

## SECTION 5: WATER RESOURCES

The City's updated Comprehensive Plan must be consistent with the Metropolitan Council's *2030 Regional Development Framework*, which includes the *2030 Water Resources Management Policy Plan*. This *2030 Comprehensive Sewer Plan* updates the sanitary sewer element of the City of Lauderdale's Comprehensive Plan. This plan provides consistency with Metropolitan Council plans, and provides information to assist the Metropolitan Council Environmental Services (MCES) with continued operation of the Metropolitan Disposal System (MDS) for wastewater collection and treatment.

### ***System Capacity Description***

Lauderdale's streets and sewers were originally constructed in the 1950s. The City completed a group of major reconstruction projects in 2003 to replace and update the streets, sewers and waterlines.

Lauderdale's sanitary sewer system is shown on Map 5-1. The system has been divided into five sanitary sewer districts, defined by points of discharge to sewer trunk lines. Districts 1 and 2 flow to MCES Meter M103, located near 33rd Avenue Southeast and Talmadge Avenue in Minneapolis. Meter M103 and Lauderdale Districts 3 and 4 all flow to MCES Interceptor 1-MN-301 near 33rd Avenue Southeast and Como Avenue in Minneapolis. District 5 flows to St. Paul's sewer system at the intersection of Fulham Street and Hoyt Avenue.

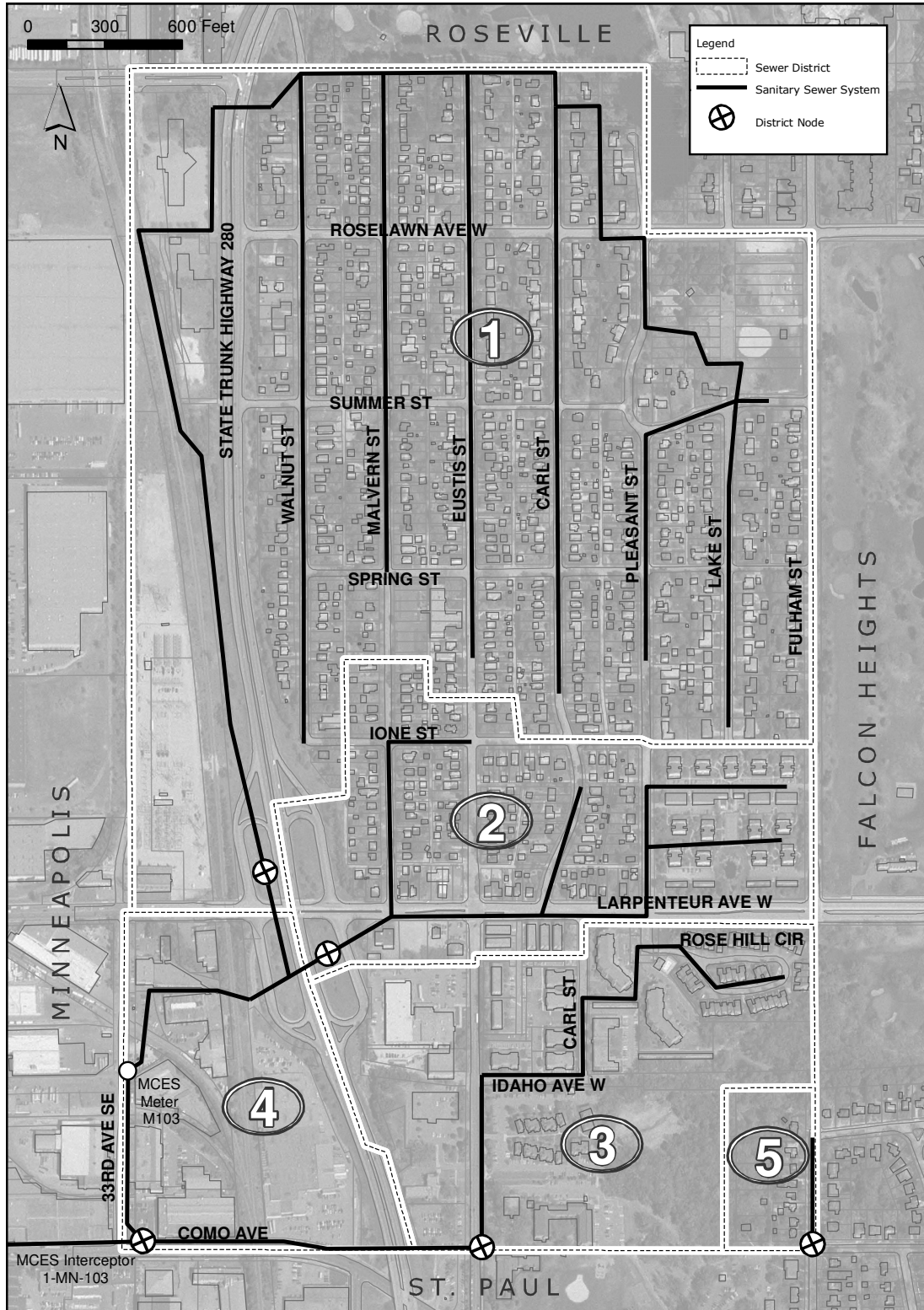
Lauderdale does not have a wastewater treatment facility. Wastewater is collected in the City sewer system and discharged to the systems described above; which convey wastewater to the MCES treatment plant at Pig's Eye Lake in St. Paul. MCES charges Lauderdale for treatment of this wastewater. Districts 3, 4 and 5 are not metered, so the City reports sanitary sewer flow annually to the MCES based on the water usage.

