



STEERING COMMITTEE MEETING #6

August 7th, 2017

Topic: Infrastructure (Sewer & Water, Transportation follow-up)

6:00 p.m. Transportation follow-up

- Follow-up issues map
- Transportation plan strategies table (DRAFT)

6:15 p.m. Overview of Water Supply Plan

- Goals
- City is on Maple Grove's potable water system. No significant upgrades anticipated during this planning cycle.

6:25 p.m. Overview of Sanitary Sewer Plan

- Only area where infrastructure upgrades may be needed is in the former elementary school site.
- City Engineer currently reviewing existing sanitary system for repair, replacement or upsizing considerations.
- Sewer System CIP will be included by appendix to this report when analysis is complete.

6:35 p.m. Overview of Surface Water (Nancy)

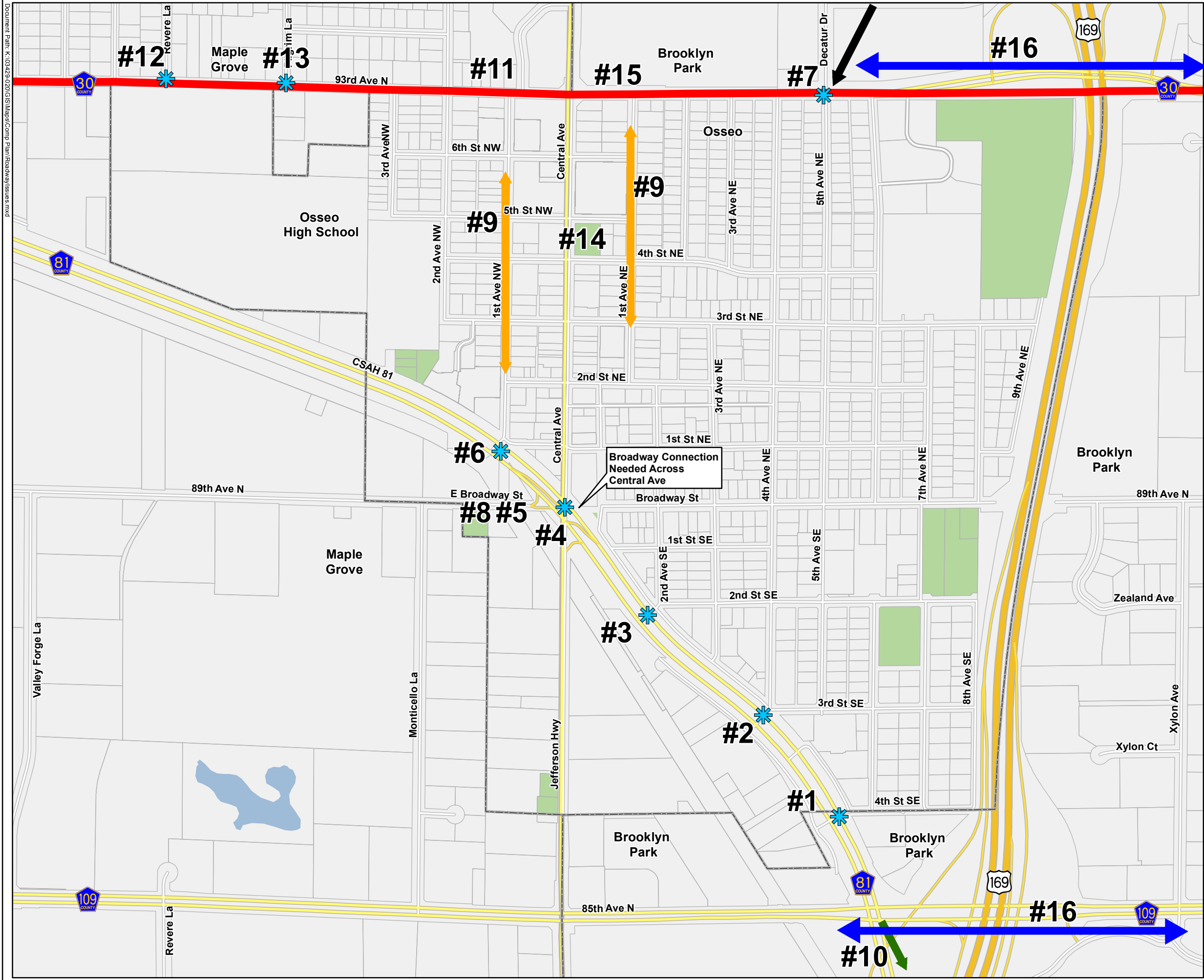
Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
4th Street SE & CSAH 81	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs. Work with Hennepin County to explore opportunities for intersection and frontage road improvements that enhance traffic operations, safety, and bicyclist/pedestrian connectivity	#1	Hennepin County/ Osseo	
3rd Street SE/ 4th Avenue SE & CSAH 81	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs. Work with Hennepin County to explore opportunities for intersection and frontage road improvements that enhance traffic operations, safety, and bicyclist/pedestrian connectivity	#2	Hennepin County/ Osseo	
2nd Street SE/ 2nd Avenue SE & CSAH 81	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs. Work with Hennepin County to explore opportunities for intersection and frontage road improvements that enhance traffic operations, safety, and bicyclist/pedestrian connectivity	#3	Hennepin County/ Osseo	
Central Avenue/Jeffers on Highway & CSAH 81	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs. Work with Hennepin County to explore opportunities for intersection and frontage road improvements that enhance traffic operations, safety, and bicyclist/pedestrian connectivity	#4	Hennepin County/ Osseo	

