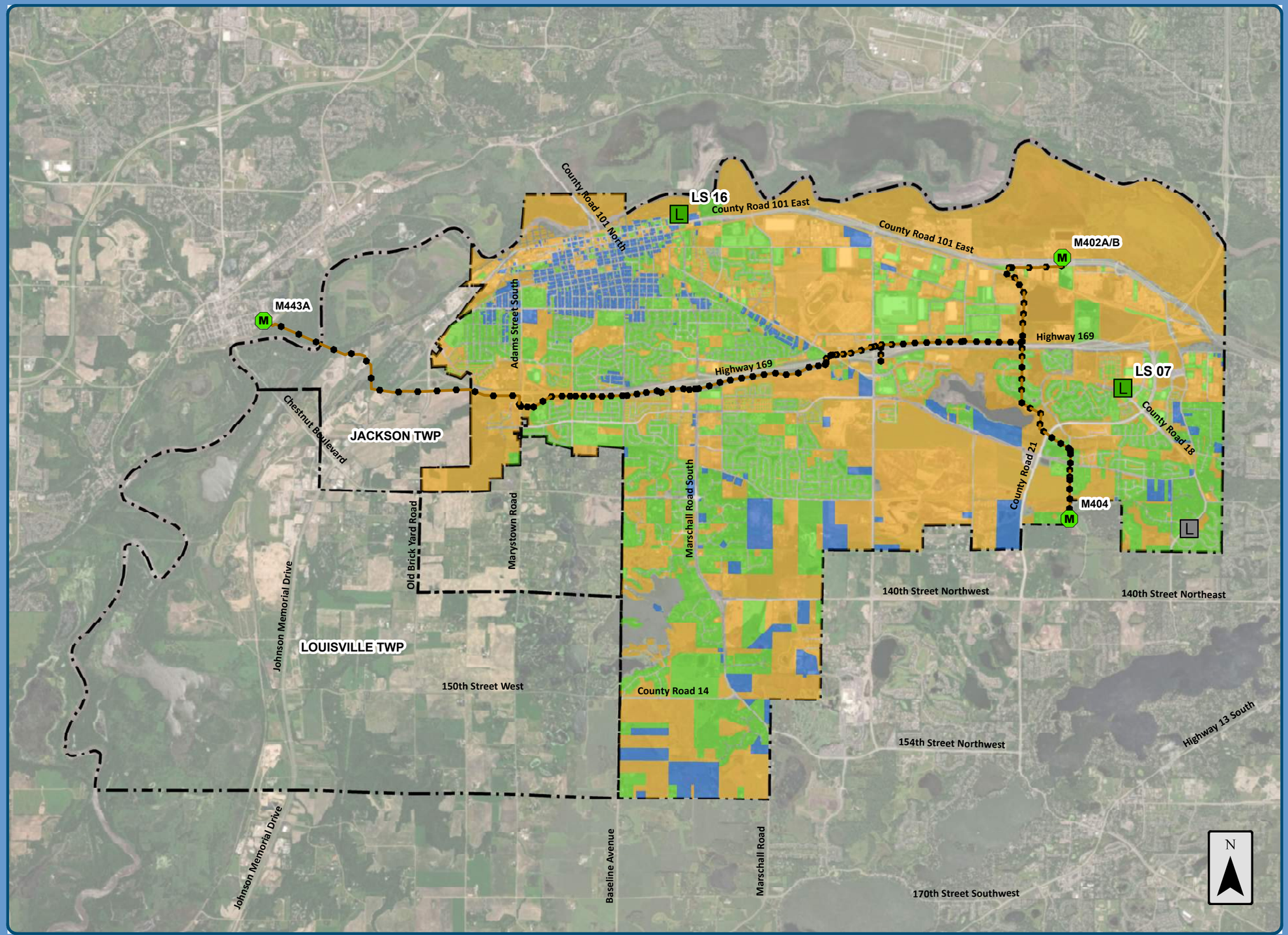
- Downtown Riverfront
- Downtown Business District
- Downtown Transition
- Old Shakopee Neighborhood
- Mixed Use Commercial Corridor
- Mixed Use Commercial Center
- Mixed Employment Center
- Industrial
- Public Institution
- Mixed Residential
- Suburban Residential
- Suburban Edge Residential
- Rural Transition
- Entertainment
- Utilities
- Park
- Open Space
- Transportation
- Major Water Features

City of Shakopee Sanitary Sewer System

Envision Shakopee Land Use Plan

Figure 5-1

AE2S
Advanced Engineering and Environmental Services, Inc.



Lift Stations

- Active
- Abandoned
- MCES Meter/Connection
- City Limits/Township

Year of Construction

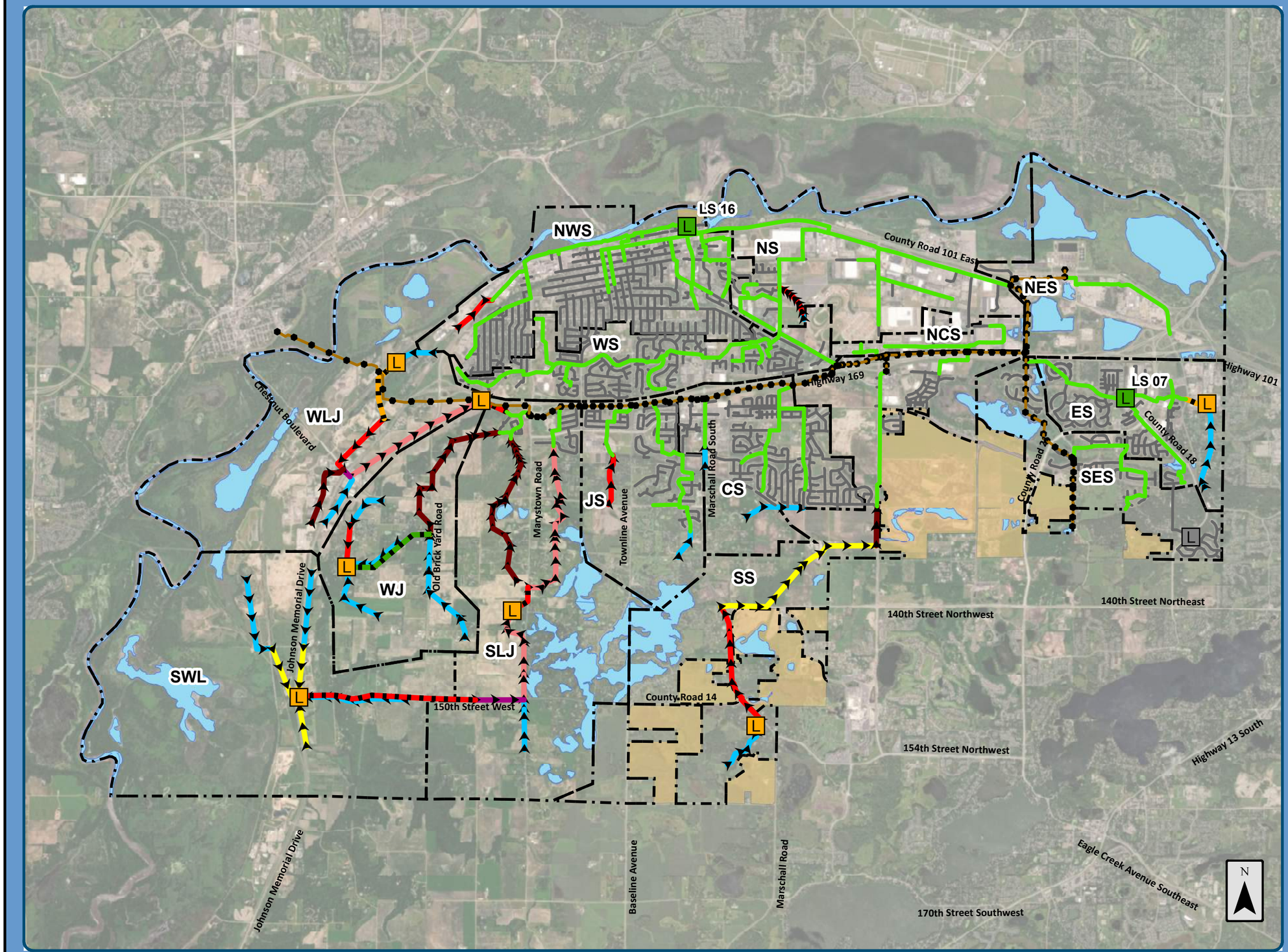
- No Building/No Date
- Pre-1970
- Post-1970

City of Shakopee Sanitary Sewer System

Existing Building Inventory

Figure 7-1

AE2S
Advanced Engineering and Environmental Services, Inc.



Lift Stations

- Active
- Abandoned
- Future Lift Stations
- Existing Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor

Future Forcemain

- 6-inch
- 8-inch
- 12-inch
- 16-inch

Future Gravity Main

- 10-inch
- 12-inch
- 15-inch
- 18-inch
- 21-inch
- 24-inch
- Sewer District Boundaries
- SMSC Land Holdings

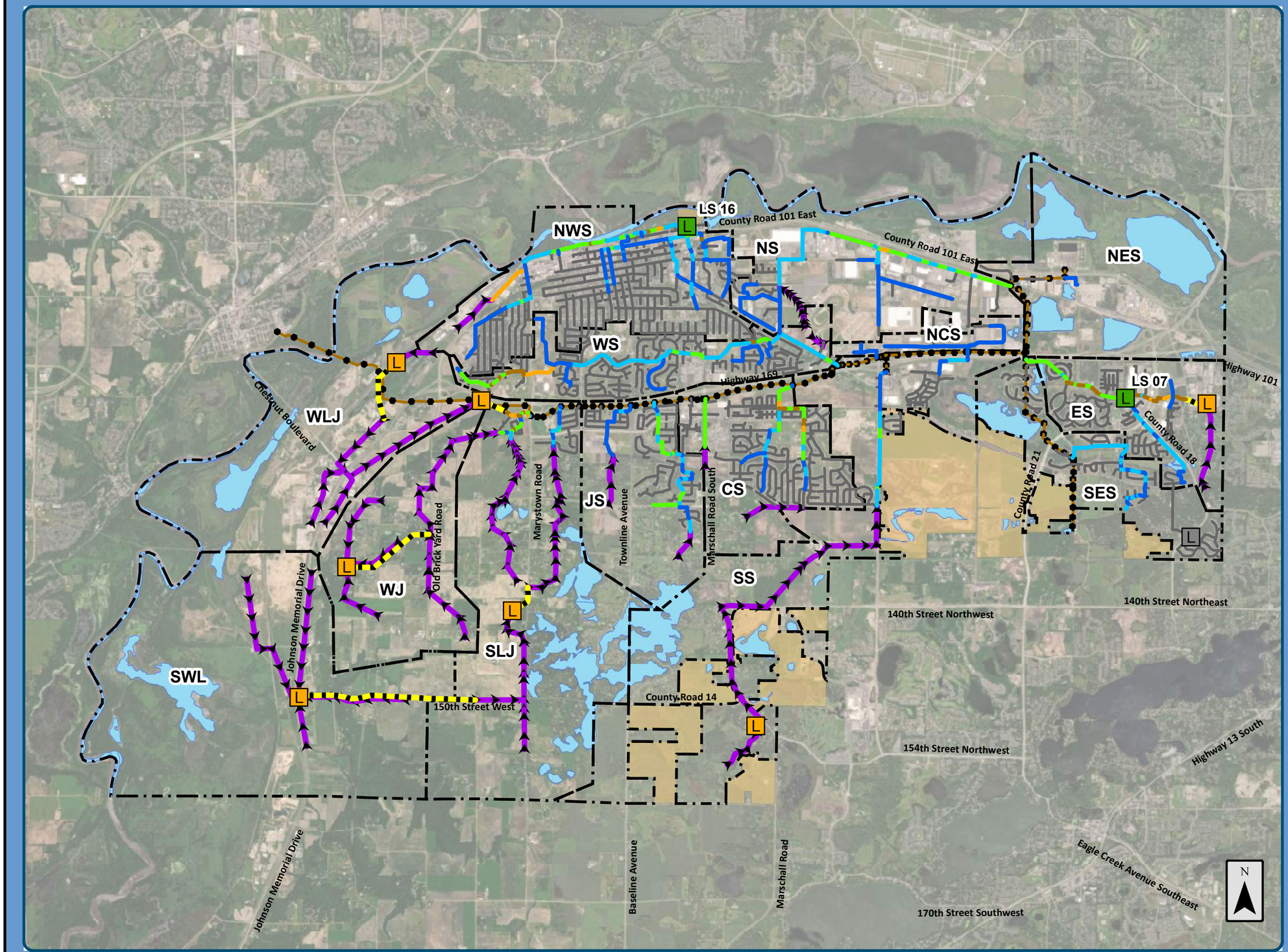
City of Shakopee Sanitary Sewer System

Future Trunk Sewer

Alternate 1 Diameter

Figure 8-1A

AE2S
Advanced Engineering and Environmental Services, Inc.



Lift Stations

- Active
- Abandoned
- Future Lift Stations
- Existing Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor
- Future Forcemain
- Future Gravity Main

Existing Gravity Trunk Sewer

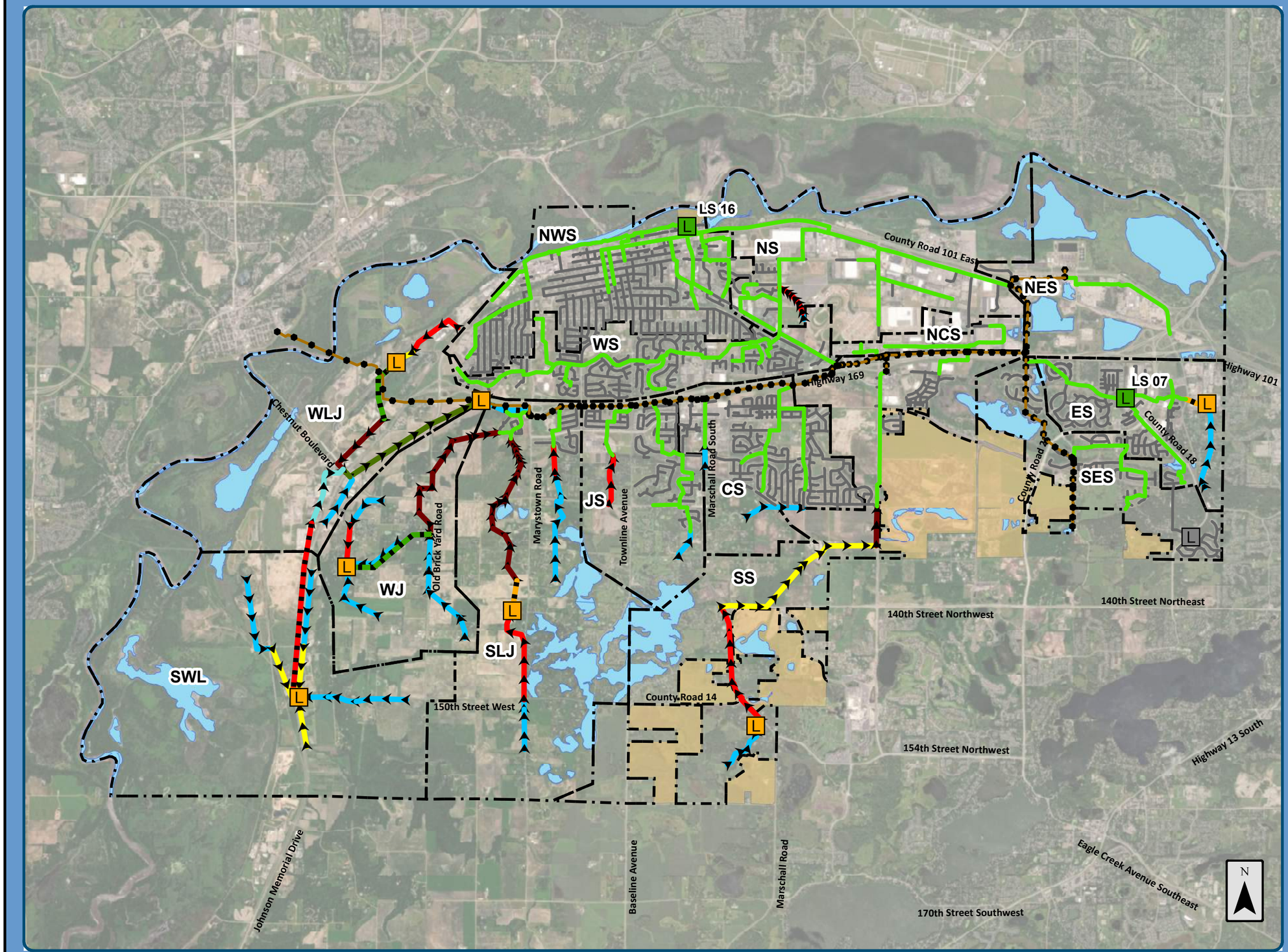
- Surcharging
- 0% to 20%
- 20% to 40%
- 40% to 60%
- 60% to 80%
- 80% to 100%
- Sewer District Boundaries
- SMSC Land Holdings

City of Shakopee Sanitary Sewer System

Future Trunk Sewer Alternate 1 Available Capacity

Figure 8-1B

Advanced Engineering and Environmental Services, Inc.



Lift Stations

- Active
- Abandoned
- Future Lift Stations

- Existing Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor

Future Forcemain

- 6-inch
- 8-inch
- 12-inch
- 16-inch

Future Gravity Main

- 10-inch
- 12-inch
- 15-inch
- 18-inch
- 21-inch
- 27-inch
- 36-inch
- Sewer District Boundaries
- SMSC Land Holdings

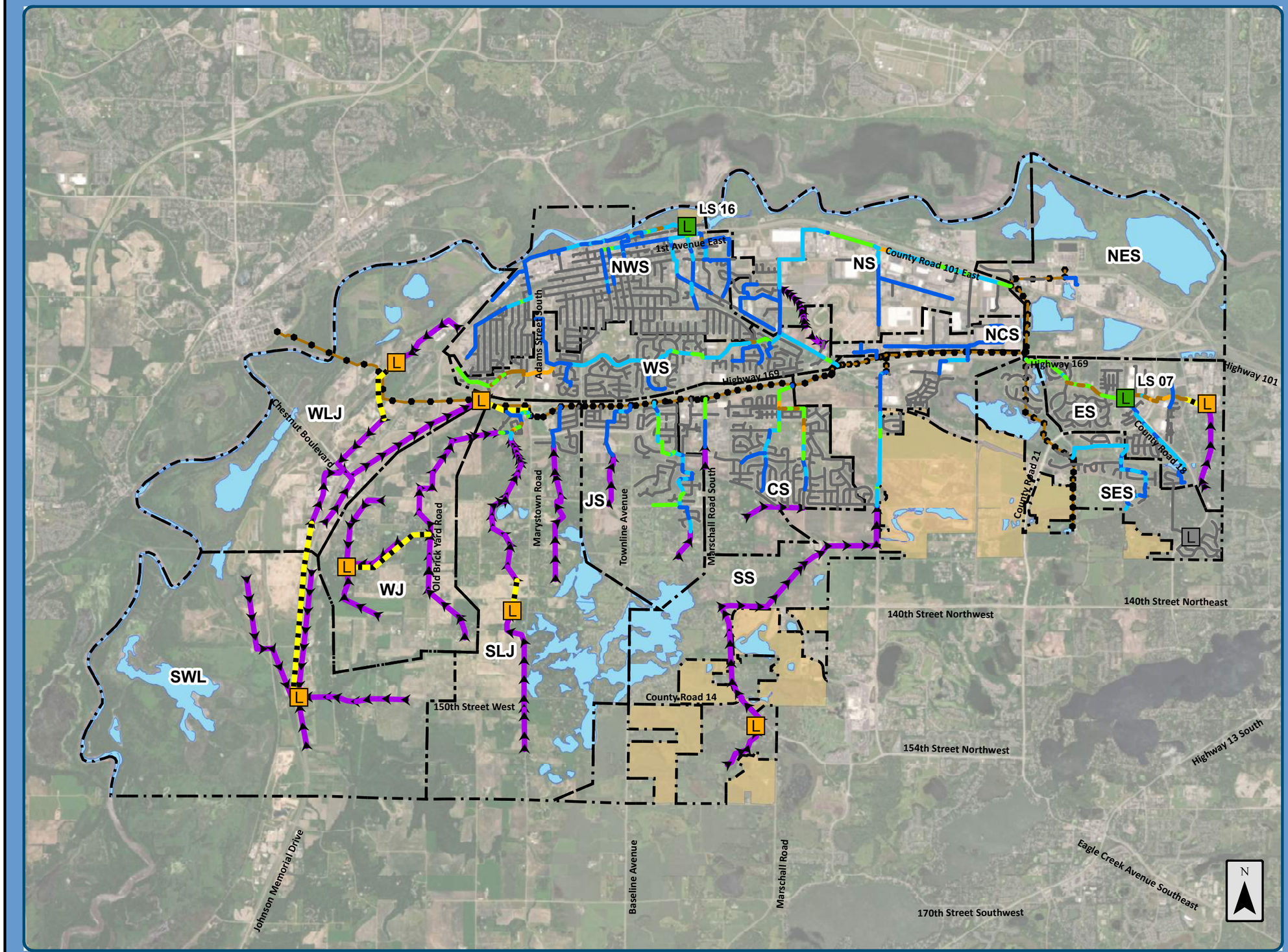
City of Shakopee Sanitary Sewer System

Future Trunk Sewer

Alternate 2 Diameter

Figure 8-2A

AES
Advanced Engineering and Environmental Services, Inc.