### **System Features**

Lauderdale's sanitary sewer system is composed of approximately 6.7 miles of sewer lines and 156 manholes. There are no lift stations in the system. Most of the sanitary sewers in Lauderdale were replaced between 2001 and 2003. The City redirected flows in District 1 to the north, and constructed a trunk line parallel to Highway 280 to carry this flow south. These improvements allowed Lauderdale to abandon four aging lift stations.

There are no on-site septic systems or large sewer users (flow exceeding 0.05 MGD) located within the City. Undeveloped parcels in Lauderdale can be adequately served using existing facilities, so there are no system extensions or new MDS connection points planned. Future improvements will focus on maintenance of the existing system.

**Map 5-1: Sanitary Sewer System Map**



### **Projected Population and Wastewater Flows**

Table 5-2 lists the population and wastewater flow projections issued by the Metropolitan Council in the City of Lauderdale's System Statement.

**Table 5-2 Metropolitan Council Projections**

	1990	2000	2010	2020	2030
Population	2,700	2,364	2,400	2,600	2,600
Households	1,166	1,150	1,160	1,250	1,250
Employment	500	700	730	750	800
Average Wastewater Flow (MGD)			0.29	0.30	0.30
Allowable Peak Flow (MGD)			1.07	1.08	1.08

### **System Flows and Capacity**

System flows have been estimated for current (2008) conditions as well as 2030 projected land use conditions. The average wastewater flow from each sanitary sewer district has been estimated by applying unit flow rates to each land use category. These estimates are summarized in Tables 5-4 and 5-5.

The sanitary sewer system must be capable of handling the anticipated peak flows, estimated by applying a peak flow factor to the average flow. The peak flow factor accounts for flow variability and includes an allowance for infiltration and inflow. Trunk line capacities are included in Tables 5-4 and 5-5. The existing trunk system has adequate capacity for the estimated flows.

Total estimated wastewater flows for Lauderdale are summarized in Table 5-3. These flows are below the MCES allowable flows in Table 5-2.