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Broadway Street & CSAH 81	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs. Work with Hennepin County to explore opportunities for intersection and frontage road improvements that enhance traffic operations, safety, and bicyclist/pedestrian connectivity	#5	Hennepin County/Osseo	
1st Street NW/ 1st Avenue NW & CSAH 81	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs. Work with Hennepin County to explore opportunities for intersection and frontage road improvements that enhance traffic operations, safety, and bicyclist/pedestrian connectivity	#6	Hennepin County/Osseo	
Various Locations	Roadway Safety/Operations	Traffic control within the city limits (especially on residential streets) is important. The City should continue to monitor problematic areas and consider mitigating/traffic control measures when appropriate	N/A	Osseo	
CSAH 30/93rd Avenue N & Decatur Drive	Roadway Safety/Operations	Monitor for potential future safety and traffic operations needs at the new Decatur Drive intersection	#7	Hennepin County/Osseo/Brooklyn Park	
Broadway Street & CSAH 81	Roadway Connectivity	Evaluate solutions to enhance connectivity of Broadway Street E and Broadway Street W across CSAH 81	#8	Osseo/ Hennepin County	

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
1st Avenue NE & 1st Avenue NW	Roadway Connectivity	Explore opportunities for 1st Avenue NW and 1st Avenue NE to serve as supporting parallel roadways supporting to Central Avenue and Downtown Osseo. Provide streetscaping elements that enhance bicyclist and pedestrian activity and connectivity to Central Avenue	#9	Osseo	
CSAH 81	Roadway Improvements	Work with Hennepin County to explore opportunities for roadway and intersection improvements to the CSAH 81 roadway segment within Osseo. Coordinate with Hennepin County and the City of Brooklyn Park on the planned CSAH 81 roadway expansion to the south	#10	Hennepin County	
CSAH 30/93rd Avenue N	Roadway Jurisdiction	Discuss with Hennepin County and the cities of Brooklyn Park and Maple Grove the potential "turn back" of CSAH 30/93rd Avenue and any proposed timeframes	#11	Hennepin County/Osseo/ Brooklyn Park/ Maple Grove	
CSAH 30/93rd Avenue N & Revere Avenue	Pedestrian Crossings/Safety	Evaluate solutions to improve intersection safety and traffic operations at this school crossing	#12	Osseo/Hennepin County	
CSAH 30/93rd Avenue N & Pilgrim Lane	Pedestrian Crossings/Safety	Evaluate solutions to improve intersection safety and traffic operations at this school crossing	#13	Hennepin County/ Osseo	
Boerboom Veterans Park	Bicycle/Pedestrian Improvements	Maintain and enhance safe pedestrian access to Boerboom Veterans Park as the park expands and the downtown area densifies	#14	Osseo	