Lift Stations

- Active
- Abandoned
- Future Lift Stations
- Existing Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor
- Future Forcemain
- Future Gravity Main

Existing Gravity Trunk Sewer

- Surcharging
- 0% to 20%
- 20% to 40%
- 40% to 60%
- 60% to 80%
- 80% to 100%
- Sewer District Boundaries
- SMSC Land Holdings

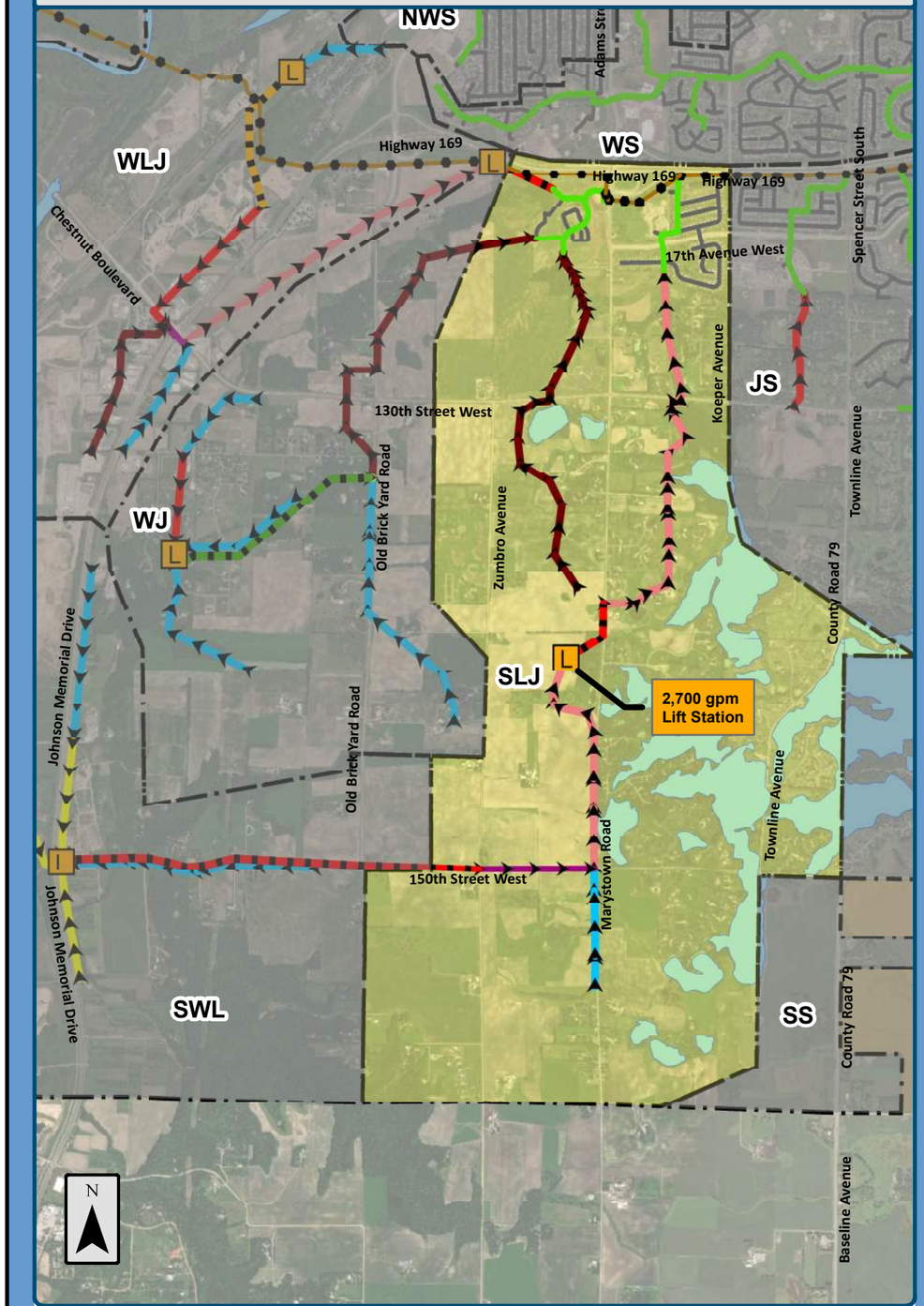
City of Shakopee Sanitary Sewer System

Future Trunk Sewer Alternate 2 Available Capacity

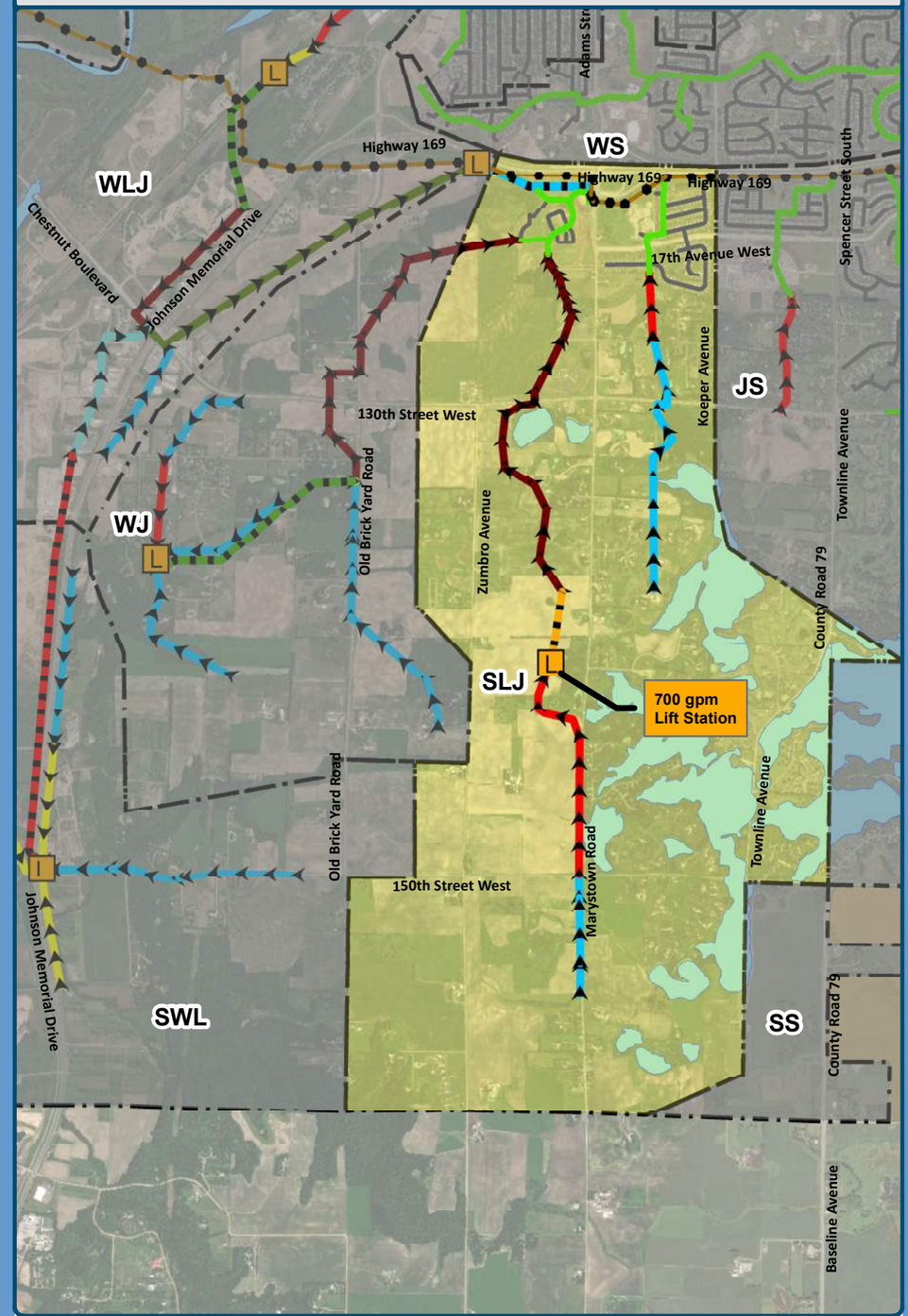
Figure 8-2B

AES
Advanced Engineering and Environmental Services, Inc.

SLJ District - Alternate 1



SLJ District - Alternate 2



Lift Stations

- Active
- Abandoned
- Future Lift Stations
- Existing Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor

Future Forcemain

- 6-inch
- 8-inch
- 12-inch
- 16-inch

Future Gravity Main

- 10-inch
- 12-inch
- 15-inch
- 18-inch
- 21-inch
- 24-inch
- 27-inch
- 36-inch
- Sewer District Boundaries
- SMSC Land Holdings

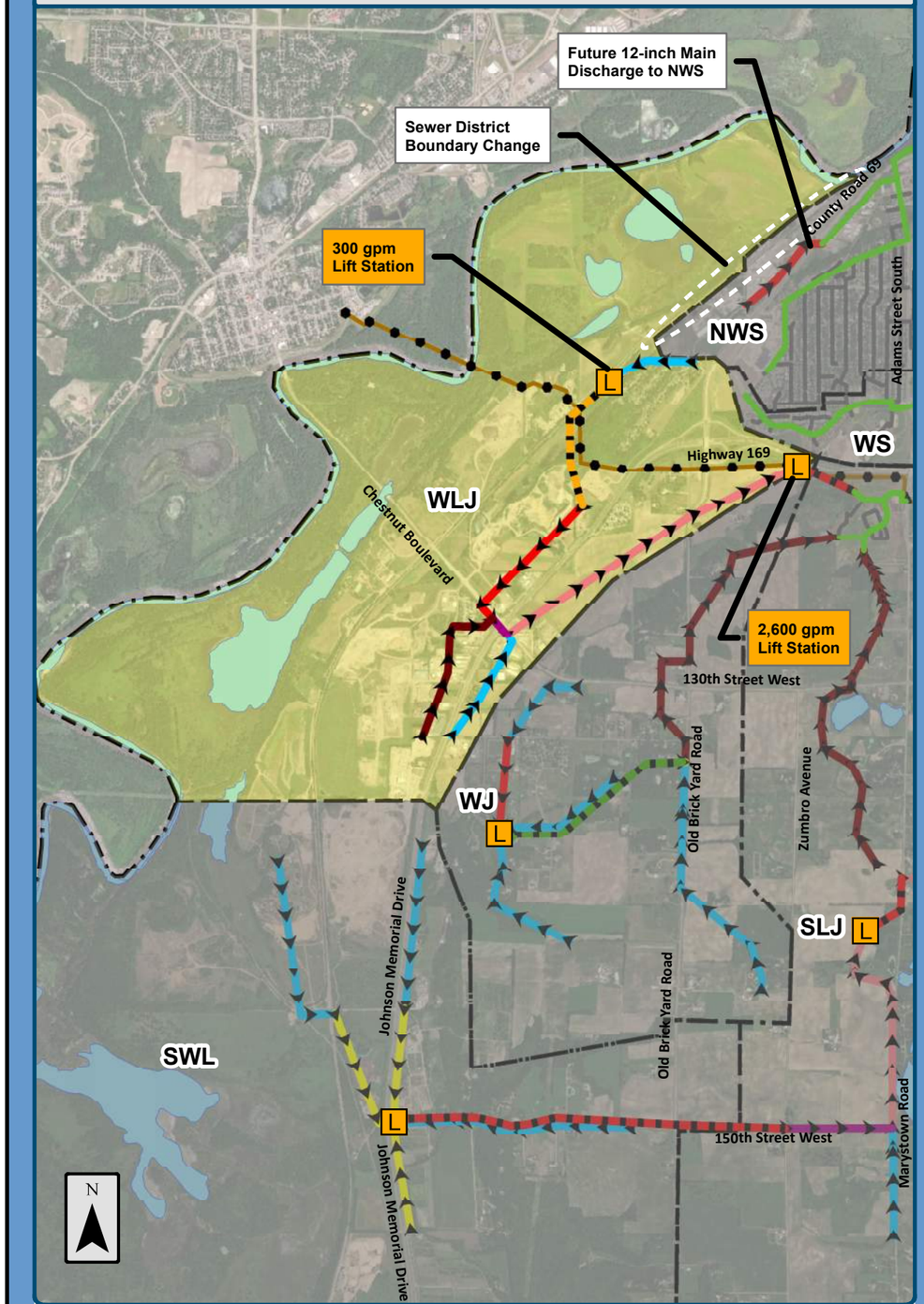
City of Shakopee Sanitary Sewer System

Alternate Comparison SLJ District

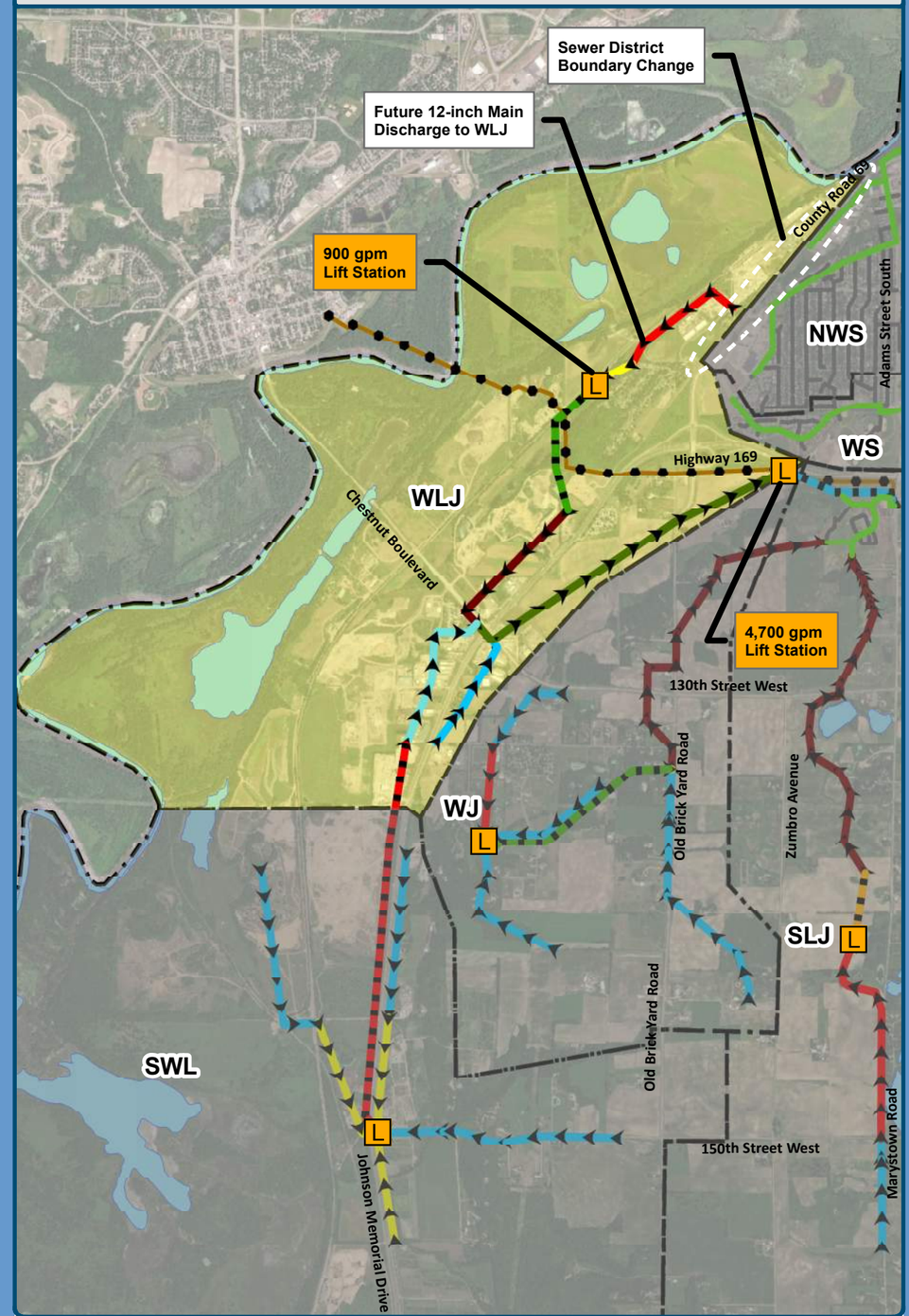
Figure 8-3A

AE2S
Advanced Engineering and Environmental Services, Inc.

WLJ District - Alternate 1



WLJ District - Alternate 2



Lift Stations
- Active
- Abandoned
- Future Lift Stations

Existing Trunk Sewer
Gravity Sewer Laterals
MCES Interceptor

Future Forcemain
- 6-inch
- 8-inch
- 12-inch
- 16-inch

Future Gravity Main
- 10-inch
- 12-inch
- 15-inch
- 18-inch
- 21-inch
- 24-inch
- 27-inch
- 36-inch

Sewer District Boundaries
SMSC Land Holdings

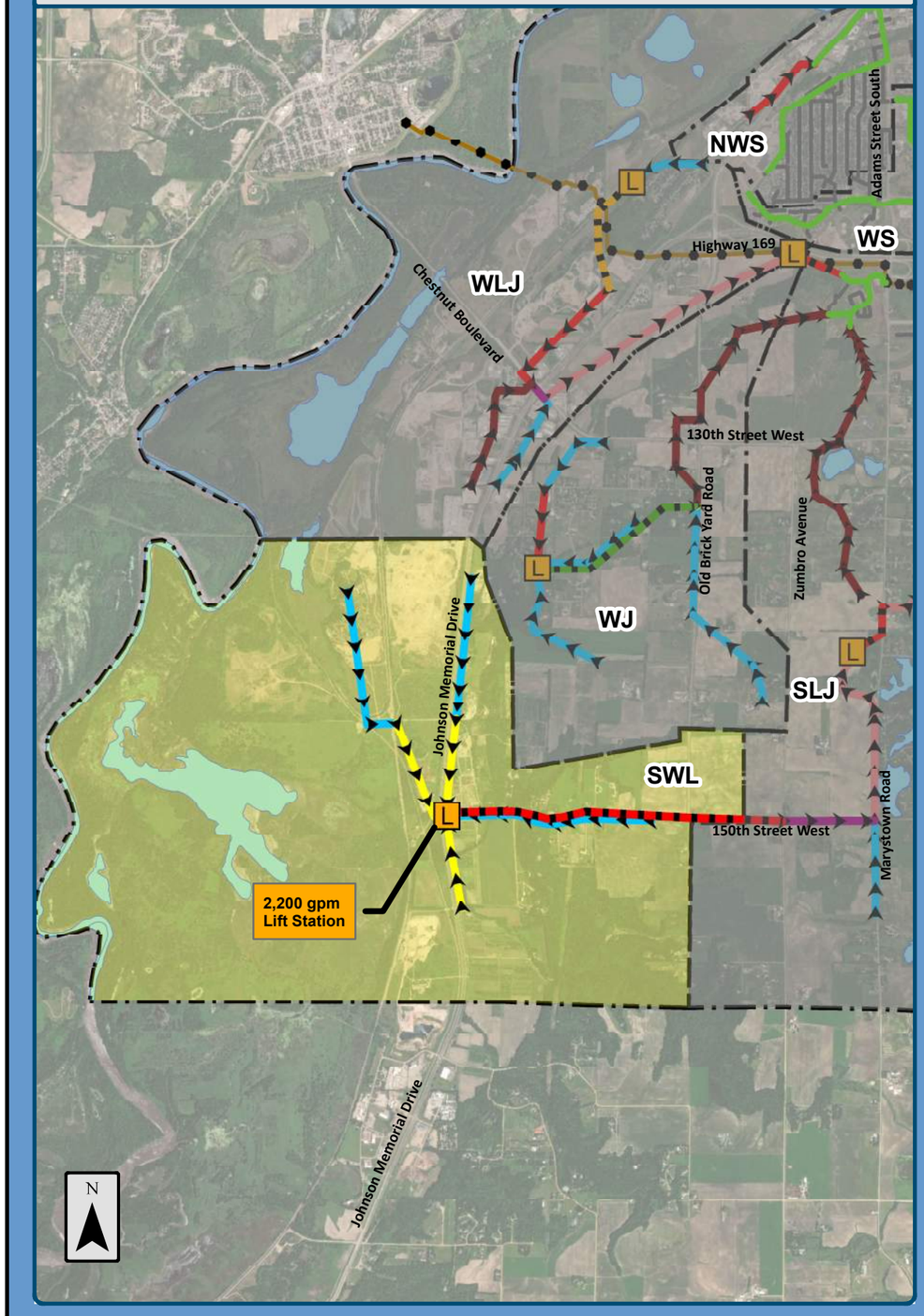
City of Shakopee Sanitary Sewer System

Alternate Comparison WLJ District

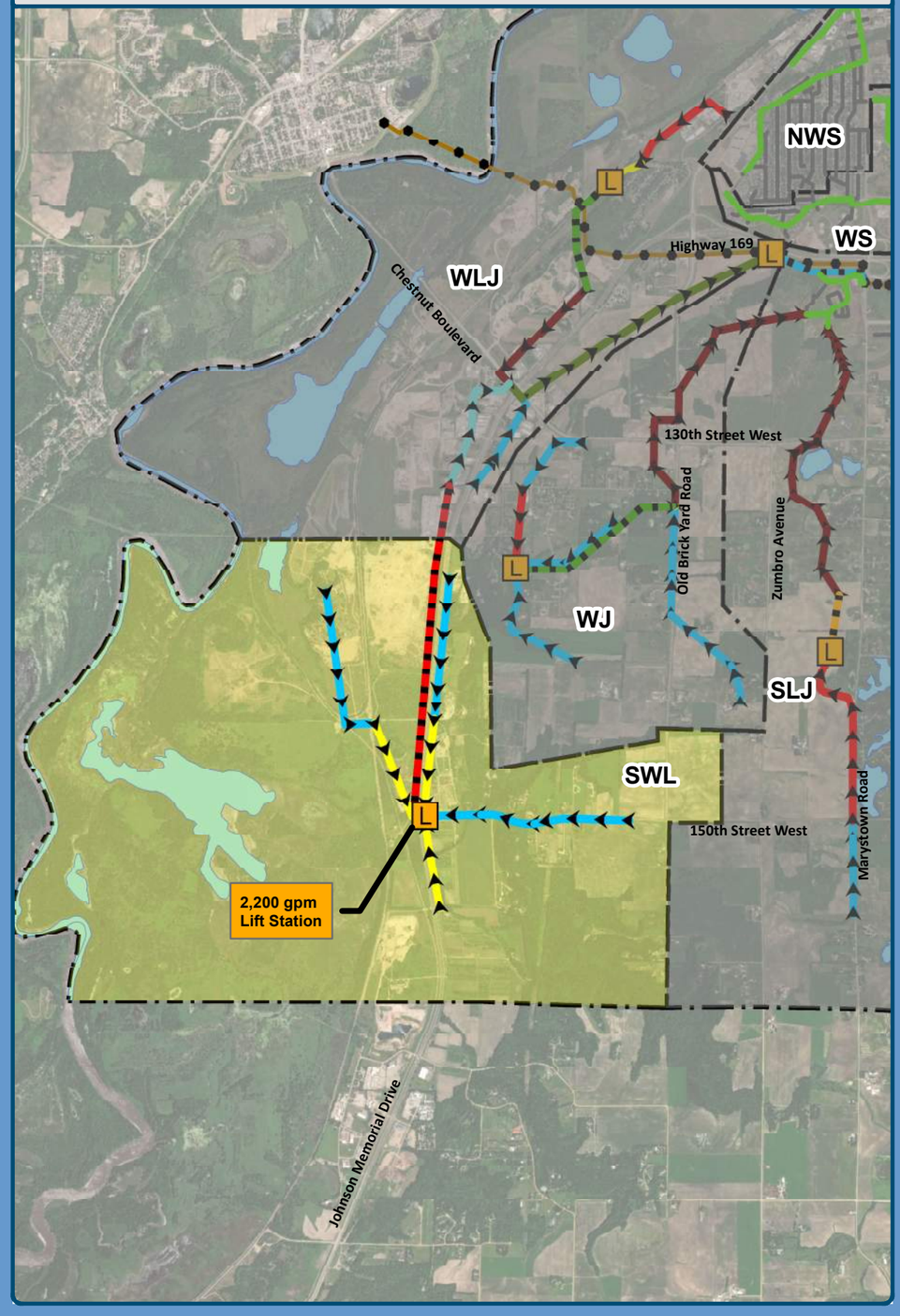
Figure 8-3B

AE2S
Advanced Engineering and Environmental Services, Inc.