**Table 5-3 Estimated Wastewater Flow**

	2010	2020	2030
Average Flow (MGD)	0.22	0.24	0.25
Peak Flow (MGD)	0.84	0.89	0.94

**Table 5-4 Wastewater Flow and System Capacity – 2008**

<b>Wastewater Flow and System Capacity - 2008</b>													
Existing 2008 Landuse	Total	Park Land	Roadway	Railway	Lake	Open Space	Single Fam Duplex Triplex	Townhome Condo Apartments	Light Industrial	Industrial	Utility	Government Institutional	Commercial
<b>Sewer District</b>							<b>Area (ac)</b>						
1	157.77	7.27	49.06	5.79	0.97	1.35	73.30	0.95			9.99	2.66	6.42
2	39.80		14.87		0.14		13.57	8.82	0.13				2.27
3	43.70		5.74			7.18		13.63	4.05			13.10	
4	25.00		11.83	3.99					1.18	7.29			0.70
5	4.96		0.59			1.76	2.61						
City Total	271.23	7.27	82.10	9.78	1.11	10.29	89.48	23.40	5.36	7.29	9.99	15.76	9.39
Units per acre							9	15					
Persons per unit							2.5	1.1					
Population	2399						2013	386					
Gallons/person/day							80	75					
Gallons/acre/day							1800	1238	300	1000	100	800	1000
MGD / acre		0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0012	0.0003	0.0010	0.0001	0.0008	0.0010
MGD / City	0.2219	0.0000	0.0000	0.0000	0.0000	0.0000	0.1611	0.0290	0.0016	0.0073	0.0010	0.0126	0.0094
<b>Sewer District</b>							<b>Average Flow (MGD)</b>						
1	0.1427	0.0000	0.0000	0.0000	0.0000	0.0000	0.1319	0.0012	0.0000	0.0000	0.0010	0.0021	0.0064
2	0.0376	0.0000	0.0000	0.0000	0.0000	0.0000	0.0244	0.0109	0.0000	0.0000	0.0000	0.0000	0.0023
3	0.0286	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0169	0.0012	0.0000	0.0000	0.0105	0.0000
4	0.0083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0073	0.0000	0.0000	0.0007
5	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
City Total	0.2219												
<b>Sewer District</b>	Avg Flow (MGD)	Peak Factor	Design Flow (MGD)		Trunk dia (in)	slope (ft/ft)	Capacity (MGD)		Capacity /Design				
1	0.1427	3.9	0.5564		15	0.0018	2.0937		3.76				
2	0.0376	4.0	0.1506		15	0.0012	1.7095		11.35				
Subtotal to M103	0.1803	3.9	0.7032										
3	0.0286	4.0	0.1142										
4	0.0083	4.0	0.0334										
Subtotal to 1-MN-301	0.2172	3.8	0.8254		18	1-MN-301							
5	0.0047	4.0	0.0188										
City Total	0.2219	3.8	0.8433		<b>System statement</b>		1.0700		<b>1.27</b>				

**Table 5-5 Wastewater Flow and System Capacity – 2030**

<b>Wastewater Flow and System Capacity - 2030</b>										
Proposed 2030 Landuse	Total	Park & Recreation	Roadway	Railway	Open Water	Open Space	Medium Density Residential	High Density Residential	Industrial	Mixed Use
<b>Sewer District</b>	<b>Area (ac)</b>									
1	157.77	7.27	49.09	5.94	0.97	0.78	77.07		16.65	
2	39.80		14.85		0.14		19.49			5.32
3	43.70		5.74			7.18	13.88	4.93		11.96
4	25.00		11.83	3.99					9.17	
5	4.96		0.59			1.76	2.61			
City Total	271.23	7.27	82.10	9.93	1.11	9.72	113.05	4.93	25.83	17.28
Units per acre		0	0	0	0	0	9	15	0	0
Persons per unit							2.5	1.1		
Population	2625						2544	81		
Gallons/person/day							80	75		
Gallons/acre/day		0	0	0	0	0	1800	1238	1000	1000
MGD / acre		0.0000	0.0000	0.0000	0.0000	0.0000	0.0018	0.0012	0.0010	0.0010
MGD / City	0.2527	0.0000	0.0000	0.0000	0.0000	0.0000	0.2035	0.0061	0.0258	0.0173
<b>Sewer District</b>	<b>Average Flow (MGD)</b>									
1	0.1554	0.0000	0.0000	0.0000	0.0000	0.0000	0.1387	0.0000	0.0167	0.0000
2	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0351	0.0000	0.0000	0.0053
3	0.0431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	0.0061	0.0000	0.0120
4	0.0092	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0092	0.0000
5	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000	0.0047	0.0000	0.0000	0.0000
City Total	0.2527									
<b>Sewer District</b>	Avg Flow (MGD)	Peak Factor	Design Flow (MGD)		Trunk dia (in)	slope (ft/ft)	Capacity (MGD)		Capacity /Design	
1	0.1554	3.9	0.6060		15	0.0018	2.0937		3.46	
2	0.0404	4.0	0.1616		15	0.0012	1.7095		10.58	
Subtotal to M103	0.1958	3.8	0.7440							
3	0.0431	4.0	0.1722							
4	0.0092	4.0	0.0367							
Subtotal to 1-MN-301	0.2480	3.7	0.9176		18	1-MN-301				
5	0.0047	4.0	0.0188							
City Total	0.2527	3.7	0.9350		<b>System Statement</b>		1.0800		<b>1.16</b>	

## ***Inflow and Infiltration***

### **MCES I/I Surcharge Program**

In February of 2006, Metropolitan Council instituted its Inflow/Infiltration Surcharge Program. The fundamental policy statement summarizing this program is that Metropolitan Council “will not provide additional capacity within its interceptor system to serve excessive inflow and infiltration.” The Council establishes inflow and infiltration thresholds for each of the communities that use its system. Communities that exceed this threshold are required to eliminate this excess flow within a reasonable timeframe or pay a surcharge fee. MCES will assess an annual surcharge to begin in 2007 and last for five years, until 2011. In 2013 Metropolitan Council will institute a wastewater demand charge program for those communities that have not met their inflow and infiltration goal(s).