Location	Type of Improvement	Strategy	Map Reference	Lead Agency(ies)	Goal(s)
Various Locations	Bicycle/Pedestrian Improvements	Through land redevelopment and roadway reconstruction projects, explore opportunities to complete gaps in the City's sidewalk system. Provide a sidewalk on at least one side of the road in conjunction with all future roadway construction projects	N/A	Osseo	
CSAH 30/93rd Avenue N	Bicycle/Pedestrian Improvements	Promote opportunities to complete the multiuse trail gaps along CSAH 30 that are critical for continuity, safety, and access to destinations both within and beyond the city	#15	Hennepin County/ Osseo/Brooklyn Park	
CSAH 30/93rd Avenue N & CSAH 109/85th Avenue N	Bicycle/Pedestrian Improvements and Transit Connections	Promote the importance of safe and accessible bicycle/pedestrian connections to the planned Blue Line LRT Extension and station locations. Coordinate these improvements with Hennepin County and the City of Brooklyn Park	#16	Hennepin County/ Osseo/Brooklyn Park	
Various Locations	Transit Connections	Work with transit providers to establish feeder transit bus service from Osseo and surrounding communities to the Blue Line LRT Extension and station locations	N/A	Metro Transit/Maple Grove Transit/Osseo	

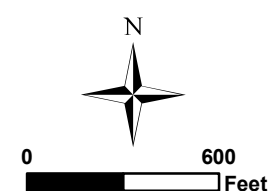
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Osseo Comprehensive Plan
Transportation Strategies
Osseo, MN

DRAFT FOR
DISCUSSION

- #XX Transportation Strategy
- ↔ Bicycle/Pedestrian Connections to Blue Line LRT
- * Intersection Operation/Safety Issue
- Proposed County to City Turn Back- Hennepin County Plan
- Brooklyn Park New Development Roadway Traffic Concern
- 6-Lane Expansion - Programmed Hennepin County
- Improve Parallel Corridors to Central Avenue
- Parks
- Lakes
- Osseo City Boundary



INTRODUCTION

The City of Osseo's Comprehensive Water Supply Plan describes the City's existing water distribution system and evaluates its ability to meet current and future water demands.

State law requires every municipality with a public water supply system to submit a Water Supply Plan every ten years. This Plan has been prepared according to the guidelines established by the Metropolitan Council and the Minnesota Department of Natural Resources (DNR).

The City of Osseo previously completed a Comprehensive Water Supply Plan in May of 2009.

WATER SYSTEM GOALS

1. Provide residents and businesses with affordable potable water that is safe and of high quality.
2. Provide a low-maintenance, efficient water system that supplies the long-term needs of residents and businesses.
3. Provide adequate water supply and pressure for residents and businesses.
4. Continue working with adjacent communities to provide an efficient water service to residents.
5. Provide water service for redevelopment areas in a planned manner by constructing new mains for upsizing (if demand requires).
6. Promote water conservation and sustainability by reducing water demand, improving efficiency of the existing system, and reducing the waste of water.
7. Protect the groundwater supply from contamination.

SANITARY SEWER RECOMMENDATIONS

The City is in the process of reviewing its existing sanitary sewer system with the City Engineer and a detailed plan for sanitary sewer improvements will be finalized at the completion of that review. In this report, the existing lift stations, trunk sewer mains, and sanitary sewer districts were evaluated generally to provide an indication of areas where improvements may be necessary.

List Station Analysis

There are three lift stations in the City of Osseo, as described previously. The projected flows to each lift station are shown in **Table 5**.

Table 5. Forecasted Flows by Lift Station

Lift Station	Existing Average Flow (gpm)	Existing Max Flow (gpm)	2040 Average Flow (gpm)	2040 Max Flow (gpm)
1	129	602	259	1,108
2	3.6	17	No Change	No Change
3	17	81	No Change	No Change

There is no significant redevelopment planned in the areas served by Lift Stations 2 and 3. The only lift station that will see a change in flow due to new development is Lift Station 1, the City's primary lift station.

Trunk Sewer Main Analysis

The capacities of existing trunk sewer mains serving areas of significant development were evaluated to determine if they will be sufficient with increased future flows. The only development that may require pipe upsizing is the redevelopment of the former Osseo Elementary School site to stacked residential use. It is recommended that the City carefully review the capacities of the existing sanitary sewer mains that will serve that area before redevelopment.