SWL District - Alternate 1



SWL District - Alternate 2



Lift Stations

- Active
- Abandoned
- Future Lift Stations

- Existing Trunk Sewer
- Gravity Sewer Laterals
- MCES Interceptor

Future Forcemain

- 6-inch
- 8-inch
- 12-inch
- 16-inch

Future Gravity Main

- 10-inch
- 12-inch
- 15-inch
- 18-inch
- 21-inch
- 24-inch
- 27-inch
- 36-inch
- Sewer District Boundaries
- SMSC Land Holdings

City of Shakopee Sanitary Sewer System

Alternate Comparison SWL District

Figure 8-3C

AE2S
Advanced Engineering and Environmental Services, Inc.

APPENDIX A

Trunk Sewer Improvements – Opinion of Probable Costs

Alternate No. 1 – North Shakopee	(NS)
Alternate No. 1 – Northwest Shakopee	(NWS)
Alternate No. 1 – East Shakopee	(ES)
Alternate No. 1 – Central Shakopee	(CS)
Alternate No. 1 – South Shakopee	(SS)
Alternate No. 1 – Jackson Shakopee	(JS)
Alternate No. 1 – South Louisville Jackson	(SLJ)
Alternate No. 1 – West Jackson	(WJ)
Alternate No. 1 – West Louisville Jackson	(WLJ)
Alternate No. 1 – Southwest Louisville	(SWL)
Alternate No. 2 – North Shakopee	(NS)
Alternate No. 2 – Northwest Shakopee	(NWS)
Alternate No. 2 – East Shakopee	(ES)
Alternate No. 2 – Central Shakopee	(CS)
Alternate No. 2 – South Shakopee	(SS)
Alternate No. 2 – Jackson Shakopee	(JS)
Alternate No. 2 – South Louisville Jackson	(SLJ)
Alternate No. 2 – West Jackson	(WJ)
Alternate No. 2 – West Louisville Jackson	(WLJ)
Alternate No. 2 – Southwest Louisville	(SWL)

Alternate No. 1 - North Shakopee (NS)
Gravity Main

District Cost Summary				
Alternate 1 - North Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	346	$64	$338,000	$23,000
12	1889	$75	$396,000	$142,000
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$165,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$165,000

District Cost Breakdown									
Alternate 1 - North Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	346	0	0	0	$64	$23,000	$0	$0	$0
12	1889	0	0	0	$75	$142,000	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$165,000	$0	$0	$0
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$165,000	$0	$0	$0

Alternate No. 1 - Northwest Shakopee (NWS)
Gravity Main

District Cost Summary				
Alternate 1 - Northwest Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	0	$64	$338,000	$0
12	2440	$75	$396,000	$184,000
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$184,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$184,000

District Cost Breakdown									
Alternate 1 - Northwest Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	0	$64	$0	$0	$0	$0
12	0	0	2440	0	$75	$0	$0	$184,000	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$184,000	$0
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$0	$0	$184,000	$0

Alternate No. 1 - East Shakopee (ES)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 1 - East Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	4649	$64	$338,000	$298,000
12	0	$75	$396,000	$0
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	$298,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	1154	$46	$243,000	$54,000
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$54,000
			Estimated Lift Station Cost	$470,000
			District Grand Total	$822,000

District Cost Breakdown									
Alternate 1 - East Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	4649	$64	$0	$0	$0	$298,000
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$298,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	1154	$46	$0	$0	$0	$54,000
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$54,000
					Estimated Lift Station Cost	$0	$0	$0	$470,000
					District Grand Total	$0	$0	$0	$822,000

Alternate No. 1 - Central Shakopee (CS)
Gravity Main

District Cost Summary				
Alternate 1 - Central Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	4246	$64	$338,000	$272,000
12	0	$75	$396,000	$0
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$272,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$272,000

District Cost Breakdown									
Alternate 1 - Central Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	4246	0	$64	$0	$0	$272,000	$0
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$272,000	$0
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$0	$0	$272,000	$0

Alternate No. 1 - South Shakopee (SS)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 1 - South Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	2952	$64	$338,000	$189,000
12	6830	$75	$396,000	$513,000
15	9693	$90	$476,000	$873,000
18	2091	$111	$587,000	$233,000
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	$1,808,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	424	$46	$243,000	$20,000
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$20,000
			Estimated Lift Station Cost	$370,000
			District Grand Total	$2,198,000

District Cost Breakdown									
Alternate 1 - South Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	2952	$64	$0	$0	$0	$189,000
12	0	0	0	6830	$75	$0	$0	$0	$513,000
15	0	9693	0	0	$90	$0	$873,000	$0	$0
18	0	2091	0	0	$111	$0	$233,000	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$1,106,000	$0	$702,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	424	$46	$0	$0	$0	$20,000
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$20,000
					Estimated Lift Station Cost	$0	$0	$0	$370,000
					District Grand Total	$0	$1,106,000	$0	$1,092,000

Alternate No. 1 - Jackson Shakopee (JS)
Gravity Main

District Cost Summary				
Alternate 1 - Jackson Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	1596	$64	$338,000	$103,000
12	2713	$75	$396,000	$204,000
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$307,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$307,000

District Cost Breakdown									
Alternate 1 - Jackson Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	1596	$64	$0	$0	$0	$103,000
12	0	0	0	2713	$75	$0	$0	$0	$204,000
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$307,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$0	$0	$0	$307,000

Alternate No. 1 - South Louisville Jackson (SLJ)
Gravity Main, Forcemain, & Lift Station

District Cost Summary

Alternate 1 - South Louisville Jackson

Gravity Main

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	2652	$64	$338,000	$170,000
12	0	$75	$396,000	$0
15	0	$90	$476,000	$0
18	10315	$111	$587,000	$1,146,000
21	2587	$139	$734,000	$360,000
24	15151	$152	$803,000	$2,304,000
			District Total Gravity	**$3,980,000**

Forcemain

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	1718	$74	$391,000	$128,000
			District Total Forcemain	**$128,000**
			Estimated Lift Station Cost	**$700,000**
			District Grand Total	**$4,808,000**

District Cost Breakdown

Alternate 1 - South Louisville Jackson

Gravity Main

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	2652	$64	$0	$0	$0	$170,000
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	5003	0	0	5312	$111	$556,000	$0	$0	$590,000
21	0	0	0	2587	$139	$0	$0	$0	$360,000
24	0	0	0	15151	$152	$0	$0	$0	$2,304,000
					District Total Gravity	**$556,000**	**$0**	**$0**	**$3,424,000**

Forcemain

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	1718	$74	$0	$0	$0	$128,000
					District Total Forcemain	**$0**	**$0**	**$0**	**$128,000**
					Estimated Lift Station Cost	**$0**	**$0**	**$0**	**$700,000**
					District Grand Total	**$556,000**	**$0**	**$0**	**$4,252,000**

Alternate No. 1 - West Jackson (WJ)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 1 - West Jackson				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	15739	$64	$338,000	$1,008,000
12	2246	$75	$396,000	$169,000
15	87	$90	$476,000	$8,000
18	7414	$111	$587,000	$823,000
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	$2,008,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	5063	$53	$280,000	$269,000
12	0	$74	$391,000	$0
			District Total Forcemain	$269,000
			Estimated Lift Station Cost	$550,000
			District Grand Total	$2,827,000

District Cost Breakdown									
Alternate 1 - West Jackson									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	15739	$64	$0	$0	$0	$1,008,000
12	0	0	0	2246	$75	$0	$0	$0	$169,000
15	0	0	0	87	$90	$0	$0	$0	$8,000
18	4731	0	0	2683	$111	$525,000	$0	$0	$298,000
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$525,000	$0	$0	$1,483,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	5063	$53	$0	$0	$0	$269,000
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$269,000
					Estimated Lift Station Cost	$0	$0	$0	$550,000
					District Grand Total	$525,000	$0	$0	$2,302,000

Alternate No. 1 - West Louisville Jackson (WLJ)
Gravity Main, Forcemain, & Lift Station

District Cost Summary

Alternate 1 - West Louisville Jackson

Gravity Main

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	5099	$64	$338,000	$327,000
12	3869	$75	$396,000	$291,000
15	0	$90	$476,000	$0
18	3849	$111	$587,000	$428,000
21	542	$139	$734,000	$76,000
24	8097	$152	$803,000	$1,231,000
			District Total Gravity	**$2,353,000**

Forcemain

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	3466	$46	$243,000	$160,000
8	0	$53	$280,000	$0
12	1486	$74	$391,000	$110,000
			District Total Forcemain	**$270,000**
			Estimated Lift Station Cost	**$700,000**
				$370,000
			District Grand Total	**$3,693,000**

District Cost Breakdown

Alternate 1 - West Louisville Jackson

Gravity Main

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	5099	$64	$0	$0	$0	$327,000
12	0	0	0	3869	$75	$0	$0	$0	$291,000
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	3849	$111	$0	$0	$0	$428,000
21	0	0	0	542	$139	$0	$0	$0	$76,000
24	0	0	8097	0	$152	$0	$0	$1,231,000	$0
					District Total Gravity	**$0**	**$0**	**$1,231,000**	**$1,122,000**

Forcemain

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	3466	$46	$0	$0	$0	$160,000
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	1486	0	$74	$0	$0	$110,000	$0
					District Total Forcemain	**$0**	**$0**	**$110,000**	**$160,000**
					Estimated Lift Station Cost	**$0**	**$0**	**$700,000**	**$0**
						$0	**$0**	**$0**	**$370,000**
					District Grand Total	**$0**	**$0**	**$2,041,000**	**$1,652,000**

Alternate No. 1 - Southwest Louisville (SWL)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 1 - Southwest Louisville				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	14361	$64	$338,000	$920,000
12	0	$75	$396,000	$0
15	8583	$90	$476,000	$773,000
18	0	$111	$587,000	$0
21	15	$139	$734,000	$3,000
24	0	$152	$803,000	$0
			District Total Gravity	$1,696,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	9548	$74	$391,000	$707,000
			District Total Forcemain	$707,000
			Estimated Lift Station Cost	$700,000
			District Grand Total	$3,103,000

District Cost Breakdown									
Alternate 1 - Southwest Louisville									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	14361	$64	$0	$0	$0	$920,000
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	8583	$90	$0	$0	$0	$773,000
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	15	$139	$0	$0	$0	$3,000
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$1,696,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	9548	$74	$0	$0	$0	$707,000
					District Total Forcemain	$0	$0	$0	$707,000
					Estimated Lift Station Cost	$0	$0	$0	$700,000
					District Grand Total	$0	$0	$0	$3,103,000

Alternate No. 2 - North Shakopee (NS)
Gravity Main

District Cost Summary				
Alternate 2 - North Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	346	$64	$338,000	$23,000
12	1889	$75	$396,000	$142,000
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$165,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$165,000

District Cost Breakdown									
Alternate 2 - North Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	346	0	0	0	$64	$23,000	$0	$0	$0
12	1889	0	0	0	$75	$142,000	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$165,000	$0	$0	$0
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$165,000	$0	$0	$0

Alternate No. 2 - Northwest Shakopee (NWS)
Gravity Main

District Cost Summary				
Alternate 2 - Northwest Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	0	$64	$338,000	$0
12	0	$75	$396,000	$0
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$0
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$0

District Cost Breakdown									
Alternate 2 - Northwest Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	0	$64	$0	$0	$0	$0
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$0
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$0	$0	$0	$0

Alternate No. 2 - East Shakopee (ES)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 2 - East Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	4649	$64	$338,000	$298,000
12	0	$75	$396,000	$0
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	$298,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	1154	$46	$243,000	$54,000
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$54,000
			Estimated Lift Station Cost	$470,000
			District Grand Total	$822,000

District Cost Breakdown									
Alternate 2 - East Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	4649	$64	$0	$0	$0	$298,000
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$298,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	1154	$46	$0	$0	$0	$54,000
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$54,000
					Estimated Lift Station Cost	$0	$0	$0	$470,000
					District Grand Total	$0	$0	$0	$822,000

Alternate No. 2 - Central Shakopee (CS)
Gravity Main

District Cost Summary				
Alternate 2 - Central Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	4246	$64	$338,000	$272,000
12	0	$75	$396,000	$0
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$272,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$272,000

District Cost Breakdown									
Alternate 2 - Central Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	4246	0	$64	$0	$0	$272,000	$0
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$272,000	$0
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$0	$0	$272,000	$0

Alternate No. 2 - South Shakopee (SS)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 2 - South Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	2952	$64	$338,000	$189,000
12	6830	$75	$396,000	$513,000
15	9693	$90	$476,000	$873,000
18	2091	$111	$587,000	$233,000
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	$1,808,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	424	$46	$243,000	$20,000
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$20,000
			Estimated Lift Station Cost	$370,000
			District Grand Total	$2,198,000

District Cost Breakdown									
Alternate 2 - South Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	2952	$64	$0	$0	$0	$189,000
12	0	0	0	6830	$75	$0	$0	$0	$513,000
15	0	9693	0	0	$90	$0	$873,000	$0	$0
18	0	2091	0	0	$111	$0	$233,000	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$1,106,000	$0	$702,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	424	$46	$0	$0	$0	$20,000
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$20,000
					Estimated Lift Station Cost	$0	$0	$0	$370,000
					District Grand Total	$0	$1,106,000	$0	$1,092,000

Alternate No. 2 - Jackson Shakopee (JS)
Gravity Main

District Cost Summary				
Alternate 2 - Jackson Shakopee				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	1596	$64	$338,000	$103,000
12	2713	$75	$396,000	$204,000
15	0	$90	$476,000	$0
18	0	$111	$587,000	$0
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total	$307,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	$0
			Estimated Lift Station Cost	$0
			District Grand Total	$307,000

District Cost Breakdown									
Alternate 2 - Jackson Shakopee									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	1596	$64	$0	$0	$0	$103,000
12	0	0	0	2713	$75	$0	$0	$0	$204,000
15	0	0	0	0	$90	$0	$0	$0	$0
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$307,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$0
					Estimated Lift Station Cost	$0	$0	$0	$0
					District Grand Total	$0	$0	$0	$307,000

Alternate No. 2 - South Louisville Jackson (SLJ)
Gravity Main, Forcemain, & Lift Station

District Cost Summary

Alternate 2 - South Louisville Jackson

Gravity Main

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	8871	$64	$338,000	$568,000
12	6866	$75	$396,000	$515,000
15	0	$90	$476,000	$0
18	10311	$111	$587,000	$1,145,000
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	**$2,228,000**

Forcemain

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	1616	$46	$243,000	$75,000
8	0	$53	$280,000	$0
12	0	$74	$391,000	$0
			District Total Forcemain	**$75,000**
			Estimated Lift Station Cost	**$470,000**
			District Grand Total	**$2,773,000**

District Cost Breakdown

Alternate 2 - South Louisville Jackson

Gravity Main

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	8871	$64	$0	$0	$0	$568,000
12	0	0	0	6866	$75	$0	$0	$0	$515,000
15	0	0	0	0	$90	$0	$0	$0	$0
18	5003	0	0	5308	$111	$556,000	$0	$0	$589,000
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	**$556,000**	**$0**	**$0**	**$1,672,000**

Forcemain

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	1616	$46	$0	$0	$0	$75,000
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	**$0**	**$0**	**$0**	**$75,000**
					Estimated Lift Station Cost	**$0**	**$0**	**$0**	**$470,000**
					District Grand Total	**$556,000**	**$0**	**$0**	**$2,217,000**

Alternate No. 2 - West Jackson (WJ)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 2 - West Jackson				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	15739	$64	$338,000	$1,008,000
12	2246	$75	$396,000	$169,000
15	87	$90	$476,000	$8,000
18	7414	$111	$587,000	$823,000
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
			District Total Gravity	$2,008,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	5063	$53	$280,000	$269,000
12	0	$74	$391,000	$0
			District Total Forcemain	$269,000
			Estimated Lift Station Cost	$550,000
			District Grand Total	$2,827,000

District Cost Breakdown									
Alternate 2 - West Jackson									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	15739	$64	$0	$0	$0	$1,008,000
12	0	0	0	2246	$75	$0	$0	$0	$169,000
15	0	0	0	87	$90	$0	$0	$0	$8,000
18	4731	0	0	2683	$111	$525,000	$0	$0	$298,000
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$525,000	$0	$0	$1,483,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	5063	$53	$0	$0	$0	$269,000
12	0	0	0	0	$74	$0	$0	$0	$0
					District Total Forcemain	$0	$0	$0	$269,000
					Estimated Lift Station Cost	$0	$0	$0	$550,000
					District Grand Total	$525,000	$0	$0	$2,302,000

Alternate No. 2 - West Louisville Jackson (WLJ)
Gravity Main, Forcemain, & Lift Station

District Cost Summary

Alternate 2 - West Louisville Jackson

Gravity Main

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	2916	$64	$338,000	$187,000
12	3249	$75	$396,000	$244,000
15	1055	$90	$476,000	$95,000
18	3869	$111	$587,000	$430,000
21	0	$139	$734,000	$0
24	0	$152	$803,000	$0
27	3849	$204	$1,078,000	$786,000
36	8639	$276	$1,458,000	$2,385,000
			District Total Gravity	**$4,127,000**

Forcemain

Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	3470	$53	$280,000	$184,000
12	0	$74	$391,000	$0
16	2800	$95	$502,000	$266,000
			District Total Forcemain	**$450,000**
			Estimated Lift Station Cost	**$800,000**
				$550,000
			District Grand Total	**$5,927,000**

District Cost Breakdown

Alternate 2 - West Louisville Jackson

Gravity Main

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	2916	$64	$0	$0	$0	$187,000
12	0	0	3249	0	$75	$0	$0	$244,000	$0
15	0	0	1055	0	$90	$0	$0	$95,000	$0
18	0	0	3869	0	$111	$0	$0	$430,000	$0
21	0	0	0	0	$139	$0	$0	$0	$0
24	0	0	0	0	$152	$0	$0	$0	$0
27	0	0	0	3849	$204	$0	$0	$0	$786,000
36	0	0	8639	0	$276	$0	$0	$2,385,000	$0
					District Total Gravity	**$0**	**$0**	**$3,154,000**	**$973,000**

Forcemain

Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	3470	0	$53	$0	$0	$184,000	$0
12	0	0	0	0	$74	$0	$0	$0	$0
16	0	0	2800	0	$95	$0	$0	$266,000	$0
					District Total Forcemain	**$0**	**$0**	**$450,000**	**$0**
					Estimated Lift Station Cost	**$0**	**$0**	**$800,000**	**$0**
						$0	**$0**	**$550,000**	**$0**
					District Grand Total	**$0**	**$0**	**$4,954,000**	**$973,000**

Alternate No. 2 - Southwest Louisville (SWL)
Gravity Main, Forcemain, & Lift Station

District Cost Summary				
Alternate 2 - Southwest Louisville				
Gravity Main				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
10	14361	$64	$338,000	$920,000
12	0	$75	$396,000	$0
15	8583	$90	$476,000	$773,000
18	0	$111	$587,000	$0
21	15	$139	$734,000	$3,000
24	0	$152	$803,000	$0
			District Total Gravity	$1,696,000
Forcemain				
Pipe Size (in)	Length (FT)	Avg Cost per LF	Avg Cost per Mile	Total
6	0	$46	$243,000	$0
8	0	$53	$280,000	$0
12	9415	$74	$391,000	$697,000
			District Total Forcemain	$697,000
			Estimated Lift Station Cost	$700,000
			District Grand Total	$3,093,000

District Cost Breakdown									
Alternate 2 - Southwest Louisville									
Gravity Main									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
10	0	0	0	14361	$64	$0	$0	$0	$920,000
12	0	0	0	0	$75	$0	$0	$0	$0
15	0	0	0	8583	$90	$0	$0	$0	$773,000
18	0	0	0	0	$111	$0	$0	$0	$0
21	0	0	0	15	$139	$0	$0	$0	$3,000
24	0	0	0	0	$152	$0	$0	$0	$0
					District Total Gravity	$0	$0	$0	$1,696,000
Forcemain									
Pipe Size (in)	Length (2018-20)	Length (2020-30)	Length (2030-40)	Length (Post 2040)	Avg Cost per LF	2018-20 Total	2020-30 Total	2030-40 Total	Post 2040 Total
6	0	0	0	0	$46	$0	$0	$0	$0
8	0	0	0	0	$53	$0	$0	$0	$0
12	0	0	0	9415	$74	$0	$0	$0	$697,000
					District Total Forcemain	$0	$0	$0	$697,000
					Estimated Lift Station Cost	$0	$0	$0	$700,000
					District Grand Total	$0	$0	$0	$3,093,000

APPENDIX B

MCES Shakopee/Chaska Interceptor Cost-Share Agreement

Executed Copy

SHAKOPEE/CHASKA INTERCEPTOR
COST SHARING AGREEMENT

THIS AGREEMENT, is made and entered into between the **METROPOLITAN COUNCIL** (hereinafter "the Council"), the **METROPOLITAN WASTE CONTROL COMMISSION** (hereinafter "the Commission"), and the **CITY OF SHAKOPEE** (hereinafter "the City").