Metropolitan Council identified Lauderdale as a community with at least one Infiltration and Inflow (I/I) exceedance event recorded between June 1, 2004 and June 30, 2006.

### **Lauderdale’s I/I Program**

In response to the MCES program, the City of Lauderdale initiated an Inflow and Infiltration reduction program in January 2007. The City intends to actively implement the program to reduce I/I below the allowable threshold and eliminate additional public expense.

In November 2007, the City adopted the *Clear Water Inflow and Infiltration Reduction Program Policy*, consisting of public education, system repairs, connection inspections, and financial assistance for property owners. In December 2007, the City adopted updates to Section 8-2-1 of the City Code to address I/I reduction in sanitary sewer connections. A copy of the policy is provided in Appendix C.

### ***Water Supply Plan***

Early in 1958, the Minnesota Department of Health tested the water from Lauderdale’s municipal well and found the water was contaminated by gasoline. The source of the contamination was not known at the time, but later studies indicated that the probable cause was the collision of a train and a loaded transport truck in 1950. Another spill, in 1953, was caused by a valve failure on one of the gasoline storage tanks at the Great Lakes Pipe Line Company.

At that time, the City looked at several alternatives for providing the City’s water supply. The alternatives included digging a deeper well into another aquifer, buying water wholesale and maintaining the infrastructure, or having St. Paul provide water retail and maintain the infrastructure. The City chose the latter.

St. Paul Regional Water Service now owns and maintains the water utilities in the City. Many of the City’s water lines were replaced during the 2000-2003 road reconstruction projects. As the City does not manage its own water supply, a Water Supply Plan is not included as part of the Comprehensive Plan.

### ***Stormwater/Erosion Control Ordinance***

Title 8, Chapter 4 of Lauderdale City Code is intended to reduce nonpoint source pollution. The ordinance outlines the controls the City will use to manage stormwater, protect wetlands, and reduce phosphorus from lawn fertilizer.

### ***LSWMP Summary for 2030 Comprehensive Plan***

Concurrent with development of this Comprehensive Plan, Lauderdale completed an update of the Local Surface Water Management Plan (LSWMP); which will guide the City in conserving, protecting, and managing its surface water resources. The LSWMP has been updated to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources. The plan is also consistent with the goals and policies of the Metropolitan Council's *Water Resources Management Policy Plan*, and the three watershed management organizations having jurisdiction within the City (Map 5-6):

- Mississippi Watershed Management Organization (MWMO)
- Rice Creek Watershed District (RCWD)
- Capitol Region Watershed District (CRWD).

The LSWMP is organized as follows:

- Section 2 describes the physical setting, land uses and water and natural resources within the City.
- Sections 3 through 5 describe the regulatory agencies having jurisdiction in the City, and past studies and agreements related to surface water resources.
- Section 6 provides hydrologic modeling and an assessment of surface water management.
- Section 7 lists the goals and policies identified to address surface water management needs in the City.
- Section 8 summarizes current ordinances and capital projects planned to implement the goals and policies listed in Section 7.
- Section 9 outlines the continued administration of the LSWMP.

Lauderdale has a strong interest in protecting and managing its valuable water and natural resources, recognizing the relationships between resource protection, land use management, development, redevelopment and fiscal responsibility. The governing watershed management organizations within the City will continue to implement surface water standards that impact City projects. The LSWMP defines specific goals and policies to address these objectives.

The LSWMP is subject to review and approval by the three watershed management organizations. Periodic amendments may be required to incorporate changes in local practices, or changes in the three Watershed Management Plans. The 2008 LSWMP is applicable until 2018, at which time an updated plan will be required.

The LSWMP is adopted by reference for the purpose of this Comprehensive Plan. The LSWMP was approved by the Lauderdale City Council on \_\_\_\_\_, 2008.

## Surface Water

Map 5-6 shows that Lauderdale is divided between two watershed districts and a watershed management area. The surface water map is still being prepared as part of the LSWMP.

**Map 5-6: Watershed Districts within Lauderdale**