Sewer District Analysis

The City of Osseo's existing sanitary sewer system can be divided into north and south districts, as shown in **Figure 2**. Both districts are expected to experience redevelopment that will impact their wastewater flows. The estimated existing flows and projected future flows generated in each district are shown in **Table 6**.

Table 6. Forecasted Flows by Sewer District

District	Existing Average Flow (gpd)	Existing Max Flow (gpd)	2040 Average Flow (gpd)	2040 Max Flow (gpd)
North	82,799	385,845	178,860	758,490
South	103,201	480,915	194,812	836,626
Total	186,000	866,760	373,673	1,595,117

The most significant development in the north district is the proposed redevelopment of the 10-acre former Osseo Elementary School site to stacked residential use. Apart from this site, there are approximately a dozen other proposed land uses changes in quarter-acre residential lots.

The most significant development in the south district is the proposed redevelopment of the strip of offices along CSAH 81 to commercial use. This redevelopment is not expected to impact wastewater flows significantly. The redevelopment of several dozen residential and commercial parcels to mixed use, primarily along County Road 81, will increase flows in those areas but it is not anticipated that system capacity will be exceeded.

MCES Interceptor Facility Forecasts

The City of Osseo's sanitary sewer system discharges to MCES Interceptor 4-OS-457 and subsequently 7015-D. The flows from the Osseo Middle School and High School, which discharge into Maple Grove, eventually rejoin the rest of City flows in MCES Interceptor 7015-A&B. The average and maximum flows forecasted to discharge to these MCES Interceptors by the year 2040 are listed in **Table 7**. Note that the flows listed here include only those generated within the City of Osseo. These flows were estimated based on historical MCES flow data and the expected increase in flows due to areas of the City that are expected to develop by 2040.

Table 7. Projected 2040 MCES Interceptor Use

MCES Interceptor(s)	2040 Average Flow (MGD)	2040 Max Flow (MGD)
7015-D	0.374	1.595
7015-A&B (Adding Osseo Middle School and High School only)	0.407	1.727

INFLOW AND INFILTRATION

General

Inflow is water, typically stormwater, which enters the sewer system through broken manhole covers, sewer cleanouts, sump pumps, foundation drains, and rain leaders. **Infiltration** is water, typically groundwater, which leaks into the sewer system through cracks in the sewer mains, laterals, joints, and manholes.

Water from inflow and infiltration (I/I) can consume available capacity in the wastewater collection system and increase the flow into treatment facilities. In extreme cases, the added flow can cause bypasses or overflows of raw wastewater. This extra flow also requires a larger capacity in the city's collection and treatment components, which results in increased capital, operation and maintenance, and replacement costs. As a sewer system ages and deteriorates, I/I can become an increasing burden on a City's system. Therefore, it is imperative that I/I be reduced whenever it is cost effective to do so.

The MCES has established I/I goals for each community discharging wastewater into the Metropolitan Disposal System (MDS) based on average day flows and allowable peaking factors. In February 2006, the MCES began an I/I Surcharge Program that requires communities within their service area to eliminate excessive I/I over a period of time. Now, communities that exceed their wastewater flow program year goals for the period of July 1, 2016 through December 31, 2016, will be required to complete an I/I mitigation assignment to be implemented in 2018.

The City of Osseo is currently meeting its I/I goal. Flow metering data is available for MCES Meter M223, and an analysis of this data as it relates to I/I is presented on the following page. This analysis does not include data from 2016 because Meter M223 was declared inoperable in October 2016. The City's strategies, programs, investments, and goals for reducing I/I are listed in this section as well.

I/I Analysis

Osseo's sanitary sewer system currently consists of approximately 11.5 miles of sanitary main, three lift stations, and 3,500 feet of forcemain. About 85% of the residential structures in the City were constructed before 1970.

A comparison of the dry weather flow versus average annual flow for 2012-2016 is given in **Table 8**. Dry weather flow is calculated as average flow during the months of December through February. The purpose of this comparison is to give a general indication of the extent of I/I in the region. Atypically, the City of Osseo's daily flow data from MCES Meter M223 shows higher flows in the dry winter months than average flows throughout the entire year. This suggests that there is not significant I/I in the City of Osseo's sanitary sewer system.