WHEREAS, the Council and Commission, following review and analysis, have amended the Commission's 1992-2010 Implementation Plan to include the construction of an interceptor sewer (the "Facility"), generally depicted on Exhibit A attached hereto and made a part hereof, to convey sewage from the City of Chaska to the Commission's Blue Lake Wastewater Treatment Plant; and

WHEREAS, a portion of the Facility serving Chaska will be located within the boundaries of the City, and could, with certain design changes, simultaneously serve as a Commission interceptor and a local trunk sewer for the City; and

WHEREAS, the Council, the Commission and the City have agreed that the Facility can be designed and used simultaneously as a Commission interceptor sewer and a local trunk sewer for the City. In consideration of the Council and Commission modifying the design of the Facility to accommodate the City's need for a local trunk sewer, the City agrees to pay for a portion of the project costs of the Facility over and above its SAC charge cost contribution and the City further agrees to make necessary amendments to its comprehensive plan, comprehensive sewer plan and official controls to ensure the avoidance of premature growth or urbanization in accordance with Council policies.

NOW, THEREFORE, the parties to this agreement, in consideration of the mutual covenants contained in this agreement, agree as follows:

SECTION 1.

RECITALS

1.1 **Council and Commission**. Pursuant to Minnesota Statutes, section 473.146, the Council has adopted a Wastewater Treatment and Handling Policy Plan for the collection, treatment, and disposal of sewage in the Metropolitan Area. Minnesota Statutes Section 473.511 authorizes the Commission to acquire, construct, equip, maintain and operate all interceptors and treatment works needed to implement the Council's Wastewater Treatment and Handling Policy Plan.

1.2 **Chaska/Shakopee Interceptor, Shakopee Segment**. The Council and Commission have determined that the Facility is necessary for and shall be constructed pursuant to the Council's Wastewater Treatment and Handling Policy Plan and the Commission's 1992-2010 Implementation Plan. This work is identified as Commission Project Number 920601.

1.3 **City Sewer**. The City has planned the construction of a trunk sewer along the general route of the Facility. The City has determined that the joint use of a single sewer pipe to be constructed, owned, and operated by the Commission will satisfy certain sewer service needs of the City. The City agrees that it will conduct all proceedings necessary under law and ordinance so as

to authorize it to participate in the cost of the construction of the Facility.

1.4 **Construction**. The interceptor and trunk sewer can be constructed as a single pipe and the design of the Facility and its construction can best and most economically be undertaken by the Commission. Construction of the Facility will be carried out by the Commission through an agreement with the Minnesota Department of Transportation (hereinafter "MnDOT"). That agreement will provide that MnDOT will construct the Facility in conjunction with its construction of the Shakopee Bypass with the costs thereof to be billed by MnDOT to the MWCC at the time of construction. After construction, ownership and operation of the Facility will be turned over to the MWCC.

SECTION 2.

FACILITY CONSTRUCTION AND CAPACITY

2.1 **Plans and Specification**. The Commission will prepare plans and specifications for the construction of the Facility. The plans and specifications for the Facility shall include adequate design capacity to enable the City's use of the Facility as specified in this Agreement for trunk sewer purposes, as well as use of the Facility as a Commission interceptor. The Commission shall design the Facility to provide capacity for planned growth to the year 2040 of the land within the City tributary to the Facility. This capacity shall be determined on or before Commission approval of the plans and specifications for the Facility. Specifically, the Facility shall, at a minimum, be designed with 17 cubic feet per second peak capacity for City trunk sewer use. The Commission agrees to allow the City to review and comment on the plans and specifications for the Facility so as to insure that adequate trunk sewer capacity is provided. Notwithstanding any other provisions of this Agreement, the Commission shall be solely responsible for approving plans and specifications for the Facility.

2.2 **Contract Administration**. Facility construction will be carried out by the Commission through an agreement with MnDOT. That agreement will provide that the construction project will be completed in accordance with the design plans and specifications described in section 2.1. The Commission retains sole authority to determine whether construction is consistent with the design plans and specifications.

SECTION 3.

PROJECT FINANCING

3.1 **Shared Costs**. The Commission and City shall share the costs of constructing the gravity sewer portion of the Facility as set forth in this Section 3. Costs to be shared (hereinafter "Shared Costs") shall consist of the following:

A. The total of unit price costs for the gravity sewer portion of the Facility as determined by the award to the general contractor on the project on a competitive bid basis.

B. A pro rata share of common or project-wide costs (e.g. mobilization, seeding, erosion control, etc.) as determined by the project bid, allocated to the gravity

sewer portion of the Facility on the basis of length of that portion versus the length of the entire sewer interceptor as well as a pro rata share of the actual costs incurred by the Council and the Commission to issue the bonds.

C. Any additions or subtractions to the costs set forth in paragraphs A or B resulting from project change orders.

D. Fifteen (15) percent of the total costs as determined in paragraphs A, B, and C as engineering, construction inspection/management, and administrative overhead.

"Shared Costs" are currently estimated at approximately $ 4,000,000. However, it is expressly agreed by the City that said figure is an estimate only and that actual final Shared Costs will be determined as provided in this section 3.1. The Commission agrees to notify the City of the actual final shared costs after they have been determined by the Commission and provide the City with a repayment schedule for the City's principal and interest payments as determined in sections 3.3 and 3.4.

3.2 **City Portion**. The City agrees to pay the Commission the City's portion of the Shared Costs as calculated by applying the following percentages to the total cost paid by the Commission for each of the corresponding pipe sections:

Pipe Section	Shakopee % of Total Cost
A	00.00
B	29.00
C	31.00
D	33.00
E	39.00
F	39.00
G	44.00
H	46.00
I	46.00

These percentages are based on the formulation depicted in Exhibit B in which the City reimburses the Commission for a percentage of the total cost paid for the Facility which is proportional to the amount of wastewater flow from the City as compared to the total wastewater flow. The City shall receive a credit to its portion of the Shared Costs in the amount of $1,325,000. The amount so calculated based on the percentages minus the credit shall constitute the principal portion of the Shared Costs and is hereinafter referred to as the "City Share Principal." The City Share Principal shall be paid in installments by the City in accordance with the provisions of section 3.4. The City shall also pay interest on an annual basis to the Commission in accordance with the provisions of section 3.3.

3.3 **Interest Rate**. The City Share Principal shall bear simple interest on the unpaid principal balance from the date payment is made by the Commission to MnDOT for the Facility at a per annum rate which is equal to the interest rate charged to the Council and the Commission on the bonds issued for the project. The first interest payment shall be due December 1 of the year following the date of completion. The date of completion for this section 3.3 is the date the Facility is placed into operation. Thereafter, interest payments from the City will be due on December 1 of

each subsequent calander year until all principal payments have been made pursuant to section 3.4.

3.4 Principal Payments. The City shall make payments of City Share Principal in four equal installments over 20 years. The first principal payment shall be due on December 1 of the fifth calander year following the date of completion. The date of completion for this section 3.4 is the date the Facility is placed into operation. Thereafter, principal payments from the City will be due on December 1 of every fifth calander year. The City may prepay all or any portion of the outstanding City Share principal at any time.

3.5 Method of Payment. Payments under section 3.3 and section 3.4 shall be made payable by check or wire to the "Metropolitan Waste Control Commission" at the following address:

Chief Administrator
Metropolitan Waste Control Commission
230 East Fifth Street
St. Paul, Minnesota 55101

If the City makes a payment to the Commission by wire, the City will notify the Commission two days before wiring the payment.

3.6 Acceleration of Payments. If any default is made in the payment of any installment principal and/or interest due and owing pursuant to section 3.3 or section 3.4, the Commission may at its option and upon ninety (90) days written notice to the City, elect and declare its intent that the entire unpaid City Share principal amount (plus accrued interest) shall become immediately due and owing. Following delivery of the notice, the City shall be given ninety (90) days, to cure the default. If the City fails to cure the default within the ninety (90) days, and following formal consideration during which the City shall be given an opportunity to state its position, the entire unpaid City Share principal plus accrued interest shall immediately become due and owing on the first day following the expiration of said ninety (90) day period.

3.7 Collection of Installments. The parties to this Agreement expressly agree that the City's payment obligations pursuant to this Agreement constitute a charge payable pursuant to Minnesota Statutes, section 473.521. In the event the City fails to make any installment payment or portion thereof, and accrued interest, pursuant to this Agreement, the Commission at its option may recover or collect any such amounts due and owing by one or more of the following methods:

A. A deficiency tax levy pursuant to Minnesota Statutes, section 473.521, subd. 4. In such case the City expressly represents and agrees that such charges are a legitimate and necessary charge.

B. Addition of the amounts owed to the City's regular sewer bills from the Commission for sewer service.

C. By any other appropriate legal proceedings.

SECTION 4.

OWNERSHIP AND USE

4.1 **Ownership of the Facility**. The Commission shall be the sole owner of the Facility and shall be responsible for its operation, maintenance, repair, and reconstruction. The Commission shall operate and maintain the Facility in good, working order, and shall preserve and maintain that portion of the capacity of the Facility as described herein for use by the City as a trunk sewer so long as the Facility is needed and utilized by the Commission as an interceptor sewer. If the Facility is no longer needed by the Commission as an interceptor sewer, the City, the Commission, and the Council may negotiate an agreement to sell or otherwise convey the Facility to the City. The Commission may utilize any portion of the capacity assigned to the City pursuant to this Agreement and not currently being utilized or needed by the City for trunk sewer purposes. The Commission shall not be responsible for construction, operation, maintenance, repair or reconstruction of any connection to the Facility which is not constructed by the Commission as part of Commission Project Number 920601.

4.2 **City Use**. The City shall be authorized to make use of the Facility as a trunk sewer for flows in cubic feet per second not exceeding the following amounts for each section of pipe as indicated on Exhibit A:

Pipe Section	Maximum Shakopee Flow
A	0.0
B	3.0
C	3.9
D	4.7
E	8.0
F	8.0
G	14.3
H	16.3
I	17.0

Any such use shall be consistent with the provisions of the City's Comprehensive Plan and Comprehensive Sewer Plan, and the design plans for the Facility when areas tributary to the Facility are brought within the City's urban service area including lands which the City may annex in the future. Provided, however, that no such use is available for land annexed by the City after the date of this agreement unless there is an agreement among the parties on a recalculation of the City's cost share for such additional use. The City's portion of the cost share for such additional use shall be determined consistent with the formula used in section 3.2 in which the City's portion is calculated as a percentage of the total cost paid for the Facility which is proportional to the amount of wastewater flow from the area annexed by Shakopee as compared to the total wastewater flow. This formula is depicted in Exhibit B. An illustration showing how the formula would apply for adding flow at point A from land annexed by Shakopee is included as Exhibit C. However, it is expressly agreed that Exhibit C is an illustration only and that the City's share will be based on the actual final costs for the Facility. The first illustration on Exhibit C represents the "base case" for the costs that the City is required to pay under the terms of this agreement. Whether or not the City annexes land, the City is required to pay the basic amount of $5,283,190. Up to 3.0 c.f.s. of flow can be placed in the pipe at point B. All or a portion of this flow could come from land annexed by the City which

would not require a recalculation of the shared costs of this agreement. Total flow at point B, however, cannot exceed 3.0 c.f.s. under the terms of this agreement. If the City seeks to add any flow at point A or add flow at point B in excess of 3.0 c.f.s., the parties will need to rcalculate the shared costs based on the formula discussed above. In addition, if the City wishes to decrease flow at one point and add flow in excess of what has been agreed to under the terms of this agreement, the parties will need to recalculate the shared costs based on the formula as discussed above.

The City shall apply for a connection permit for all direct connections to the Facility and shall comply with the Commission's technical and engineering requirements for such connection. All costs of such connections shall be paid by the City except for connection I as depicted on Exhibit A. Nothing in this agreement shall be interpreted as abridging or limiting the Commission's enforcement of Waste Discharge Rules regulating the use of the metropolitan disposal system.

4.3 **Indemnification.** The City agrees to indemnify and hold harmless the Commission, its employees, or agents from and against all claims, damages, losses and expenses, including attorney's fees, attributable to any claims arising out of or resulting from the City's use of the trunk sewer capacity in the Facility provided that any such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom. The Commission agrees to indemnify and hold harmless the City, its employees, or agents from and against all claims, damages, losses and expenses, including attorney's fees, attributable to any claims arising out of or resulting from construction, operation, or maintenance of the Facility, except for any such claims attributable to the City's use of the trunk sewer capacity in the Facility provided that any such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom.

SECTION 5.

RIGHT-OF-WAY ACQUISITION

5.1 **Duties of City.** The City shall assist the Commission in acquiring the necessary property, rights of entry and other property interests or permits needed for construction of the Facility and that portion of the Facility lying within the boundaries of the City. Such assistance shall include:

A. Conveyance to the Commission at fair market value, of the following easements along the final route of the Facility:

1. all sanitary sewer easements now owned or hereinafter acquired by the City; and

2. all sanitary sewer easements on city-owned property which the Commission determines are necessary for construction, operation, or maintenance of the Facility.

B. Conveyance to the Commission, without charge, of any easements located on property conveyed by MNDoT to the City as part of the Project which are determined necessary by the Commission for construction, operation, or maintenance of the

Facility.

C. Approval and authorization for use, without charge, of public rights of way within the City along the final route of the Facility.

D. Cooperation with the Commission in acquiring easements or other property interests from governmental subdivisions, business entities and private individuals determined necessary by the Commission for construction of the Facility.

5.2 Public Purpose. The City stipulates and agrees that construction of the Facility is for a public purpose and that acquisition of property therefore is necessary and authorized by law pursuant to Minnesota Statutes Chapter 117 (1992).

SECTION 6.

LAND USE PLANNING AND CONTROL

6.1 Growth Control. In accordance with the Council's Metropolitan Development and Investment Framework and the metropolitan system plans, the City agrees to use its best efforts to prevent the premature urbanization of areas outside the year 2000 Metropolitan Urban Service Area. Specifically, the City agrees that it shall do and perform the following on or before January 1, 1996:

A. Submit to the Council for review a comprehensive plan or comprehensive plan amendments, including a comprehensive sewer plan, to comply with the following provisions of this Agreement. Amendments to the City's comprehensive plan shall be submitted to the Council for review pursuant to the Metropolitan Land Planning Act following approval by the City's planning commission and after consideration but before final approval by the City's governing body to meet the following objectives:

1. A provision designating a reconfigured year 2000 urban service area containing no more than 2311 acres of vacant developable land which includes platted lots and undeveloped portions of certain large industrial holdings, but does not include lakes, streams, or other waterbodies, wetlands, floodplains, and other lands used for public purposes as mutually agreed to by the City and the Council. Because the City's supply of vacant developable land within the urban service area is sufficient to meet the demand for future development beyond the year 2000, the reconfigured year 2000 urban service area will include a land trade taking approximately 180 acres of industrial land out of the urban service area, as indicated on Exhibit D, and adding approximately 360 acres of residential land to serve the demand for residential development.

2. A provision regarding the existence of the Facility which will ensure conformity with metropolitan system plans.

3. A provision that the City will not exceed the Council's year 2000 sewer flow projection of 5.94 cubic feet per second average annual flow or such final sewer flow allocation as may result from revisions to the Council's

Metropolitan Development and Investment Framework or the successor to that document.

4. A provision designating rural service density standards of one residential unit per ten (10) acres consistent with the following:

a. In those sections of the City where, as of the date of this agreement, the number of 1.) existing dwelling units; 2.) developable lots shown in applications accepted by the City as of January 18, 1994 for preliminary or final plats or preliminary or final planned unit developments (PUDs); and 3.) unsubdivided parcels exceeds the one (1) unit per ten (10) acre density computed on the basis of 640-acre parcels (sixty-four (64) units per six hundred and forty (640) acres):

- developable lots shown in preliminary or final plats approved by the City as of the date of this agreement may continue to be developed as zoned and platted;
- unsubdivided parcels of ten (10) acres or greater may continue to be platted and/or developed provided that the parcel meets the one (1) unit per ten (10) acre density standard;
- developable lots shown in preliminary or final plats approved by the City as of the date of this agreement and unsubdivided parcels must meet the conditions contained in the Appendix entitled "Criteria for Council Approval of Local Plans that are Inconsistent with MDIF Rural Area Policies" to the *Amendments to the Metropolitan Development and Investment Framework, Policies for the Rural Service Area*, adopted by the Council on December 5, 1991.

The Council encourages communities to allow lot sizes of less than 2.5 acres consistent with rural development standards to better provide for clustering of development to more efficiently provide future urban services.

This provision shall apply to sections 9, 13, 18, 19, 24, 30, and 32 in the City.

b. In all rural area sections where, as of the date of this agreement, the number of existing dwelling units, developable lots, and unsubdivided parcels is less than one (1) unit per ten (10) acre density the city must adopt policies and official controls consistent with the *Amendments to the Metropolitan Development and Investment Framework, Policies for the Rural Service Area*, adopted by the Council on December 5, 1991.

c. The parties recognize that this provision may include elements to address unconstitutional takings, hardships and unique circumstances.

5. A description of adopted on-site sewage disposal ordinance provisions consistent with applicable requirements set forth in the Council's Water Resources Management, Part 1, Wastewater Treatment and Handling Policy Plan.

6. A policy and ordinance adopting the Council's Interim Strategy to Reduce Nonpoint Source Loading to the Minnesota River.

Within 30 days following the completion of review of the comprehensive plan or comprehensive plan amendment by the Council, the City agrees to adopt the above-described comprehensive plan amendments. Notwithstanding any other provisions of this Agreement, no use of the Facility as a trunk sewer shall be permitted until the City has finally adopted the above-described comprehensive plan amendments following the completion of Council review.

B. Within one year following the date of this agreement, the City agrees to transmit to the Council a description and analysis of the difference between the City's comprehensive plan and its zoning ordinance provisions with respect to item A.4. above and a method approved and adopted by the City for reconciling the two which is acceptable to the Council, if different from one another with respect to land use types, densities, and urban service timing and staging. The City further agrees that by January 1, 1996, it shall repeal or appropriately amend any official control or fiscal device that is in conflict with item A.4. above of its comprehensive plan.

C. The City agrees to use its best efforts to work with Scott County to limit the spacing of access points on County Road 18 consistent with the Minimum Access Spacing Guidelines included as Exhibit E to this agreement and incorporated as part of this agreement. The City further agrees that it will follow Scott County's recommendation, if any, following the County's review of plats for access to County Road 18.

6.2 **Future Urban Service Area Expansions.** Future changes to the urban service area must occur under the applicable requirements and procedures of the Metropolitan Development and Investment Framework or the successor to that document as it is revised over time. The Council agrees that, as consistent with Council policies, if the City gets the planned household and job growth and needs additional land within the Metropolitan Urban Service Area, expansions of the Metropolitan Urban Service Area will be granted in areas where metropolitan systems are not adversely impacted.

6.3 **County Road 18.** Following the City's compliance with section 6.1(A) of this agreement and the Council's review and acceptance of Scott County's Transportation Plan which limits the spacing of access points on County Road 18 within the City, Scott County can resubmit, and the Council will approve, the controlled access request for direct access between CSAH 18 and the new County Road 18 in Shakopee (south of the Trunk Highway 101 By-pass).

SECTION 7.

SANCTIONS FOR BREACH OF CONTRACT

7.1 **Limitations on City's Right to Use**. It is expressly agreed that in the event that the City commits a material breach or violation of any provision of this Agreement, the Council or Commission may, following formal consideration during which the City shall be given an opportunity to state its position, delay or limit the City's right to use the Facility for trunk sewer purposes or take such other action as may be appropriate, provided, however, the Council or Commission shall not disconnect any connection by the City to the Facility for which a connection permit has previously been granted pursuant to Section 4.2 of this Agreement. Prior to any such delay or limitation, the City shall be given a reasonable time which shall not be less than ninety (90) days after notice in writing of the claimed violation, to achieve compliance with the terms of this Agreement. Nothing herein shall be construed to remove or modify the liability of the City under Section 3 of this Agreement. Notwithstanding the provisions of this Section 7.1, the City shall have the right to initiate such action or actions that the City shall deem appropriate requesting a judicial determination of whether a material breach or violation of any provision of this Agreement has occurred and, if so, whether the delay or limitation on the City's right to use the facility for trunk sewer purposes as imposed by the Council or Commission or any other action taken by the Council or Commission is appropriate and equitable under the circumstances.

7.2 **Design of Facility**. Upon any breach of this Agreement by the City, the Council and Commission may determine to design the Facility without capacity for the City, and/or take such other action as may be appropriate with respect to the design of the Facility.

7.3 **Fact Stipulations**. To assist in the enforcement of Section 6 of this Agreement, the parties hereto agree and stipulate to the following finding of fact:

> Any amendment to the City's comprehensive plan that does not comply with the provisions of Section 6 of this Agreement constitutes a substantial departure from a metropolitan system plan within the meaning of Minn. Stat. § 473.175.

The parties hereto have entered this Agreement in express reliance on the above-stated facts and the parties shall be estopped from denying or contesting the truth of said facts. It is expressly agreed that if the City fails to perform the tasks specified in Section 6 of this Agreement, the Council may obtain a court order under Minn. Stat. § 473.175 requiring the City to perform those actions specified in Section 6 of this Agreement. No action or inaction by the City pursuant to any order, judgment or decree of any court, governmental or administrative agency shall constitute a violation on the part of the City of any provision of this Agreement, provided that if the City cannot meet its obligations pursuant to Section 3 because of such order, judgment, or decree, the Council and Commission shall have no obligation to provide trunk sewer service to the City under this Agreement.

7.4 **City's Remedies**. It is expressly agreed that in the event that the Council or Commission violates any of the provisions of this Agreement, the City may, in addition to any other remedy at law, seek specific performance of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the 29th day of March, 1994.

Approved as to form

Assistant Counsel

METROPOLITAN COUNCIL

By
Chair

By
Executive Director

Approved as to form

General Counsel

METROPOLITAN WASTE CONTROL COMMISSION

By
Chair

By
Dep. Chief Administrator

Approved as to form

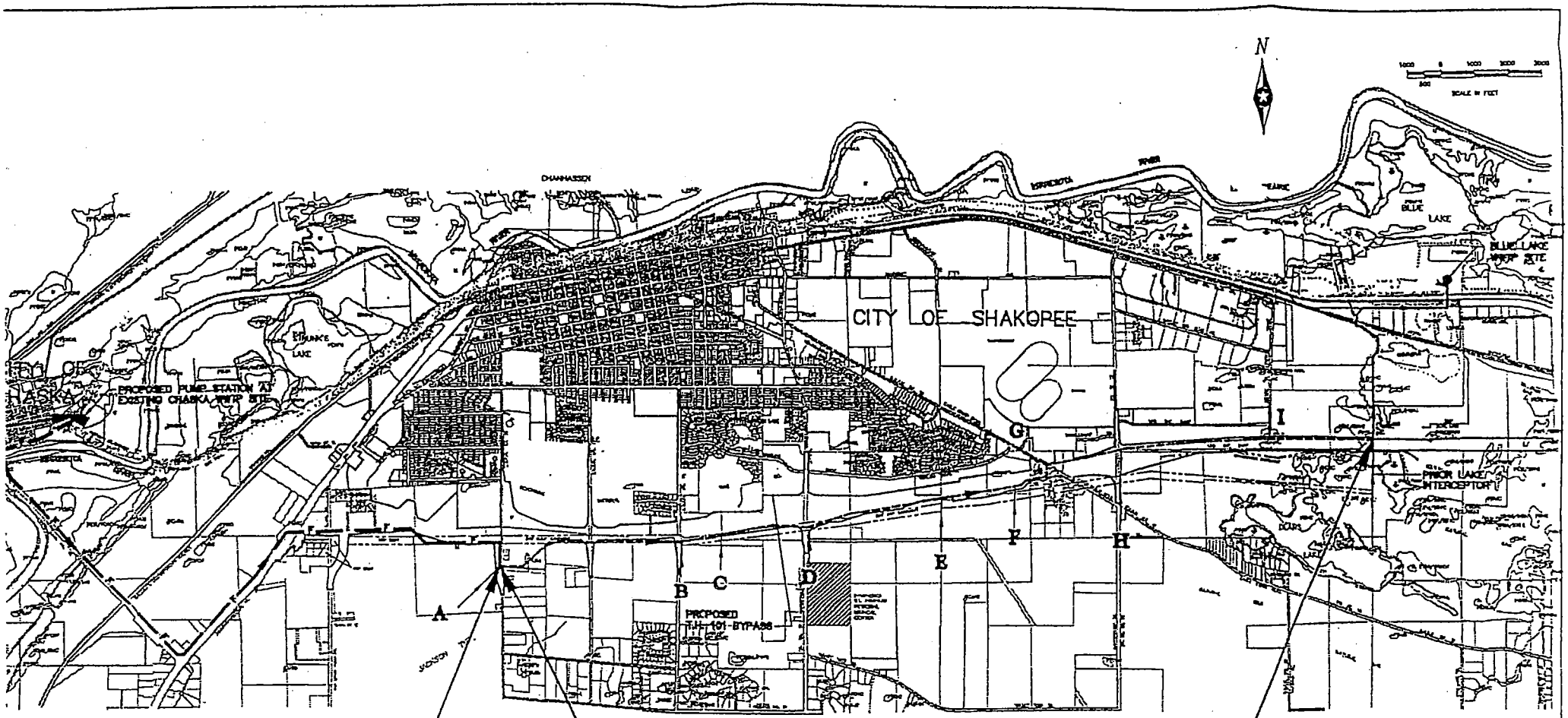
City Attorney

CITY OF SHAKOPEE 1-18-94

By
Mayor

By
City Administrator

By
City Clerk



LEGEND

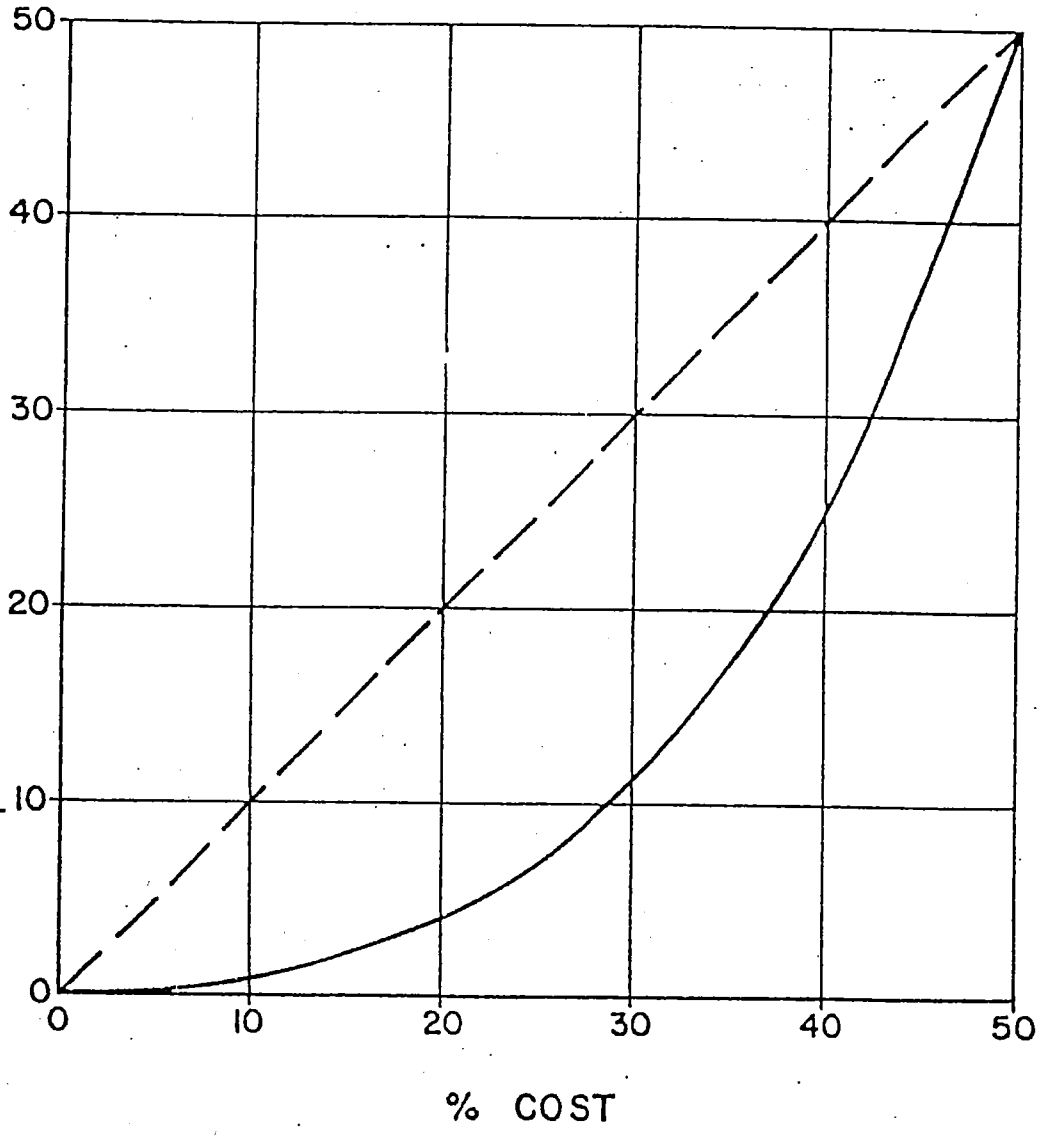
- PROPOSED PUMP STATION
- GRAVITY INTERCEPTOR
- BYPASS RIGHT-OF-WAY
- FORCEMAIN
- LAKE
- B — POSSIBLE LATERAL SEWER CONNECTIONS
- NATIONAL WETLANDS AREA AND DESIGNATION

EXHIBIT A

SEH	Metropolitan Waste Control Commission	MWCC PROJ. NO. 920600	CHASKA W.W.T.P. FACILITIES PLAN TRANSPORT FACILITIES – CENTRAL AND SOUTH CORRIDORS

Figure No. 5-6

% COST vs. % FLOW
INSTALLED COSTS
CONSTANT SLOPE = 0.20%



% FLOW	% COST
5	22
10	29
15	33
20	37
25	40
30	42
35	44
40	46
45	48
50	50

SHAKOPEE COST SHARING BREAKDOWN
SHAKOPEE/CHASKA INTERCEPTOR
MWCC PROJECT NUMBER 920601

PIPE SECT	SHAK FLOW (CFS)	SHAKOPEE % OF FLOW	SHAKOPEE % OF COST	SECT PIPE COST (MILL)	SHAKOPEE COST
A	0.0	0.0	0.0	2.159	$0
B	3.0	10.64	29.0	0.223	$64,670
C	3.9	13.40	31.0	1.054	$326,740
D	4.7	15.72	33.0	0.664	$219,120
E	8.0	24.10	39.0	0.260	$101,400
F	8.0	24.10	39.0	1.280	$499,200
G	14.3	36.20	44.0	1.971	$867,240
H	16.3	39.28	46.0	3.796	$1,746,160
I	17.0	40.28	46.0	3.171	$1,458,660
				14.578	$5,283,190

EXAMPLE 1 - SHAKOPEE ANNEX PART OF JACKSON TOWNSHIP
FOR ADDITIONAL 1 CFS OF FLOW

PIPE SECT	SHAK FLOW (CFS)	SHAKOPEE % OF FLOW	SHAKOPEE % OF COST	SECT PIPE COST (MILL)	SHAKOPEE COST
A	1.0	3.85%	19.0%	2.159	$410,210
B	4.0	14.13%	32.0%	0.223	$71,360
C	4.9	16.84%	34.0%	1.054	$358,360
D	5.7	19.06%	36.0%	0.664	$239,040
E	9.0	28.04%	41.0%	0.260	$106,600
F	9.0	28.04%	41.0%	1.280	$524,800
G	15.3	38.73%	45.5%	1.971	$896,805
H	17.3	41.69%	46.5%	3.796	$1,765,140
I	18.0	42.65%	47.0%	3.171	$1,490,370
				14.578	$5,862,685

EXHIBIT C

EXAMPLE 2 - SHAKOPEE ANNEX PART OF JACKSON TOWNSHIP
FOR ADDITIONAL 2 CFS OF FLOW

PIPE SECT	SHAK FLOW (CFS)	SHAKOPEE % OF FLOW	SHAKOPEE % OF COST	SECT PIPE COST (MILL)	SHAKOPEE COST
A	2.0	7.69%	25.5%	2.159	$550,545
B	5.0	17.67%	35.0%	0.223	$78,050
C	5.9	20.27%	37.0%	1.054	$389,980
D	6.7	22.41%	38.5%	0.664	$255,640
E	10.0	31.15%	42.5%	0.260	$110,500
F	10.0	31.15%	42.5%	1.280	$544,000
G	16.3	41.27%	46.5%	1.971	$916,515
H	18.3	44.10%	47.5%	3.796	$1,803,100
I	19.0	45.02%	48.0%	3.171	$1,522,080
				14.578	$6,170,410

EXAMPLE 3 - SHAKOPEE ANNEX PART OF JACKSON TOWNSHIP
FOR ADDITIONAL 3 CFS OF FLOW

PIPE SECT	SHAK FLOW (CFS)	SHAKOPEE % OF FLOW	SHAKOPEE % OF COST	SECT PIPE COST (MILL)	SHAKOPEE COST
A	3.0	11.54%	30.0%	2.159	$647,700
B	6.0	21.20%	38.0%	0.223	$84,740
C	6.9	23.71%	39.0%	1.054	$411,060
D	7.7	25.75%	40.0%	0.664	$265,600
E	11.0	34.27%	43.5%	0.260	$113,100
F	11.0	34.27%	43.5%	1.280	$556,800
G	17.3	43.80%	47.0%	1.971	$926,370
H	19.3	46.51%	48.5%	3.796	$1,841,060
I	20.0	47.39%	49.0%	3.171	$1,553,790
				14.578	$6,400,220

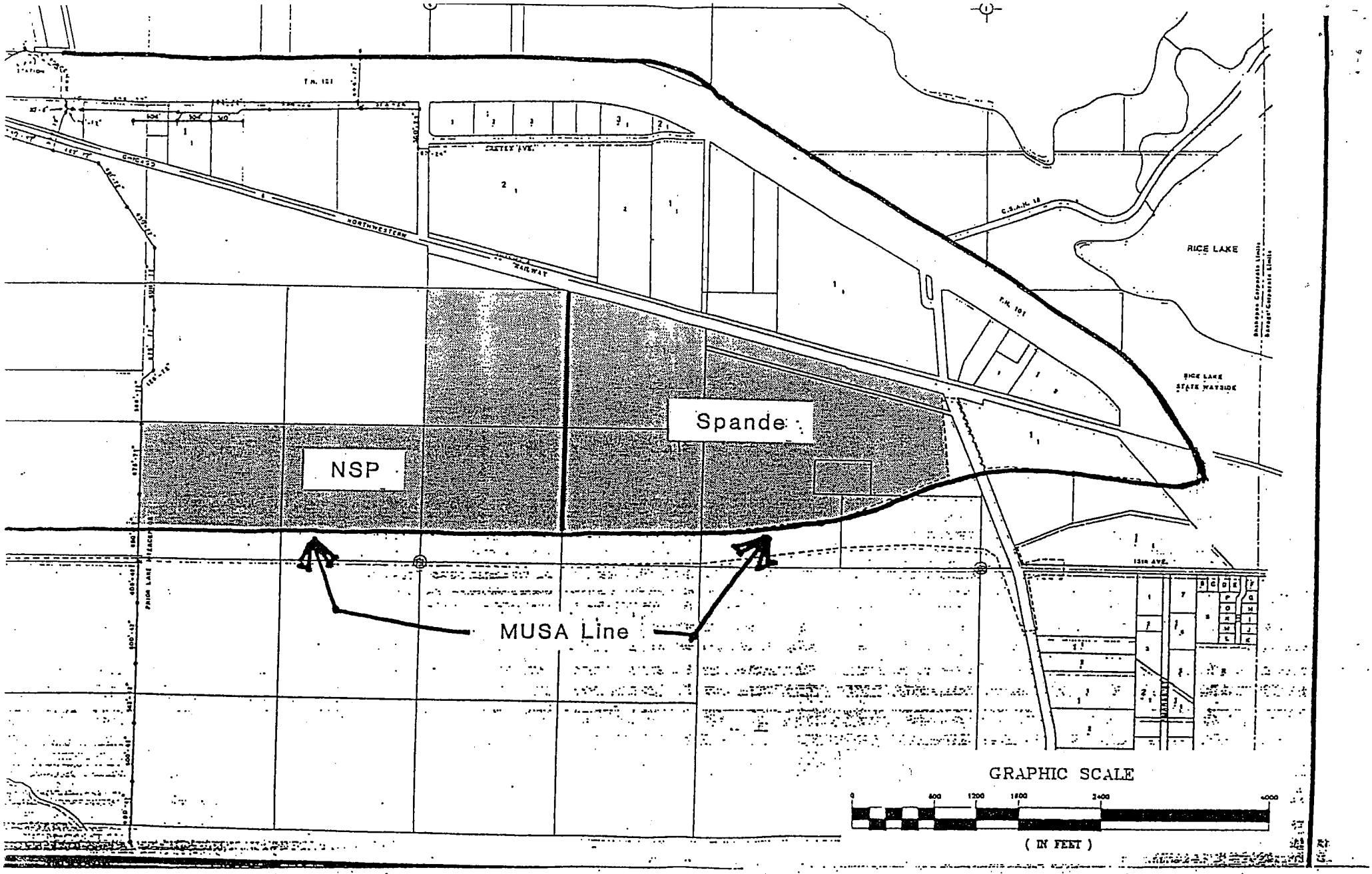


EXHIBIT D

MINIMUM ACCESS SPACING GUIDELINES

TYPES OF ACCESS BEING REQUESTED	TYPES OF COUNTY HIGHWAYS AFFECTED BY ACCESS						
	DIVIDED 6-LANE	DIVIDED 4-Lane		UNDIVIDED 4-LANE		UNDIVIDED 2-LANE	
	OVER 30,000 ADT	OVER 15,000 ADT	7,500 -15,000 ADT	OVER 15,000 ADT	7,500 - 15,000 ADT	OVER 3,000 ADT	LESS THAN 3,000
A. Private Residential or Individual Commercial Driveways	No direct access	No direct access	No direct access	No direct access	1/8 mile spacing	1/8 mile spacing	Determination based on other criteria
B. Low Volume, Non-Continuous Streets	1/8 mile spacing with no median opening	1/8 mile spacing with no median opening	1/8 mile spacing with no median opening	1/4 mile spacing	1/4 mile spacing	1/4 mile spacing	Determination based on other criteria
C. Medium-High Volume, Non-Continuous Streets	1/4 mile spacing with signals and turn lanes	1/4 mile spacing with signals and turn lanes	1/4 mile spacing with signals and turn lanes	1/4 mile spacing with signals and turn lanes	1/4 mile spacing	1/4 mile spacing	1/4 mile spacing
D. Low-Medium Volume, Thru Streets	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/4 mile spacing with signals and turn lanes	1/4 mile spacing with signals and turn lanes	1/4 mile spacing	1/4 mile spacing
E. Medium-High Volume, Thru Streets	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes	1/2 mile spacing with signals and turn lanes
F. High Volume Arterials and Expressways	1 mile spacing with signals and turn lanes	1 mile spacing with signals and turn lanes	1 mile spacing with signals and turn lanes	1 mile spacing with signals and turn lanes	1 mile spacing with signals and turn lanes	1 mile spacing with signals and turn lanes	1 mile spacing

EXHIBIT E

NOTES:

1. All traffic volumes refer to 20-year forecasts.
2. Roadway types refer to anticipated cross section.
3. Access volume classifications generally pertain to the following breakdowns:
   - "Low Volume": Under 3,000 ADT (Design Volumes)
   - "Medium Volume": 3,000-10,000 ADT (Design Volumes)
   - "High Volume": Over 10,000 ADT (Design Volumes)
4. "Non-Continuous" streets refer to cul-de-sac or short length local streets (less than 1/2 mile) which do not necessarily cross the County Highway in question.
5. Fully developed urban areas will require individual evaluation on a case by case basis.

ADDENDUM NO. 1
TO SHAKOPEE/CHASKA INTERCEPTOR
COST SHARING AGREEMENT

WHEREAS, on March 29, 1994, the Metropolitan Council (the Council), Metropolitan Waste Control Commission (the MWCC), and the City of Shakopee (the City) entered into a Cost Sharing Agreement (the Agreement) for a project known as the Shakopee/Chaska Interceptor; and

WHEREAS, effective July 1, 1994, the MWCC was abolished by the State Legislature, and the Council became the successor entity with respect to all the MWCC interests and obligations; and

WHEREAS, the parties desire to specify the source of funds the City of Shakopee will utilize to pay for this project.

NOW, THEREFORE, it is agreed by and between the parties hereto as follows:

1. That all references in the Agreement to the MWCC or the Chief Administrator refer on and after July 1, 1994, to the Council or the Regional Administrator, respectively.

2. That the Agreement for the Shakopee/Chaska Interceptor is hereby amended by adding a paragraph to Section 3, Project Financing, which shall read as follows:

> "3.8 Source of Funds. The City's promise to pay is secured by the revenues from its Tax Increment Districts, as well as by other revenues of the City. The Tax Increment Districts securing this include District No. 1, K-Mart; District No. 2, the Senior Highrise; District No. 3, Downtown; and District No. 6, the Motel; which districts have pooled revenue sources with projected increment over and above the amounts pledged for debt service. In addition, the City may use revenue from District No. 6, MEBCO, and District No. 9, FMG, which have projected revenues over and above the amount pledged to developers. Provided, however, that any lack or shortage of revenues from the City's Tax Increment Districts shall not, in any manner, modify, decrease or eliminate any obligations undertaken by the City pursuant to this agreement, including any obligations to make payments for the City's share of Project Costs."

3. All other provisions of the Agreement for the Shakopee/Chaska Interceptor remain in full force and effect.

APPENDIX C

City Code Chapter 52

CHAPTER 52: SEWER

Section

52.01 Definitions

52.02 Metered water not discharges

52.03 Classification of industrial wastes

52.04 Deleterious substances

52.05 Unlawful discharge

52.06 Unmetered water supply

52.07 Size of pipe

52.08 Hook-up required

52.09 Permitted uses of private wells

52.10 Grease interceptors required

52.11 Sewage and waste control rules and regulations for the Metropolitan Sewer Board adopted

52.12 Construction and reconstruction of sanitary sewermains

52.13 Trunk sanitary sewer charges

52.14 Industrial user strength charge

52.15 Construction and deconstruction of storm sewer

52.99 Penalty

§ 52.01 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

INDUSTRIAL WASTE. Any liquid, gaseous, or solid waste substance resulting from any process of industry, manufacturing, trade, or business, or from development of any natural resources.

SEWAGE. Water-carried waste products from residences, public buildings, institutions, or other buildings or premises, including the excrement or other discharge from the bodies of human beings or animals, together with such ground water infiltration and surface water as may be present.

SEWERAGE SERVICE. The use of and benefit from the sewerage system, including the collection, transportation, pumping, treatment, and final disposal of sewage.