Table 8. Dry Weather Flow vs. Average Annual Flow

Year	Dry Weather Flow (MGD)	Average Annual Flow (MGD)
2012	0.176	0.177
2013	0.182	0.180
2014	0.214	0.210
2015	0.200	0.181

I/I Reduction

Part of the City's strategy for preventing excess I/I is based on requiring all development to conform to City standards. City code prohibiting the discharge of stormwater to the sanitary sewer system and the disconnection of sump pumps and surface drains from the system is excerpted below.

§ 52.055 UNPOLLUTED WATERS; DISCHARGE TO SANITARY SEWER PROHIBITED; ENFORCEMENT.

No person shall discharge or cause to be discharged any storm water, cooling water, surface water, subsurface drainage, ground water, roof runoff, yard drainage, yard fountain, pond overflow, or any substance other than sanitary sewage into the sanitary sewer collection system.

(A) No roof runoff, sump pump, swimming pool discharge, or surface water drainage shall be connected to the sanitary sewer system and no building shall hereafter be constructed nor shall any existing buildings be hereafter altered in such a manner that the roof drainage or any other source of discharge or drainage other than sanitary sewer shall connect with the sanitary sewer system inside or outside the building.

(B) Any person having a roof, sump pump, swimming pool discharge, cistern overflow pipe, or surface drain now connected and/or discharging into the sanitary sewer system shall disconnect and/or remove same immediately. Any disconnects or openings in the sanitary sewer shall be closed or repaired in an effective, workmanlike manner, under the supervision of the Superintendent.

(C) All sump pumps shall have a discharge pipe installed to the outside wall of the building with one-inch inside minimum diameter. The pipe attachment shall be a permanent fitting such as PVC pipe with glued fittings. The discharge shall extend at least three feet outside of the foundation wall and shall be directed toward the front yard or rear yard area of the property.

(D) Every person owning improved real estate that discharges into the city's sanitary sewer system shall allow the city employee(s) or authorized agents to inspect the improvements to confirm that there is no sump pump or other prohibited discharge into the sanitary sewer system. Any person refusing to allow this inspection shall immediately become subject to the surcharge hereinafter provided for. Any person found to violate this section shall make the necessary changes to comply with this section and the changes shall be verified by an employee or authorized agent of the city.

The bulk of the I/I reduction work realized by the City of Osseo is completed as part of its annual street and utility improvement projects. As part of these projects, sanitary sewer lines are televised to detect damaged pipes and illegal connections, and then appropriate corrective measures are initiated with the affected sewer lines or property owner. The specific projects completed in the last ten years to reduce I/I are listed in **Table 9**.

Table 9. I/I Activities Completed

Year	Project	Description
2007	City-Wide Televising	The City's entire sanitary sewer system was televised; tapes and reports are available.
2007-2010	Smoke Testing	The City's entire sanitary sewer system was smoke tested to identify illegal connections; all infractions were brought into compliance.
2010 - Present	Street and Utility Improvements	The City's annual street projects cover approximately four blocks, and the sanitary sewer lines are televised in conjunction with each project.

The City will continue televising its sanitary sewer system in conjunction with its annual street and utility improvement projects. Assuming that these projects will cover approximately four blocks, the annual cost of this televising is estimated to be \$2,500. The City also has ongoing reviews of flows and discussions with consulting engineers to develop the next stage of improvement plans. Osseo will continue to proactively identify I/I sources and take corrective actions.

CAPITAL IMPROVEMENTS

The City is in the process of reviewing its existing sanitary sewer system with the City Engineer. The parts of the system, if any, that will require repair, replacement, or upsizing will be identified and finalized by the end of 2017. The City's Sewer Capital Improvement Plan will be included by appendix to this report at that time.

SUMMARY AND OUTCOMES

The analysis provided in this Sanitary Sewer Plan is aimed to provide the City of Osseo and the Metropolitan Council assistance in planning for wastewater collection and treatment. It is anticipated that the design flows and criteria outlined will be used for utility planning as development continues within the City. Tables and figures can be utilized to create budget-level estimates and schematic representations of infrastructure improvements, with specific sizing and routing to be determined during the design phase.