SEWERAGE SYSTEM. Includes all street lateral, main, and intersecting sewers and structures by which sewage or industrial wastes are collected, transported, treated, and disposed of; provided, that this shall not include plumbing inside or a part of a building or premises served, or service sewers from a building to the street lateral.

(2013 Code, § 3.10)

§ 52.02 METERED WATER NOT DISCHARGES.

If a portion of the water furnished to any premises is not directly or indirectly discharged into the sewerage system, the quantity of such water shall be deducted in computing the sewerage service charge or rental; provided, a separate meter shall be installed and operated to register the quantity so not discharged into the sewerage system; provided, also, that where it is not practicable to meter the portion of the water not discharged into the sewerage system, such adjustment may be made as shall be fair and equitable in order to determine the amount of such service charge or rental, but until such adjustment shall be effected that water consumption basis hereinbefore prescribed shall remain in full force and effect.

(2013 Code, § 3.10)

§ 52.03 CLASSIFICATION OF INDUSTRIAL WASTES.

The city shall have power to classify the industrial wastes from any lot, parcel of land, building, or premises discharged therefrom into the sewerage system of the city, taking into consideration the quantity of sewage produced and its concentration, strength of river pollution qualities in general, and any other factors entering into the cost of its disposal. For the purpose of fixing and prescribing a distinct rate of rental or use charge, should it be found that as to such sewer uses, the water basis consumption does not provide a practicable method in the premises, but until so determined and such distinct rate fixed, the water consumption basis herein before prescribed shall remain in full force and effect as to such commercial or industrial users.

(2013 Code, § 3.10)

§ 52.04 DELETERIOUS SUBSTANCES.

No sewage including industrial wastes, shall contain any substance which is deemed deleterious by the city to the operation of the sewerage system or to any plant or facilities used in the treatment or disposal of such sewage. If a user of the sewerage system discharges excessive loads or any deleterious substances therein which are likely to retard or injuriously affect sewerage operations, the user shall discontinue such practice and such practice is hereby declared to be a violation of this chapter. Each day of such violation continuing after having been notified in writing by the City Administrator to discontinue such practice shall be deemed a separate violation.

(2013 Code, § 3.10) Penalty, see § 52.99

§ 52.05 UNLAWFUL DISCHARGE.

It is unlawful to discharge any of the following described wastes into the sewerage system:

(A) Liquids having a temperature higher than 150°F;

(B) Water or waste which contains more than 500 milligrams/liter of fat, oil, or grease;

(C) Gasoline, benzene, naphtha, fuel oil, or other inflammable or explosive liquid, solid, or gas;

(D) Garbage, except such as has been property shredded;

(E) Ashes, cinders, shavings, feathers, tar, or other liquid or viscous substance capable of causing obstruction to the flow in sewerage system or other interference with the proper operation of the system;

(F) Noxious or malodorous substances capable of creating a public nuisance; or

(G) Roof water, ground water, or any other natural precipitation.

(2013 Code, § 3.10) (Ord. 766, passed 8-17-2006) Penalty, see § 52.99

§ 52.06 UNMETERED WATER SUPPLY.

(A) If any premises discharge normal sewage or industrial waste into the sanitary sewerage system, either directly or indirectly, or obtain part or all of the water used thereon from sources other than the city, and the water so obtained is not measured by a meter of equivalent specifications to the meters used by the city, then in such case the city shall permit the discharge of normal sewage or industrial waste into its sanitary sewerage system only when the owner of such premises or some other interested party shall, at that person's own expense, install and maintain for the purpose of metering such water supply a water meter of equivalent specifications to those installed by the city in connection with the city water system.

(B) (1) Each water meter shall be installed to measure all water received on such premises and the above charges and rates shall be applied to the quantity of water received as measured by such meter. If, because of the nature of the source of the water supply, the city deems it impracticable to thus meter the water on any premises, the Council may by resolution establish a flat charge per month in accordance with the estimated use of water on such premises.

(2) In the alternative, at the option of the city, discharge into the city sewerage system may be metered; provided, that special equipment necessary therefor shall be installed at the expense of the consumer.

(2013 Code, § 3.10)

§ 52.07 SIZE OF PIPE.

The city may prescribe the kind and size of sewerage service pipe and connections, but the minimum when placed underground shall be 4 inches in diameter.

(2013 Code, § 3.10)

§ 52.08 HOOK-UP REQUIRED.

Any property abutting a public street or alley in which sanitary sewer mains have been constructed, and any residential property abutting a public street or alley in which city water lines have been constructed, must be connected to said sewermains and water line within 3 years or immediately upon a private system becoming defective, whichever occurs first. A system becomes defective when substantial repair is needed, such as replacement of drain field lines, pumping of tanks, or replacement of a well pump motor.

(2013 Code, § 3.10)

§ 52.09 PERMITTED USES OF PRIVATE WELLS.

Owners of private wells may continue to use such wells for yard watering, car washing, and similar uses providing it is entirely disconnected from the interior supply lines and there is no cross-connection to public water systems.

(2013 Code, § 3.10) (Ord. 1, passed 4-1-1978; Ord. 77, passed 10-29-1981; Ord. 337, passed 7-23-1992; Ord. 365, passed 6-24-1993)

§ 52.10 GREASE INTERCEPTORS REQUIRED.

(A) *Scope and purpose.* To aid in the prevention of sanitary sewer blockages and obstructions from the contribution and accumulation of fats, oils, and greases into the sewer system from industrial or commercial establishments, particularly food preparation and serving facilities. This chapter shall apply to the city and to persons outside of the city who, by contract or agreement with the city, are users of the city's sanitary sewer system.

(B) *Definitions*. For the purpose of this section, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

FOOD SERVICE ESTABLISHMENT. Any facility that:

(a) Cuts, cooks, bakes, prepares, or serves food or which disposes of food-related wastes or has a local, state, and/or federal food service permit or license; and

(b) Is connected to the city's sanitary sewer system.

GREASE INTERCEPTOR. A water-tight receptacle utilized by commercial or industrial generators of liquid waste to intercept, collect, and restrict the passage of grease and food particles into the sewer system to which the receptacle is directly or indirectly connected and to separate and retain grease and food particles from the wastewater discharged by the facility.

(C) *Grease interceptors required*.

(1) Grease interceptors shall be required at all food service establishments in the city, unless otherwise exempted by this chapter. Grease interceptors shall be installed at the food service establishment's expense. All grease interceptors required under this division (C) shall be of a type, design, and capacity in accordance with the requirements set forth in the State Plumbing Code, M. S. Ch. 4715, as it may be amended from time to time, and this chapter. All grease interceptor construction, installation, and maintenance shall be in accordance with the State Plumbing Code, M. S. Ch. 4715, as it may be amended from time to time, and this chapter.

(2) New food service establishments required by this chapter to maintain a grease interceptor shall install a unit prior to commencement of discharge to the sewer system.

(3) An existing food service establishment shall be required to install an approved, adequately sized, and properly operated and maintained grease interceptor within 18 months of the effective date of this chapter, if prior to the 18-month period, the food service establishment is making improvements to its food preparation or kitchen waste plumbing facilities, a grease interceptor must be installed at that time.

(D) *Exemptions*. A food service establishment that discharges less than 500 milligrams/liter of grease into the city's sanitary sewer system may be exempted from the grease interceptor requirement if the food service establishment can provide documentation satisfactory to the city that shows that its grease discharge is less than 500 milligrams/liter.

(E) *Inspection, cleaning, and monitoring*.

(1) All food service establishments having grease interceptors shall be responsible for the proper removal and disposal of the captured materials by appropriate means, and shall maintain written records

indicating inspection, maintenance, and cleaning of the grease interceptor. The volumes of greases and solids in the grease interceptor must not exceed the designed grease and solids storage capacity of the unit at any time. Grease interceptors shall be inspected by the food service establishment at least once per week. Unless otherwise specified by the city's Public Works Director, each grease interceptor shall be cleaned at least once every 3 months or more frequently as needed to prevent carry over of grease into the sewer system.

(2) The written records to be maintained by the food service establishment shall indicate: dates of inspection; dates of maintenance; person performing maintenance; dates of cleaning; estimated volume of grease removed; receipts from haulers; disposal locations; and the facility manager's verification. These records shall be retained by the food service establishment for a period of 3 years and shall be available at the facility for inspection by the city.

(3) It shall be unlawful for a food service establishment to refuse to allow the city's inspectors to enter its premises during reasonable hours to determine whether the food service establishment is complying with all of the requirements of this section. A food service establishment shall allow the city inspectors access to all parts of the premises for purposes of inspection, sampling, records examination and copying, and the performance of additional duties. The city shall make arrangements for access ahead of time, but the city's failure to make arrangements ahead of time shall not be considered a legitimate reason to refuse admittance of the city inspectors.

(4) If the city has been refused access to a building, structure, or property, or any part thereof, and is able to demonstrate probable cause to believe that there may be a violation of this chapter, or that there is a need to inspect and/or sample as a part of a routine inspection and sampling program of the city designated to verify compliance with this chapter or to protect the public health, safety, and welfare, then the city may seek issuance of a search warrant from any court of competent jurisdiction.

(F) *Violations*.

(1) It is unlawful for any food service establishment to discharge into the sewer system in any manner that is in violation of this chapter, or of any condition set forth in this chapter. Additionally, an individual commits an offense if the individual causes or permits the plugging or blocking of, or otherwise interferes with or permits the interference of a grease interceptor or the sewer system, including alteration or removal of any flow constricting devices so as to cause flow to rise above the design capacity of the grease interceptor.

(2) No person and/or facility shall discharge grease in excess of 500 milligrams/liter to the sewer system. If such discharge occurs, the person or facility shall be considered to be in violation of this chapter and subject to the remedies described. This includes facilities that are not required by this chapter to install grease interceptors.

(3) In addition to prohibiting certain conduct by natural persons, it is the intent of this chapter to hold a corporation, association, limited liability company, or limited liability partnership legally responsible for prohibited conduct performed by an agent acting on behalf of the corporation or association and within the scope of their office or employment.

(G) *Enforcement*.

(1) The requirements set forth in this chapter shall be administered and enforced pursuant to the direction of the Public Works Director of the city. Employees of the city's Public Works Department may issue appropriate orders, issue tags for violation, or institute any other appropriate actions or proceedings against a violator as provided for in this chapter. Any violation of an order issued pursuant to this chapter by the Public Works Department of the city shall constitute a violation of this chapter.

(2) Any person, operator, or owner who shall violate any provision of this chapter, or who shall fail to comply with any provision, shall be prosecuted and punished in accordance with § 52.99.

(3) The city may also assess the violator's property for any expense, loss, or damage incurred by the city for reason of appropriate clean up and proper disposal of the waste materials. Additionally, an administrative fee equal to 1/4 of the assessed clean-up costs may be levied by the city against the violator.

(2013 Code, § 3.10) (Ord. 766, passed 8-17-2006) Penalty, see § 52.99

§ 52.11 SEWAGE AND WASTE CONTROL RULES AND REGULATIONS FOR THE METROPOLITAN SEWER BOARD ADOPTED.

Sewage and waste control rules and regulations for the Metropolitan Disposal System, as adopted under Minn. Rules 5900 pursuant to statutory authority, are hereby adopted by reference as though repeated verbatim herein.

(2013 Code, § 3.11) (Ord. 89, passed 2-25-1982; Ord. 408, passed 3-7-1995)

§ 52.12 CONSTRUCTION AND RECONSTRUCTION OF SANITARY SEWERMAINS.

(A) *Design criteria and standard specifications*. All construction of sanitary sewer mains and service laterals shall be strictly in accordance with the design criteria and standard specifications on file in the office of the City Engineer and open to public inspection during regular office hours. Such design criteria and standard specifications may be adopted and amended by resolution from time to time by the city and shall be uniformly enforced.

(B) *Permit required.*

(1) A written permit is required from the City Engineer to construct or reconstruct sanitary sewer or service laterals. Application for such permit shall be made on forms approved by the city and shall sufficiently describe the contemplated improvements, the contemplated date of beginning work, and the length of time required to complete the same; provided, that no permit shall be required for any such improvement ordered installed by the Council.

(2) All applications shall be referred to the City Engineer and no permit shall be issued until approval has been received from the City Engineer. All such applications shall contain an agreement by the applicant to be bound by this title. Plans and specifications consistent with the design criteria and standard specifications shall be approved by the City Engineer and shall also accompany the application. A permit from the city shall not relieve the permit holder from damages to the person or property of another caused by such work.

(C) *Inspection*. The City Engineer shall inspect sanitary sewer construction and reconstruction. Any work not done according to the approved design criteria and standard specifications shall be removed and corrected at the expense of the permit holder. Any work done hereunder may be stopped by the City Engineer if found to be unsatisfactory and not in accordance with the design criteria and standard specifications, but this shall not place a continuing burden on the city to inspect or supervise such work.

(2013 Code, § 3.12) (Ord. 136, passed 10-27-1983)

§ 52.13 TRUNK SANITARY SEWER CHARGES.

(A) Each property located within the area described in the city's trunk sanitary sewer charge policy shall be bound by that policy.

(B) Each such property owner shall submit to the city the applicable trunk sanitary sewer charge at the earliest of the following times:

(1) For property being platted, prior to the recording of the final plat;

(2) For vacant property, at the time of issuance of a building permit; or

(3) For developed property, at the time of issuance of a permit to connect to the sanitary sewer system.

(2013 Code, § 3.13) (Ord. 398, passed 2-16-1995)

§ 52.14 INDUSTRIAL USER STRENGTH CHARGE.

(A) *Recitals*.

(1) The Metropolitan Waste Control Commission, a metropolitan commission organized and existing under the laws of the state (the "Commission"), in order to receive and retain grants in compliance with the Federal Water Pollution Control Act, being 33 U.S.C. 1251 et seq. and regulations thereunder (the "Act"), has determined to impose an industrial user sewer strength charge upon users of the Metropolitan Disposal System (as defined in M.S. § 473.121, subd. 24, as it may be amended from time to time, to recover operation and maintenance costs of treatment works attributable to the strength of the discharge of industrial waste, such sewer strength charge being in addition to the charge based upon the volume of discharge.

(2) In order to pay such costs based upon strength of industrial discharge and allocated to it each year by the Commission, it is hereby found, determined, and declared to be necessary to establish sewer strength charges and a formula for the computation thereof for all industrial users receiving waste treatment services within or served by the city. Furthermore, M.S. § 444.075, subd. 3, as it may be amended from time to time, empowers the city to make such sewer charge a charge against the owner, lessee, occupant, or all of them and certify unpaid charges to the County Auditor as a tax lien against the property served.

(B) *Establishment of strength charges*. For the purpose of paying the costs allocated to industries in the city each year by the Commission that are based upon the strength of discharge of all industrial users receiving waste treatment services within or served by the city, there is hereby approved, adopted, and established, in addition to the sewer charge based upon the volume of discharge a sewer charge upon each company or corporation receiving waste treatment services within or served by the city, based upon strength of industrial waste discharged into the sewer system of the city (the "strength charge").

(C) *Establishment of strength charge formula*. For the purpose of computation of the strength charge established by division (B) above, there is hereby established, approved, and adopted in compliance with the Act the same strength charge formula designated in Resolution No. 76-172, adopted by the governing body of the Commission on June 15, 1976, such formula being based upon pollution qualities and difficulty of disposal of the sewage produced through an evaluation of pollution qualities and quantities in excess of an annual average base and the proportionate costs of operation and maintenance of waste treatment services provided by the Commission.

(D) *Strength charge payment*. It is hereby approved, adopted, and established that the strength charge established by division (B) above shall be paid by each industrial user receiving waste treatment services and subject thereto to the Commission directly before the twentieth day next succeeding the date of billing thereof to such user by the Commission, and such payment thereof shall be deemed to be delinquent if not so paid to the Commission before such date.

(E) *Establishment of tax lien*. As provided by M.S. § 444.075, subd. 3, as it may be amended from time to time, it is hereby approved, adopted, and established that if payment of the strength charge established by division (B) above is not paid before the 60th day next succeeding the date of billing thereof to the industrial user by the Commission, said delinquent sewer strength charge may be deemed to be a charge against the owner, lessee, and occupant of the property served, and the Commission may request the city to certify such unpaid delinquent balance to the County Auditor with taxes against the property served for collection as other taxes are collected; provided, however, that such certification shall not preclude the

Commission or its agent from recovery of such delinquent sewer strength charge and interest thereon under any other available remedy from the delinquent industry. If requested to certify the delinquent charges as assessments against the industries, the city shall certify the charges in accordance with normal procedures.

(2013 Code, § 3.20) (Ord. 384, passed 1-11-1977; Ord. 408, passed 3-4-1995)

§ 52.15 CONSTRUCTION AND DECONSTRUCTION OF STORM SEWER.

(A) *Design criteria and standard specifications*. All construction of storm sewers shall be strictly in accordance with the design criteria and standard specifications on file in the office of the City Engineer and open to public inspection during regular office hours. Such design criteria and standard specifications may be adopted and amended by resolution from time to time by the city and shall be uniformly enforced.

(B) *Permit required*.

(1) A written permit is required from the City Engineer to construct or reconstruct a storm sewer in public easement, public right-of-way, or other public property in the city. Application for such permit shall be made on forms approved and provided by the city and shall sufficiently describe the contemplated improvements, the contemplated date of beginning work and the length of time required to complete the same; provided, that no permit shall be required for any such improvement ordered installed by the Council.

(2) All applications shall be referred to the City Engineer and no permit shall be issued until approval has been received from the City Engineer. All such applications shall contain an agreement by the applicant to be bound by this title. Plans and specifications consistent with the design criteria and standard specifications shall be approved by the City Engineer and shall also accompany the application. A permit from the city shall not relieve the permit holder from damages to the person or property of another caused by such work.

(C) *Inspection*. The City Engineer shall inspect storm sewer construction and reconstruction. Any work not done according to the approved design criteria and standard specifications shall be removed and corrected at the expense of the permit holder. Any work done hereunder may be stopped by the City Engineer if found to be unsatisfactory or not in accordance with the design criteria and standard specifications, but this shall not place a continuing burden on the city to inspect or supervise such work.

(2013 Code, § 3.41) (Ord. 136, passed 10-27-1983)

§ 52.99 PENALTY.

Every person violates a section, subdivision, paragraph, or provision of this chapter when the person performs an act thereby prohibited or declared unlawful, or fails to act when such failure is thereby prohibited or declared unlawful, and upon conviction thereof, shall be punished as for a misdemeanor except as otherwise stated in specific provisions hereof.

(2013 Code, § 3.99) (Ord. 1, passed 4-1-1978; Ord. 337, passed 7-23-1992)

APPENDIX D

Scott County Ordinance –
“Subsurface Sewage Treatment System Ordinance No. 4”

ORDINANCE NO. 579, FOURTH SERIES

AN ORDINANCE OF THE CITY OF SHAKOPEE, MINNESOTA, REPEALING CITY CODE SECTION 4.20. SEWAGE TREATMENT SYSTEM

WHEREAS, it is deemed desirable to have Scott County to issue permits for, and manage both new and existing Individual Septic Treatment Systems (ISTS) ;

THE CITY COUNCIL OF THE CITY OF SHAKOPEE, MINNESOTA, ORDAINS:

Section 1. That Chapter 4. BUILDING REGULATIONS, Section 4.20. SEWAGE TREATMENT SYSTEM, which provides standards for the construction and inspection of ISTS, is hereby repealed in its entirety.

Section 2. Effective Date. This ordinance becomes effective from and after its passage and publication.

Passed in regular session of the City Council of the City of Shakopee, Minnesota held this 5th day of September, 2000.

Jon Brekke
Mayor of the City of Shakopee

Attest: Judy
Judith S. Cox, City Clerk

Published in the Shakopee Valley News on the 14th day of September, 2000.

15.B.1.

CONSENT

CITY OF SHAKOPEE
Memorandum

TO: Mayor and City Council
Mark McNeill, City Administrator

FROM: R. Michael Leek, Community Development Director

SUBJECT: Repeal of the City of Shakopee's Individual Septic Treatment System (ISTS) Ordinance Provisions

APPLICANT: City of Shakopee

MEETING DATE: September 5, 2000

INTRODUCTION:

The City Council previously directed that the City's ISTS ordinance be repealed, and responsibility for management of ISTS be taken over by Scott County, Minnesota. Since receiving that direction, city staff has met with county staff to clarify the process that will be followed in reviewing plats with ISTS lots, new ISTS permits, and existing ISTS system management. This approach is consistent with actions undertaken by the adjoining cities of Prior Lake and Savage.

ALTERNATIVES:

1. Approve the attached ordinance repealing City Code Sec. 4.20.SEWAGE TREATMENT SYSTEM.
2. Do not approve the attached ordinance repealing City Code Sec. 4.20.SEWAGE TREATMENT SYSTEM.
3. Table the decision and request additional information.

ACTION REQUESTED:

Offer a motion to approve the attached ordinance, An Ordinance of the City of Shakopee Repealing City Code Section 4.20.SEWAGE TREATMENT SYSTEM.

R. Michael Leek
Community Development Director

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CHAPTER 1

TITLE 4

SUBSURFACE
SEWAGE TREATMENT SYSTEM ORDINANCE NO. 4

(Cite as e.g.)

(Scott County Subsurface Sewage Treatment System Ordinance No. 4 Section_)

SCOTT COUNTY SUBSURFACE SEWAGE TREATMENT SYSTEM ORDINANCE NO. 4

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1.00 PURPOSE AND AUTHORITY.

1.01 PURPOSE. An ordinance establishing the minimum standards and criteria for the design, location, installation, use, and maintenance of Subsurface Sewage Treatment Systems (SSTS), also referred to as Individual Sewage Treatment Systems (ISTS) and Community Sewage Treatment Systems (CSTS); penalties for failure to comply with provisions of this Ordinance; issuing, denying, modifying, imposing conditions upon, suspending or revoking licenses and permits; the proper removal, transport, treatment and disposal of domestic septage; and other matters as determined to be necessary, and thus protect the surface and ground waters of the County of Scott and the State of Minnesota, and promote the public health and general welfare.