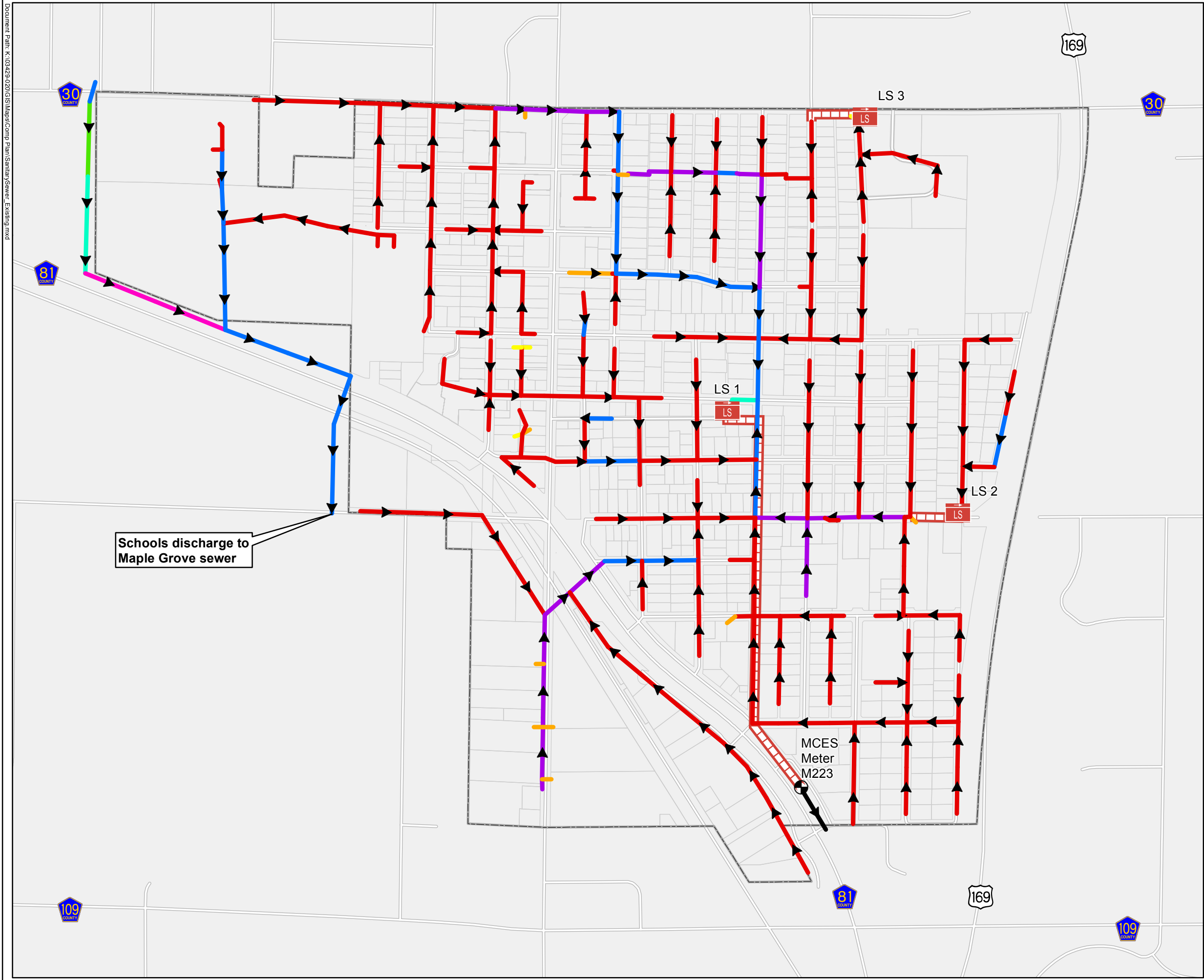


Figure 1
Existing Sanitary
Sewer System
Comprehensive Sewer Plan
Osseo, MN

Gravity Main
Diameter

- 4"
- 6"
- 8"
- 10"
- 12"
- 15"
- 18"
- 24"

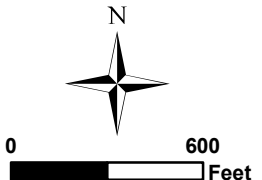
LS Lift Station

Forcemain

MCES Meter

MCES Interceptor

Osseo City Boundary



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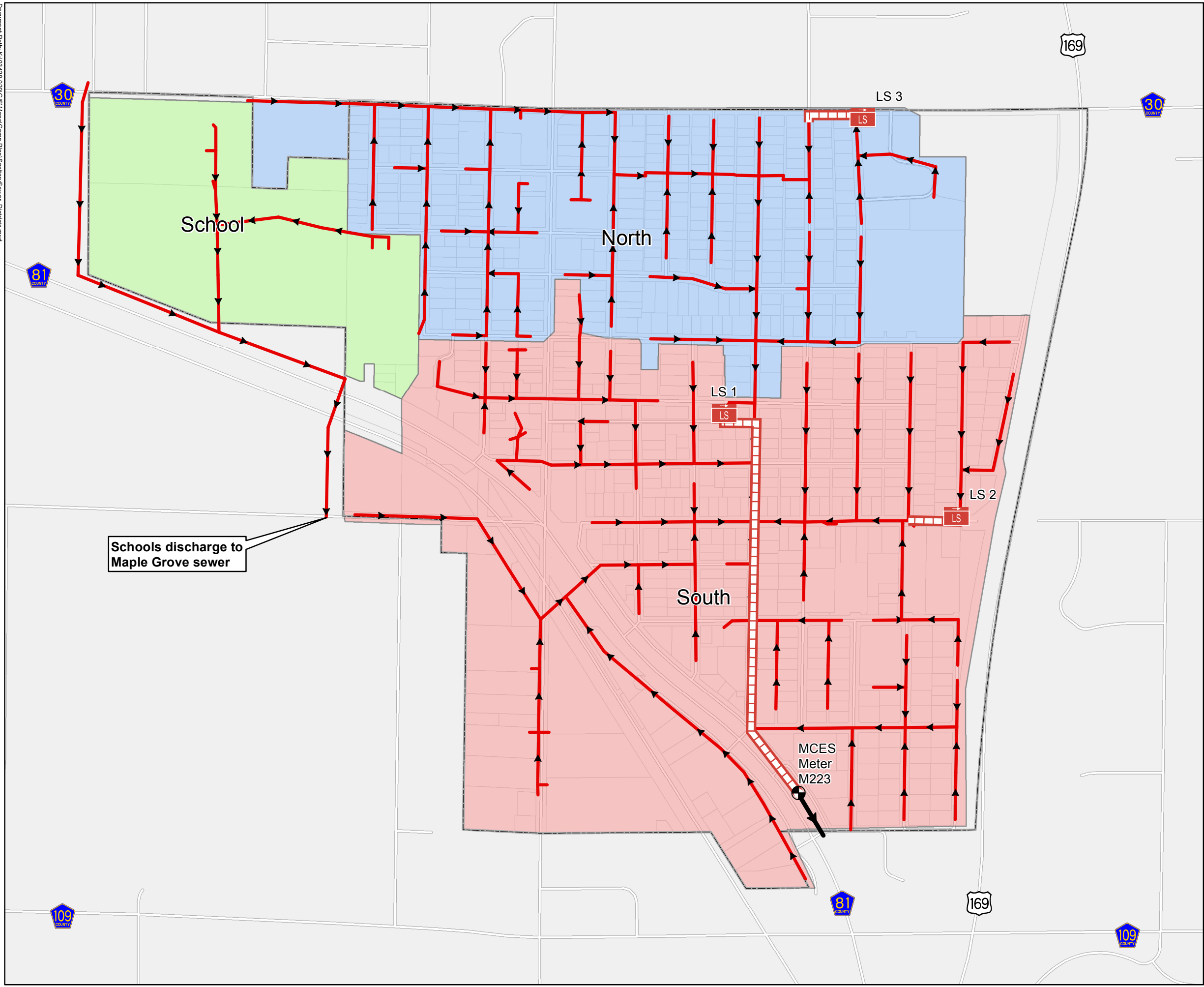


Figure 2
Sanitary Sewer
Districts
Comprehensive Sewer Plan
Osseo, MN

Sanitary Sewer Districts

- North
- School
- South
- Gravity Main
- Lift Station
- Forcemain
- MCES Meter
- MCES Interceptor
- Osseo City Boundary