1.02 AUTHORITY. This Ordinance is adopted pursuant to Minnesota Statutes, Sections 145A.05, 115.55 and 115.56.

2.00 DEFINITIONS.

2.01 CERTAIN TERMS. For the purposes of these standards, certain terms or words used herein shall be interpreted as follows: the words "shall" and "must" are mandatory, the words "should" and "may" are permissive. All distances, unless otherwise specified, shall be measured horizontally.

2.02 ALTERNATE SITE. "Alternate Site" means that portion of real property that is designated by a licensed ISTS professional and approved by the Department to be protected from all vehicular traffic, construction and other disturbances and which will allow for the construction of a future standard SSTS.

2.03 COUNTY. "County" means Scott County, Minnesota.

2.04 COUNTY BOARD. "County Board" means the Scott County Board of Commissioners.

2.05 COMMUNITY SEWAGE TREATMENT SYSTEM. "Community Sewage Treatment System" or "CSTS" means a collector-type sewage treatment system serving two or more dwellings on separate lots and managed by a public entity such as a Subordinate Service District or Sanitary District.

2.06 DEPARTMENT. "Department" means the Scott County Environmental Health Department or its successor.

2.07 INCORPORATED. "Incorporated" means the mixing of domestic septage with the topsoil by means of discing or plowing.

2.08 INJECTED. "Injected" means the direct flow of domestic septage from the injector tank or injector vehicle into the soil.

2.09 INSPECTOR. "Inspector" means the person or persons registered by the Minnesota Pollution Control Agency with specialty area endorsements applicable to the work being conducted and assigned the responsibility for the administration of this Ordinance by the Manager of the Department.

2.10 ONE HUNDRED-YEAR FLOOD. "One hundred-year flood" means that flood which can be expected to occur, on an average, of once in one hundred years; or the level to which flood waters have a one percent chance of rising in any given year.

2.11 TYPE I SYSTEM. "Type I System" is an SSTS that follows a standard trench, bed, at-grade, mound, or graywater system design in accordance with Minn. Rules parts 7080.2200 through 7080.2240.

2.12 TYPE II SYSTEM. "Type II System" is an SSTS with acceptable modifications or sewage containment system that may be permitted for use on a site not meeting the conditions acceptable for a standard Type I system. These include holding tanks, privies and systems located in floodplains or on lots with rapidly permeable soils.

2.13 TYPE III SYSTEM. "Type III System" is an SSTS that uses soil to treat sewage but does not meet the tank, size or distribution requirements for a Type I system. Type III systems are designed for use on a lot that cannot accommodate a standard Type I soil treatment and dispersal system.

2.14 TYPE IV SYSTEM. "Type IV System" is an SSTS having an approved pretreatment device and incorporating pressure distribution and dosing.

2.15 TYPE V SYSTEM. "Type V System" is an SSTS designed by a professional engineer that does not meet the prescriptive designs for Type I-IV systems. Type V systems must meet the public health and safety standards of Minn. Rules part 7080.1500.

3.00 GENERAL PROVISIONS.

3.01 ADMINISTRATIVE PROCEDURES. Except to the extent superseded by this Ordinance, all of the provisions of the Scott County Administrative Procedures Ordinance No. 13 relating to definitions; license and permit provisions; administration of the Ordinance; license and permit application and processing; suspensions and revocations; variances; severability; provisions cumulative; and no consent, shall apply as if fully set forth herein.

3.02 ADMINISTRATION OF ORDINANCE. This Ordinance shall be administered by the Inspector. The Inspector's responsibilities shall include, but not be limited to, the following:

A. Review and consider all permit applications submitted to the Department for the site evaluation, installation and maintenance of an SSTS within the County.

B. Conduct routine inspections of SSTS installations and site evaluations in such frequency as to insure consistent compliance with the provisions of this Ordinance. The permittee or licensed SSTS professional shall be provided with written and documented notice of any deficiencies, recommendations for their correction and the date when the corrections shall be accomplished. The permittee or licensed professional shall be required to allow free access to the Department, County Board or to the proper representative of any other governmental agency at any time for the purpose of making such inspections as may be necessary to determine compliance with the requirements of this Ordinance, or any other applicable statute, ordinance or regulation, or for the purpose of making written and documented notice of any deficiencies, or recommendations for their correction and the date by which corrections shall be accomplished.

C. Investigate complaints of violations of this Ordinance and recommend, when necessary, to the County Attorney's Office that legal proceedings be initiated to achieve compliance with this Ordinance and protect public health and the environment.

D. Advise, consult and cooperate with other governmental agencies and the various offices of Scott County.

E. Resolve conflicts and other technical disputes between SSTS certified individuals.

3.03 COMPLIANCE REQUIRED. All sewage, septage and sewage tank effluent generated within Scott County shall be treated either in a Minnesota Pollution Control Agency (MPCA) permitted facility or a system that meets the requirements of this Ordinance. Any person who conducts site evaluations or designs, installs, alters, repairs, replaces, maintains, pumps, or inspects all or part of an SSTS in Scott County shall comply with the requirements of this Ordinance and the appropriate portions of Minn. Rules chapters 7080 or 7081. Any SSTS, irrespective of the date of original installation, which is found to be in violation of Minn. Rules part 7080.1500, 7080.2150, subp. 2, or 7081.0080, shall be relocated, reconstructed or reinstalled so as to be in compliance with this Ordinance. A surface discharge is strictly prohibited unless a national pollution discharge elimination system permit has been issued by the MPCA. Any septic tank that is exposed for inspection or repairs shall be repaired or replaced in accordance with this Ordinance to meet the requirements of Minn. Rules part 7080.1900 or 7081.0240.

3.04 CONDITIONS. Violation of any conditions imposed by the County on a license, permit or variance shall be deemed a violation of this Ordinance and subject to the penalty provisions set forth in this Ordinance.

4.00 STANDARDS ADOPTED.

4.01 TECHNICAL STANDARDS. The technical standards of the Minnesota Pollution Control Agency are hereby adopted by reference. Those standards encompass Minn. Rules chapters 7080 and 7081.

4.02 TYPE II, III, IV AND V SYSTEMS. Type II, III, IV and V systems shall only be allowed/permitted for existing lots of record (as defined in Section 5.01 A.) where a Type I system cannot be reasonably installed as determined by the Inspector. This applies regardless of whether or not a Permit is required from the County except as otherwise specified in Section 4.03 C. The SSTS shall meet all provisions contained in Minn. Rules parts 7080.2250 through 7080.2400, shall only be used to manage sewage from existing dwellings and Other Establishments, and shall not be used to accommodate the construction or expansion of a dwelling or Other Establishment or to accommodate an unacceptable increase in wastewater to the SSTS as determined by the Inspector. In addition to these standards, the following shall apply:

A. All Type II, III, IV and V systems shall include a water meter. In addition, if the SSTS contains a pump chamber and dosing device, an electrical event counter shall be placed on the dosing device.

B. An application to install or modify a Type IV or V system must include a Monitoring and Mitigation Plan. The Monitoring Plan shall identify the name of a licensed designer, inspector or installer along with a five-year contract with that SSTS professional to perform inspections and take whatever measurements or samples are agreed to by the Department in the Approved Monitoring Plan. The Mitigation Plan shall identify what measures will be taken within a specific Department-approved time frame to replace the SSTS or bring it into compliance with the standards approved in the Monitoring Plan. Alternate sites designated to accommodate replacement of the SSTS shall be protected and maintained.

C. Type IV and V systems must be licensed as provided in section 6.04.

4.03 PRETREATMENT OF EFFLUENT. Providing that all standard components of an SSTS are designed and constructed in accordance with the provisions established herein, additional devices to screen, filter or pretreat septic tank effluent as approved by the Inspector:

A. May be added to an SSTS providing adequate maintenance is clearly established.

B. Shall be added for pretreatment of any wastewater which, after standard treatment in a septic tank designed in accordance with Minn. Rules part 7080.1900, fails to achieve any of the following standards:

1. Biochemical Oxygen Demand (BOD) in excess of 220mg/l.

2. Total Suspended Solids (TSS) in excess of 65mg/l.

3. Fats, Oils and Grease (FOG) in excess of 30mg/l.

C. Shall be added to a CSTS for the purpose of enhancing the longevity of the drainfield component of the SSTS subject to approval by the Subordinate Service District (SSD).

All such pretreatment devices shall be subject to review and approval by the Inspector and are subject to the provisions in Section 6.04.

4.04 USE OF HOLDING TANKS. The operation and maintenance of a holding tank shall comply with all requirements as specified on forms provided by the Inspector. At a minimum, a monitoring and disposal contract signed by the owner and a licensed maintenance business is required unless the owner is a farmer exempt from licensing under Minnesota Statues, section 115.56, subdivision 2 paragraph (b), clause (3). The owner is responsible for ensuring that the contract guarantees the proper removal of the tank contents before overflow or any discharge. Holding tanks shall only be used in the following circumstances:

A. For replacement of an SSTS where it is impossible as determined by the Inspector to construct a Type I system;

B. For seasonal buildings or facilities where the SSTS would be used less than four days per week during the winter months of November through March;

C. To capture wastewater that cannot be treated in an SSTS as determined by the Inspector;

D. For new construction or expansion as defined in 7.03 D, if the lot is scheduled to receive municipal sewer service within one year;

E. For temporary uses as controlled by a development contract; or

F. For temporary occupancy before a drainfield can be installed due to adverse soil conditions.

5.00 SITE EVALUATION AND PRESERVATION.

5.01 SITE EVALUATION FOR SSTS PERMIT APPLICATION.

A. Site evaluations must be conducted in accordance with Minn. Rules parts 7080.1700 and 7081.0100 through 7081.0230, this section, or as otherwise provided in Minn. Rules chapters 7080 and 7081. Each SSTS permit application shall include a primary and an alternate site. Both sites shall meet the requirements of Minn. Rules parts 7080.2050 through 7080.2240. Soil boring and

percolation test locations and the one hundred-year flood elevation must be clearly marked on the design plans submitted.

On existing vacant lots recorded with the Scott County Land Records Office prior to May 12, 1992, where it is not possible to locate two Type I system sites, at least one Type I system site must be identified unless otherwise allowed by this Ordinance for the purposes of obtaining a building permit. The site shall meet the requirements of Minn. Rules parts 7080.2050 through 7080.2240. The building pad cannot be larger than 5,000 square feet if a larger pad would preclude the use of an alternate site on the lot.

B. The following must be field staked before the Department will conduct a site inspection:

1. The septic and pump tanks.

2. Soil boring and percolation test locations.

3. The four corners of the sand and rockbed of a mound, drop boxes and both ends of each trench of a trench SSTS or as necessary to easily identify the location of other system types.

4. The boundaries of the alternate site.

5. Property lines, easements and other features requiring a setback as specified by the Inspector within 20 feet of any part of the SSTS. A survey may be required if the exact location of the property line, easement or feature cannot be determined.

C. All new septic tanks shall be designed and constructed to meet the standards listed in Minn. Rules part 7080.1930 subp. 2 for a garbage disposal, and the top lid of any septic or pumping tank shall not be located more than four feet below the final grade as outlined in Minn. Rules part 7080.2000. These tank size and depth requirements may be waived by the Inspector for an existing ISTS.

D. To determine the Hydraulic Loading Rate there must be a minimum of three percolation tests done within the primary site in accordance with Minn. Rules chapter 7080.2150 subp. 3, E. Table IXa. Additional percolation tests may be required in either or both sites if the Inspector determines that they are needed to accurately define the soil conditions. There must be a minimum of four soil borings done within the primary site, preferably one in each corner of the proposed SSTS. At least two soil borings shall also be done within the alternate site. Additional borings may be required in either or both sites if the Inspector determines that the borings have not accurately defined the soil conditions. Alternatively, two or more soil pits, a minimum of three feet deep, may be substituted per site to assess soil conditions in accordance with Minn. Rules chapter 7080.2150 subp. 3, E. Table IX. The pits must be left open or reopened to

accommodate site inspection and be fenced, roped off or refilled as needed to prevent accidents.

The soil treatment area shall be sized using the slowest tested percolation rate or be based upon the detailed soil description, whichever results in a larger absorption area if both sizing methods are used. If the absorption area is based on the percolation rate and five or more percolation tests are done, an average of all the percolation rates may be used to size the soil treatment area.

E. Applications for ISTS permits which lack sufficient soils information for approval (due to weather/seasonal soil conditions), but which the Inspector believes contain sufficient information for conditional issuance of a building permit, shall be allowed to proceed through the permit process with the condition that final ISTS permit approval will not be granted until complete soil information is submitted and approved. An additional permit fee shall be paid as established by resolution of the County Board.

F. An SSTS shall not be constructed within the boundaries of an easement nor shall any part of the SSTS cross an easement without written permission from the individual(s) or entity(ies) possessing the rights to the easement.

G. Below ground pools shall meet the setback requirements established for buildings as described in this Ordinance.

H. Fencing and Staking. Where the Inspector deems necessary, both the primary and alternate drainfield sites shall be fenced prior to applying for a permit to construct an SSTS. The fence shall consist of four-foot high orange construction fence, wooden snow fence, or two strands of weatherproof high-visibility roping attached to posts placed no more than 20 feet apart with either high visibility ribbon at least one-half inch wide tied to the rope no more than 6 feet apart or signs no smaller than 16 inches by 20 inches no more than 20 feet apart, that clearly identify the drainfield area and prohibit trespass. The fencing or roping and signs shall be clearly visible at least two feet above surrounding vegetation. The choice between fencing and roping with signs shall be at the discretion of the designer and property owner and should take into consideration any risk such barrier may present.

The stakes shall be clearly visible at least two feet above surrounding vegetation and the stake labeling shall be legible.

I. The proposed alternate site shall be 5,000 square feet or of a size, location and configuration deemed suitable by the Inspector for the intended use.

J. A management plan shall be developed by the designer and must be reviewed and approved before issuance of a construction permit for all new or replacement ISTS as described in Minn. Rule 7082.0600 Subpart 1.

5.02 SITE EVALUATION FOR CREATING NEW LOTS.

A. All proposed development that requires rezoning or platting shall be submitted to the Inspector for review. No new lots shall be approved by Scott County unless the Inspector renders a favorable recommendation that a primary and alternate site can be located on each lot or be served by a CSTS. Each site shall meet the requirements of Minn. Rules parts 7080.2050 through 7080.2230 and shall be sized to accommodate a Type I system for a five bedroom dwelling. Appeal from an unfavorable recommendation hereunder, shall be in accordance with the provisions adopted in the Scott County Administrative Procedures Ordinance No. 13. The review and recommendation provided pursuant to this section shall not eliminate the need for compliance with section 5.01.

B. There shall be a minimum of two percolation tests conducted on each lot of the proposed development except for those served by a CSTS. Additional percolation tests may be required in the primary or alternate sites if soil conditions, topography, land-use, etc., indicate a change of soil characteristics that would influence the percolation test results. Both percolation tests shall be conducted within the boundaries of the primary site.

C. At least two soil borings shall be done within the boundary of each primary and alternate ISTS site. Additional soil borings may be required upon review of the information submitted. Alternatively, two or more soil pits a minimum of three feet deep may be substituted per site to assess soil conditions in accordance with Minn. Rules chapter 7080.2150 Subp. 3 (E). Care should be taken to prevent damage to a future drainfield site because the County may not approve a permit for a drainfield where significant soil disturbance has occurred.

D. The following shall be located on each lot of a proposed preliminary plat layout where lots will be served by an ISTS on forms and to a level of detail acceptable to the Inspector:

1. Contours, as required by the Scott County Land Subdivision Ordinance No. 7.

2. A proposed building pad of 5,000 square feet and driveway.

3. Two ISTS sites.

4. All percolation tests and soil borings.

5. Any drainage and utility easements, required buffer strips, bluff setbacks, trails, driveways and private drainage systems including tile, ditches, culverts and other similar restricted areas for construction of an ISTS as outlined in Minn. Rule part 7080.1720 subp. 3, C. & D.

6. One hundred-year flood elevation, wetlands and the ordinary high water level of public waters.

7. Existing wells within 100 feet from any proposed ISTS site, 300 feet for public supply wells or as otherwise established by the Minnesota Department of Health.

E. The drainfield locations for new residential lots shall be located on non-hydric soils and sized at a minimum of 5,000 square feet with sufficient information provided to the Inspector to demonstrate that the proposed sites are likely to be able to accommodate an ISTS of a standard design consistent with site soils and topography.

F. Any drainfield site within fifty feet of proposed construction activities (i.e., road construction, house construction, or other construction or improvement activities associated with the plat) shall be fenced and staked by the developer in accordance with section 5.01 H.

G. Design plans of a detail acceptable to the Inspector shall be submitted for consideration of a proposed preliminary plat for new lots to be served by a CSTS and:

1. The Subordinate Service District (SSD) or Sanitary District (SD) shall be fully established as required by state statutes.

2. The SSD/SD shall review and approve the design of the CSTS in coordination with the Inspector.

3. Preliminary plat layouts must include the information required in section 5.02 D. 1, 2, 5, 6 and 7. Sufficient information shall also be provided as deemed necessary by the Inspector to identify two acceptable drainfield infiltration locations per CSTS. These locations must be fenced and staked as outlined in section 5.02 F.

4. The number of soil pits and percolation tests shall be sufficient to accurately depict soil conditions as determined by the Inspector in consideration of topography and soils.

5. The infiltration area shall be based on the anticipated wastewater generated from all sources that could use the CSTS. All assumptions and estimates made for wastewater generation must be acceptable to the Inspector. Unless otherwise known, the estimated number of bedrooms to use per dwelling for wastewater generation determination shall be five.

6. All plans for a CSTS shall be prepared by a licensed designer and qualified Minnesota Registered Engineer.

7. Soils information shall also include hydraulic conductivity testing as specified in Minn. Rule part 7081.0170 and applicable ground water testing as specified in Minn. Rule part 7081.0210. The dispersal system

shall be configured to comply with all applicable requirements of Minn. Rule parts 7081.0080 through 7081.0300 which includes nutrient nitrogen and phosphorus and ground water mounding. Methods for determining the potential for ground water mounding shall be acceptable to the Inspector. Consideration should be given for the use of GMound and GPond and the findings and recommendations developed in the Scott County GMound Proofing Study.

5.03 PRESERVATION OF SITES.

A. An area which has been identified for future use as an SSTS site shall be maintained in its original, natural soil condition so a future SSTS or device may be constructed that meets all Ordinance requirements unless a substitute alternate site acceptable to the Inspector can be identified and maintained. Each site shall be protected during lot development, road and building construction and during any other improvement, disturbance or activity to prevent any impairment of the treatment ability or hydraulic performance of the site.

B. No permit shall be issued for grading, building, building expansion or remodel or for any other use that could, in the opinion of the Inspector:

1. Damage or encroach upon an identified site unless a substitute alternate site acceptable to the Inspector can be identified and maintained. In situations where an alternate site is not available, a permit shall not be issued which will result in damage to or encroach upon a possible partial site.

2. Destroy or eliminate a potential or partial alternate site regardless of when the lot was created unless an alternate or potential alternate site acceptable to the Inspector is identified.

3. Increase sewage flow to an existing SSTS unless the additional sewage flow can be accommodated in conformance with this Ordinance.

C. It is a violation of this Ordinance and may be cause for denial of a building permit if a site or potential site is damaged, regardless of when the lot was created.

6.00 PERMITS AND LICENSES.

6.01 PERMIT REQUIRED.

A. Unless a site-specific permit to construct and operate an SSTS has been issued by the MPCA, no person shall install, alter, repair, replace or extend any SSTS in Scott County without first obtaining a permit from the Inspector for each specific installation, alteration, repair or extension; and, at the time of applying for said

permit, shall pay a fee as established by resolution of the County Board. Such permits shall be valid for a period of 12 months from the date of issuance unless the applicant pays a permit renewal fee as established by resolution of the County Board.

All SSTS design work, installation, alteration, repair, maintenance, operation, pumping, or inspection activities must be completed by a state licensed business or an acceptably certified qualified employee, or a person exempted under Minn. Rules part 7083.0700.

B. No building permit shall be issued until all associated SSTS permits are approved and issued.

C. No dwelling or Other Establishment shall be redesigned or enlarged if such redesign or enlargement results in exceeding the designed capacity of the SSTS unless a permit has been granted by the Inspector to enlarge or redesign the SSTS to accommodate the expected increase in sewage and the permittee agrees in writing, on forms provided by the County, to replace the SSTS within one year.

D. No more than one dwelling or Other Establishment shall be connected to the same ISTS unless such connection was specified in the application submitted and in the permit issued for the SSTS and it can be demonstrated to the satisfaction of the Inspector that the existing SSTS can accommodate the additional effluent.

E. The County will not issue an ISTS permit when a municipality has required the owner to connect to the municipal sewer system.

6.02 PERMIT NOT REQUIRED. An SSTS permit is not required to repair or replace the following: a crushed pipe, a pump, floats or other electrical devices of the pump, baffles in the septic tank or the septic tank cover. Permits may be required by other governmental agencies for activities related to or in conjunction with such activities.

6.03 PERMIT APPLICATION REQUIREMENTS.

A. An application for an SSTS permit shall be made in writing on forms acceptable to the Inspector and shall be signed by the applicant. If the Inspector finds that the applicant has failed to submit all of the items required in this section or as otherwise required by the Inspector, the application will be considered incomplete. This may result in a delay in the issuance or denial of the permit application. Each application shall include the site evaluation information listed in section 5.01 and shall also contain the following:

1. Estimated water usage and water use calculations.

2. Pump selection procedure and pressure distribution worksheets.

3. One copy of an SSTS design, drawn to a scale no smaller than 1 inch equals 30 feet, which includes the items required in section 5.01, as appropriate, and the following:

   a. All existing and anticipated future buildings and improvements on the lot, including additions, decks, three-season porches, roads and driveways.

   b. Location and elevations of percolation tests, soil borings and soil pits.

   c. Location, size and elevation of existing and proposed septic and pump tanks, distribution devices, and soil absorption area.

   d. Cross-section of the SSTS.

   e. Proposed well location. Also indicate all existing well locations and depths on or within 100 feet of the SSTS site.

   f. Location of all existing and proposed utilities, setback areas and other restricted areas as outlined in 5.02 D. 5.

   g. Water bodies.

   h. Two-foot before and after contours when excavation, grading or fill will impact or be impacted by the soil absorption area.

   i. Roof drains, sump pump discharge, water treatment devices, swimming pools and other potential sources of surface water run on point source discharge locations.

4. A management plan acceptable to the Inspector.

5. Any additional information that may be required by the Inspector to assure compliance with this Ordinance and ground water protection.

B. All Other Establishments shall have a device installed suitable for measuring waste water flow.

C. In the event of a change in the application information that served as the basis for issuing a permit, the permittee must file an amended application with acceptable supporting documentation and receive approval for the amended permit prior to initiating construction. An additional permit fee shall be paid as established by resolution of the County Board.

D. Final approval of the SSTS shall be evidenced by a certificate of compliance issued by the Inspector.

E. Setback conflicts between septic system locations and structures may be resolved through acceptable written documentation from an MPCA licensed SSTS professional who is also a qualified civil engineer demonstrating that the proposed activity will not adversely impact the structure or SSTS.

6.04 OPERATIONAL LICENSE REQUIRED.

A. A CSTS not managed under an operational permit by the MPCA and Type IV and V systems shall be licensed and shall comply with the licensing provisions of this section. In addition, such SSTS shall comply with Minn. Rules parts 7080.2290, 7080.2350, and 7080.2400, and chapter 7081, as applicable. An annual license fee shall be paid as established by resolution of the County Board.

B. Licenses shall be valid for a period of up to 12 months from the date of issuance and shall be renewed annually. The license period for a new SSTS shall commence on March 1 following the year of installation. The annual license period shall be from March 1 to February 28/29. Annual reports required as a license condition shall be due by January 31.

C. A building permit shall not be issued on any lot that has an SSTS in use as identified in item A. where the SSTS is not licensed as required in this section.

D. Prior to issuing an SSTS license, the licensee must demonstrate that the SSTS is designed and installed to accommodate the current daily flow of wastewater and provide for adequate treatment. A current certificate of compliance may also be required. The compliance inspection must include a flow diagram for all sewage and commercial and industrial wastewaters.

E. Licensees shall demonstrate at the time of license renewal that the SSTS has been monitored, properly maintained and is functioning in accordance with the approved design.

F. Type I systems with only septic tank effluent screens are exempt from the operational license requirements.

7.00 INSPECTIONS.

7.01 INSPECTION REQUIRED. Inspections are required by the Department for all County regulated SSTS prior to design approval, during construction and before being placed into service, in part or in whole. No SSTS shall be covered, in part or in whole, prior to an inspection by this Department unless prior verbal approval has been given by the Inspector.

A. It shall be the responsibility of the permittee to notify the Inspector that the job is ready for inspection. The Department shall be notified before 9:00 A.M. on the requested day of the inspection. Failure to request an inspection before 9:00 A.M. on the requested day of the inspection may result in a scheduled inspection at a time other than requested and/or a delay or denial in the issuance of a Certificate of Compliance from the Inspector. The Department shall also be notified prior to commencement of any part of the installation if a weather event (such as freezing temperatures, rain or snow) that could adversely impact the SSTS during any part of the installation including final grading that is likely or predicted to occur.

B. Failure of the Inspector to inspect the SSTS does not relieve or lessen the responsibility or liability of any person owning, controlling or installing any SSTS.

C. The Inspector shall make every effort to inspect an SSTS within one hour of the scheduled inspection.

D. The Inspector shall cause such inspections to be made as are necessary to determine compliance with this Ordinance. If upon inspection the Inspector discovers that any part of the SSTS is not constructed in accordance with the minimum standards provided in this Ordinance and the approved design, the Inspector shall give the licensed installer and/or the permittee written notification describing the defects.

E. It shall be the responsibility of the permittee to provide the Inspector with free access to the property at reasonable times for the purpose of making inspections.

F. The permittee shall pay applicable fees as established by resolution of the County Board.

G. The permittee or installer, as determined by the Inspector, shall be responsible for the correction or elimination of all defects. No SSTS shall be placed or replaced in service until all defects have been corrected or eliminated. A Certificate of Compliance from the Inspector may be delayed or denied if the permittee or installer fails to correct or eliminate all defects as required by the Inspector.

H. The permittee or SSTS professional representing the permittee shall be present during the installation inspection.

7.02 INSPECTION ALTERNATIVE.

A. If the Inspector is unable to inspect within twenty-four hours, the SSTS professional responsible for the installation must:

1. Have verbal approval from the Inspector before commencing the installation of the SSTS.

2. Complete and sign an as-built drawing of the SSTS as installed (a copy of the original design will not be accepted). The as-built shall include a cross-section of the drainfield and tanks showing the depth the tank(s) was installed, the location of all maintenance holes, the number and height of maintenance hole risers, and the size and height of all inspection pipes. In addition, the as-built shall include trench depth, trench length, the type of rock or pipe used, the amount of backfill, the dimensions of the rockbed and sand base, the depth of sand below the rock, the size and separation of the pipe, the size and separation of perforations, the size and length of the pump line, the model, size and horsepower of the pump, the type and location of the alarm, the well location and any other pertinent information that the Inspector deems necessary to approve the SSTS.

3. Leave the SSTS open for inspection as required by the Inspector, including the ends of each trench and the distribution device, or the four corners of the sand and rockbed of a mound.

4. Sign, date and submit for approval an as-built drawing that includes a certified statement that the SSTS was built in accordance with Minn. Rules chapters 7080, 7081 and this Ordinance.

B. Failure to receive verbal approval from the Inspector to cover an SSTS prior to completion of an inspection shall be cause to order the SSTS to be exposed for inspection. The amount of the SSTS to be exposed for inspection shall be determined by the Inspector at the time of inspection.

7.03 COMPLIANCE INSPECTIONS REQUIRED. A compliance inspection is required:

A. When an inspection is done for any new or replacement SSTS;

B. If a permit or variance is applied for to alter an existing SSTS;

C. Any other time an SSTS is reviewed to determine if the SSTS is in compliance;

D. When a permit is applied for a bedroom, to build a horizontal addition onto an existing structure, or to build an accessory structure on a lot having an ISTS;

E. Any time the Scott County Zoning Ordinance No. 3 requires an inspection of an SSTS;

F. Where a permit or an amendment to an existing permit is required for a change in use of a property (i.e. residential to commercial, commercial to industrial, etc., or the addition of a business, or a change of a business type or use) including additional parking or outside storage area; or

G. When any parcel of land is developed, subdivided, rezoned or split and there is an existing SSTS on any of the parcels.

H. Exemptions: The compliance inspection requirement may be waived when Department records indicate that the existing SSTS is not a cesspool, drywell, seepage pit, leaching pit, or other pit in an area highly susceptible to ground water contamination, is not an imminent threat to public health; and

1. There are acceptable design, construction, maintenance and location records of the SSTS; or

2. There are limited options to locate a replacement SSTS and the permit activity will not result in an increase in water usage.

Prior to approving the permit, the Inspector may require the identification of an alternate site and that the tank(s) be pumped if records show that it has been more than six years since the tank(s) was last pumped. The action proposed in the building permit application shall not encroach upon the alternate site or the existing SSTS.

7.04 REQUIREMENTS FOR A COMPLIANCE INSPECTION.

A. A compliance inspection shall be submitted to the Department on forms approved by the Department. At a minimum, a compliance inspection must determine whether or not the existing SSTS is a failing system or poses an imminent threat to public health or safety.

B. The Compliance Inspector may allow for up to a 15 percent reduction in the vertical separation distance as described in Minn. Rules part 7080.1500 subp. 4 D.

C. After a compliance inspection is done, the licensed professional who conducted the compliance inspection must submit a Certificate of Compliance or a Notice of Noncompliance to the Department within 15 days of the date of the inspection or at the time of permit application, whichever is first.

7.05 SCHEDULE TO REPAIR OR REPLACE SSTS.

A. Any SSTS for which a Notice of Noncompliance has been issued shall be replaced or repaired in accordance with Table 1, except as provided in item E. below. Table 1 does not supersede compliance with Federal Class V requirements. Table 1 is based on information supplied to the County by the Minnesota Geological Survey.

B. All owners of new or replacement Class V injection wells, as defined in Code of Federal Regulations, title 40, part 144, must submit inventory information to the U. S. Environmental Protection Agency and Scott County. All Class V wells must be identified as such in property transfer disclosures.

C. Those SSTS that pose an imminent threat to public health and safety must immediately have the threat to public health abated by pumping, restricted use, or other means approved or ordered by the Inspector. This abatement must continue,

as needed, until the SSTS is upgraded, repaired, replaced or the use of the SSTS is discontinued.

D. Compliance with Table 1 may be waived when the Inspector determines that the existing SSTS is not an imminent threat to public health and:

1. Municipal sewer service to the lot is likely within five years;

2. There are acceptable design, construction, maintenance and location records of the SSTS; or

3. Constraints due to small lot size, topography or hydric or wet soils severely limit the options for replacement.

The Inspector may revoke the waiver and require the SSTS to be replaced within a specified timeframe if there is a change to one or more of the conditions that originally allowed the waiver. The Inspector may also allow the timeline for replacement outlined in Table 1 to be postponed to a later date for good cause or extenuating circumstances when doing so will not jeopardize public health.

TABLE 1

	Imminent Health Threat	Cesspool, Drywell, Leaching Pit, Seepage Pit or other Pit.	Less than the Required Vertical Separation per Minn. Rules part 7080.1500 subp. 4 D. & 4 E.
Areas highly susceptible to ground water contamination	10 months	10 months	3 years
Areas moderately susceptible to ground water contamination	10 months	3 years	5 years
Areas with low susceptibility to ground water contamination	10 months	5 years	10 years

E. An applicant for a building permit for the addition of a bedroom to an existing residence shall obtain an SSTS permit, if necessary, to upgrade, repair, replace or discontinue use of the SSTS in accordance with the most restrictive applicable timeline below:

1. Table 1 if the SSTS is failing, or

2. Within one year of the approved SSTS permit date if the existing SSTS is inadequate in size to accommodate the increased use.

7.06 STOP WORK ORDER. Whenever any work is being done contrary to the provisions of this Ordinance, the Inspector may order all work stopped by the installer or owner of

the land. All installation and construction shall cease and desist until subsequent authorization to proceed is given by the Inspector.

7.07 SSTS PROFESSIONAL LISTS.

A. The Inspector may provide lists of SSTS professionals to the public. The lists will be for compliance inspectors, installers, maintainers and designers. The lists should be updated annually and include those SSTS professionals for which there are records of having performed satisfactory SSTS services in Scott County as determined by the Inspector within the previous three calendar years.

B. Exception: SSTS professionals who have acted out of compliance with this Ordinance, as determined by the Inspector, will not be listed. Reasons for not being listing include, but are not limited to: failure to submit information to the Inspector resulting in a delay for issuing a notice of compliance; failure to submit pumping permits or compliance inspections as required; failure to submit adequate site evaluation information which prevents the issuance of an SSTS permit; outstanding SSTS fees owed to Scott County; or unresolved violations of this Ordinance.

8.00 SSTS MAINTENANCE PROGRAM.

The SSTS and all its components must be maintained in compliance with this Ordinance, Minn. Rules chapters 7080, 7081 and 7083 and any manufacturer requirements which do not conflict with the requirements of this Ordinance or the Rules adopted herein.

This maintenance program shall apply throughout Scott County in accordance with section 1.02.

8.01 MANAGEMENT OF SEPTAGE.

A. The owner of any septic tank or the owner's agent shall regularly, but in no case less frequently than every three years (unless otherwise approved by the Department due to limited use), inspect and measure the accumulations of sludge, including the settled materials at the bottom of the tank, and the accumulations of scum, which includes grease and other floating materials at the top of the tank. The owner of any septic tank or the owner's agent shall arrange for the removal and sanitary disposal of septage from the tank whenever the top of the sludge layer is less than 12 inches below the bottom of the outlet baffle or whenever the bottom of the scum layer is less than 3 inches above the bottom of the outlet baffle. Removal of septage shall include complete removal of scum and sludge.

B. All septage removed from any portion of an SSTS shall be removed from the site in sealed tanks or containers and be managed in a manner approved by the Inspector and in accordance with all applicable rules and regulations.

C. Recipients of septage used for the purpose of land application on their property shall obtain a license in accordance with the requirements of section 9.00 of this Ordinance.

D. Any tank or related apparatus used for removing or transporting domestic septage shall be maintained and operated in such a manner as to avoid emission of offensive odors, spilling or loss of any septage.

E. Septage removed from an SSTS shall be managed to prevent a nuisance or a menace to public health.

F. Septage shall be land applied only at rates that will be agronomically beneficial.

8.02 MAINTENANCE REQUIREMENTS. Each pumping of every septic tank, holding tank, cesspool, interceptor, separator and flammable waste trap shall be reported by the maintainer to the Inspector on forms approved for that purpose by the end of the following month.

8.03 MAINTENANCE INSPECTION REQUIREMENTS. A maintenance inspection shall be conducted by a licensed SSTS professional and submitted on forms approved by the Department.

8.04 OWNER RESPONSIBILITY.

A. It is the responsibility of the property owner or the owner's representative to maintain the SSTS and alternate sites in accordance with this Ordinance.

B The owner shall be responsible for assuring both access to the SSTS for maintenance and preventing damage to the SSTS from lot improvement activities such as landscaping, installing an irrigation system, construction or placement of small buildings, pools or other structures, and from activities that disturb or compact the soil such as planting crops, gardening, and driving vehicles over the SSTS.

8.05 NOTIFICATION. All owners who, according to Department records, have not had their SSTS pumped within the last three calendar years shall be notified by the Department.

8.06 PERMIT REQUIRED. A permit from the Department is required for each pumping and each maintenance inspection of a septic tank, cesspool, leaching pit, drywell, holding tank, pump chamber, or other portion of an SSTS. The licensed maintainer or permittee shall obtain the permit prior to any work being done. There shall be only one permit required for pumping all tanks one time in a single ISTS or per lot for a CSTS (unless performed by the Subordinate Service District in which case no permit is required). If there are more than one ISTS per property, a separate permit is required for each ISTS.

A permit is not needed to conduct a maintenance inspection.

Permit and other related fees shall be established by resolution of the County Board.

8.07 RECORD KEEPING. Scott County shall maintain a record of each SSTS inspected or pumped in Scott County.

9.00 LAND APPLICATION OF DOMESTIC SEPTAGE.

9.01 LICENSE REQUIRED. No person shall land apply septage without first obtaining a license to conduct such operation. The license shall be issued by the Department; shall be renewable and may be revoked or refused for cause, in accordance with the Scott County Administrative Procedures Ordinance No. 13.

9.02 LICENSE TERM. Unless otherwise provided by the County Board, each license granted pursuant to the provisions of this Ordinance shall be nontransferable and shall be for a period of not more than one year unless earlier suspended or revoked. The license year shall be from January 1 to December 31.

9.03 LICENSE APPLICATION. An applicant for a license shall complete and submit an application to the Department on a form approved by the Department. The application shall not be considered complete until the Department receives all applicable fees and all material required by this section. Applicants shall not commence any application activities until the license application has been reviewed and approved by the Department. In addition to the application form the applicant must submit the following:

A. A license bond, in an amount established by the County Board, for each land application site.

B. A certificate of insurance as established by the County Board.

C. A field evaluation of each land application site.

D. A map at a scale acceptable to the Inspector showing the location of each site that septage shall be applied. This shall include the parcel number, township, range, section number, and the name and address of all property owners.

E. Soils information at each land application site. Soil information shall include soil borings and a soil survey map of each site.

F. The proposed volumes of septage to be applied on each site.

G. The proposed application method.

H. The proposed date(s) of application.

I. The maximum volume of septage that can be applied to each acre of land in each land application site. The following equation shall be used to determine the maximum volume applied:

AAR = N/0.0026

Where:

AAR = the annual application rate in gallons per acre per 365 day period.

N = the amount of Nitrogen in pounds per acre per 365 day period needed by the crop or vegetation to be grown on the land.

The maximum allowable volume of septage shall also take into account any nitrogen fertilizers applied in association with the septage.

9.04 SITE RESTRICTIONS AND APPLICATION REQUIREMENTS.

A. Domestic septage shall either be injected or incorporated within six hours of surface application to a minimum depth of six inches. No significant amount of the domestic septage shall be present on the land surface within one hour after the domestic septage is injected.

B. The site must be a non-public contact site.

C. No land application is allowed in residential, shoreland, institutional or commercial/industrial zones.

D. To avoid the uninformed public from coming into contact with the soil/septage mixture, the application site must be fenced, posted or at a remote location.

E. Septage shall not be applied such that ponding or runoff occurs.

F. Septage must not be applied to soils unless the soil has dried adequately from previous applications or rainfall so that ponding does not occur.

G. Septage shall not be applied by spray irrigation or other methods that will cause aerosols to drift from the application site.

9.05 SOIL SUITABILITY. For the land application site to be suitable it must meet the following requirements:

A. Have medium or fine surface textures with a surface permeability slower than twelve inches per hour (five minutes per inch). Land application shall not be done on sand or peat surface textures.

B. Have a three-foot separation to the water table or bedrock.

C. Have six inches of available water holding capacity between the application depth and the water table or bedrock.

D. Must be free from flooding hazards.

E. Have at least one horizon in the upper five feet that has a permeability of less than six inches per hour (ten minutes per inch).

F. Must comply with Minn. Rules part 7041.1800 for pathogen reduction and vector control.

9.06 SETBACK REQUIREMENTS. The following separation distances (in feet) shall be met when land applying domestic septage:

	Surface Applied	Injected/Incorporated
Occupied Building	300	150
Residential Area	600	300
Recreational Area	600	300
Commercial Development	600	300
Recreational Trail	200	100
Municipal Well	1000	1000
Private Well	200	200
Property Line	25	25
Road Right-of-Way	50	25

Surface Water, drainage tile surface inlet, or sinkhole setback distances are as follows:

Percent Slope	May to October		November to April
	Injected	Surface applied Incorporated within 6 hours	Surface Applied Incorporated within 6 hours
0-2	150	300	600
2-6	300	600	not allowed
6-12	300	not allowed	not allowed

SLOPE RESTRICTIONS:

	Incorporated	Surface Applied
Unfrozen soil	12% or less	6% or less
Frozen soil	not allowed	2% or less

9.07 ANNUAL REPORTING. When septage is applied to the soil, the licensee shall submit to the Department the following information:

A. The location of each site that septage is applied. This information shall include the Parcel Number, the Township, Range, and Section numbers and the name and address of the property owner(s).

B. The total volume of septage that was land applied to each land application site.

C. An annual report shall not be required for one time only application sites.

D. The annual report must be submitted by January 31 of each year for the previous year.

10.00 ABANDONMENT OF AN SSTS.

A. All tanks must be abandoned in accordance with Minn. Rules part 7080.2500.

B. A maintenance permit is required whenever a tank is abandoned.

11.00 VARIANCES.

A variance from the provisions of this Ordinance may be applied for according to the provisions of section 6.00 of the Scott County Administrative Procedures Ordinance No. 13 as adopted herein. The County Board of Adjustment may grant variances from the provisions of this Ordinance upon such conditions as it may prescribe, consistent with the general purpose and intent of this Ordinance, the standards as adopted herein and according to the provisions of section 6.00 of the Scott County Administrative Procedures Ordinance No. 13.

12.00 LIABILITY.

The Inspector charged with the enforcement of this Ordinance, acting in good faith and without malice in the discharge of their duties, shall not thereby render themselves personally liable for any damage that may accrue to persons or property as a result of any act or by reason of any act or omission in the discharge of their duties. Any suit brought against the Inspector because of such act or omission performed by them in the enforcement of any provision of this Ordinance, shall be defended by this jurisdiction until final termination of such proceedings, and any judgment resulting there from shall be assumed by this jurisdiction. This Ordinance shall not be construed to relieve from or lessen the responsibility of any person owning or controlling any parcel of property for any damages to persons or property caused by defects, nor shall the Inspector or its parent jurisdiction be held as assuming any such liability by reason of the inspections authorized by this Ordinance or any certificates of inspection issued under this Ordinance.

13.00 VIOLATIONS AND PENALTIES.

13.01 MISDEMEANOR. Any person who fails to comply with the provisions of this Ordinance may be charged with a misdemeanor and upon conviction thereof shall be punished thereof as provided by law. Any person who violates, omits, neglects or refuses

to comply with the provisions or the enforcement of this Ordinance, shall be guilty of a misdemeanor. A separate offense shall be deemed committed upon each day during or on which a violation of any provision of this Ordinance occurs or continues.

13.02 INJUNCTIVE RELIEF. In the event of a violation of this Ordinance, the County may institute appropriate actions or proceedings, including requesting injunctive relief to prevent, restrain, correct or abate such violations.

13.03 CIVIL ACTION OR COST AS SPECIAL TAX. If a person fails to comply with the provisions of this Ordinance, the County may recover the cost incurred for corrective action in a civil action in any court of competent jurisdiction.

13.04 NOTICE ON PROPERTY TITLE. The County may, after giving the property owner of record 30 days' written notification by mailing said notice to the property owner at their last known address on file for that parcel with the Scott County Land Records' Office, file a notice of non-compliance of the SSTS on the property title for any property served by a non-complying SSTS in addition to or in lieu of other remedies intended to achieve compliance. The property owner shall be responsible for any fees established by the County Board of Commissioners for posting, removing said notice and any established administrative fees for that purpose.

14.00 EFFECTIVE DATE.

The standards, procedures and provisions adopted herein shall be effective immediately upon the publication of the minutes of these proceedings in the official newspaper of the County, unless otherwise noted.

15.00 SEVERABILITY.

It is hereby declared to be the intention that the several provisions of this Ordinance are severable in accordance with the following: If any court of competent jurisdiction shall adjudge any provision of this Ordinance to be invalid, such judgment shall not affect any other provisions of this Ordinance not specifically included in said judgment.

16.00 AMENDMENTS.

The procedure for amending this Ordinance is the same as prescribed by law for its adoption.

Adopted by the Scott County Board of Commissioners this 26th day of January, 2010.