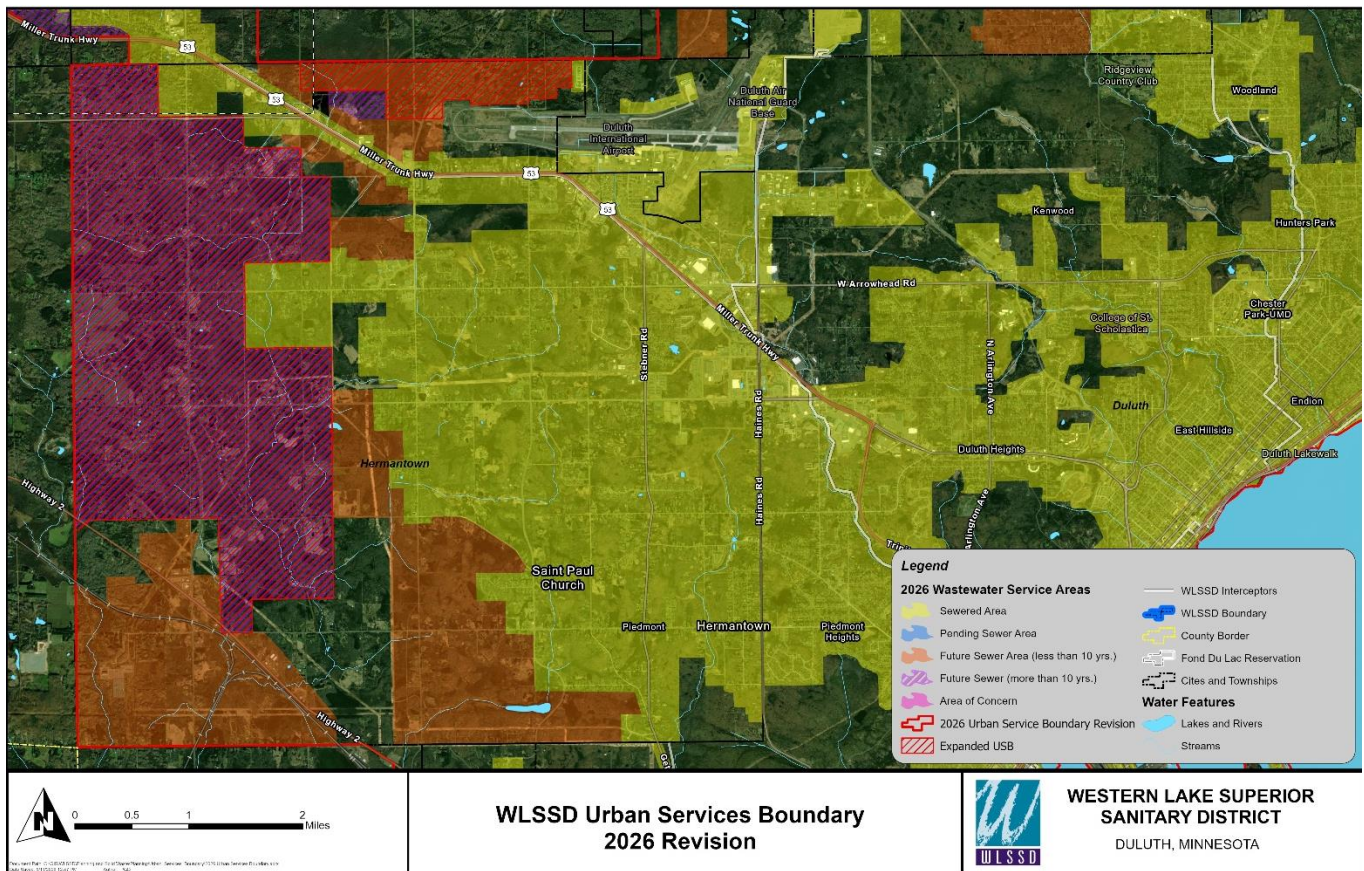


This proposed amendment to the WLSSD Comprehensive Wastewater Plan modifies District's Urban Services Boundary (USB). The USB delineates the approximate area in which development and expansion of utilities is acceptable, thereby protecting areas not deemed as acceptable or desirable from urban sprawl and unorganized growth. The City of Hermantown has recently amended its Comprehensive Plan which outlines strategies to open the rest of the City's area to long-term development, which sits outside of the City and the WLSSD USB. WLSSD must formally modify its USB through an amendment to the Comprehensive Wastewater Plan before the City of Hermantown can proceed with any utility extensions beyond the USB. Expanding the USB does not in and of itself allow for extension of sewer, it only defines where extension would or would not be acceptable. The actual extension of sewer utilities is subject to subsequent applications and approvals.

Proposed amendments to Section 4 of the Comprehensive Wastewater Plan relate to the table on page 31 describing the sewer and unsewered areas as a percentage to the total WLSSD boundary, and to the map on page 35 extending the USB (red line) westward and northward to cover all land area within the City of Hermantown. The changes to the USB can also be seen on the map below.



Section 4: WLSSD Service Areas

The WLSSD service area covers approximately 530 square miles encompassing two counties, eight cities and nine townships. Much of this area, however, is not served directly by a public sewer utility system. From a geographic perspective, only 12-percent (62.78 square miles) of the total WLSSD service area is actually served by public sewers. Another approximately 5-percent (29.00 square miles) of the WLSSD area has been identified in local plans as areas where future sanitary sewer service is possible within the next 10-20 years.

Within the WLSSD area, the District owns and operates 17 pump stations. The dry-weather volumes handled by the pumping stations range from 0.50 to 24 million gallons per day (MGD). Approximately 76 miles of sewer interceptors are operated by WLSSD including 43 miles of gravity interceptors and 33 miles of forcemain. The District also owns and operates four wastewater storage basins ranging from 200,000 gallons to 1,000,000 gallons in capacity.

Table 4-I below summarizes the total sewered and future sewered areas within WLSSD. Each service area is discussed in further detail later in this section.

Table 4-I, WLSSD Service Areas

Status	Within WLSSD Boundaries (sq. mi.)	Percent of WLSSD Area	Outside WLSSD Boundaries (sq. mi.)
Existing Sewered Areas	62.78	11.8%	1.63
Future Sewer (less than 10 years)	15.93	3.0%	0.00
Future Sewer (greater than 10 years)	21.99	4.2%	0.75
Areas of Concern	2.42	0.4%	4.22
Unsewered/No Current Plans	426.88	80.5%	N/A

Section 4.I: Existing Sewered Areas

Sewered areas are defined as the areas that are currently served by publicly owned sanitary sewers. The WLSSD collection system consists of a network of pumping stations, metering stations, interceptors and force mains involved in the transmission of municipal and industrial wastewater to the wastewater treatment plant (WWTP) located in Duluth. The municipal customers within the WLSSD area own, operate and maintain their own collection systems prior to entry into the WLSSD interceptor collection system.

Figure 4-I on the following page shows the existing WLSSD system of interceptors and pump stations.

Western Lake Superior Sanitary District
WASTEWATER COMPREHENSIVE PLAN

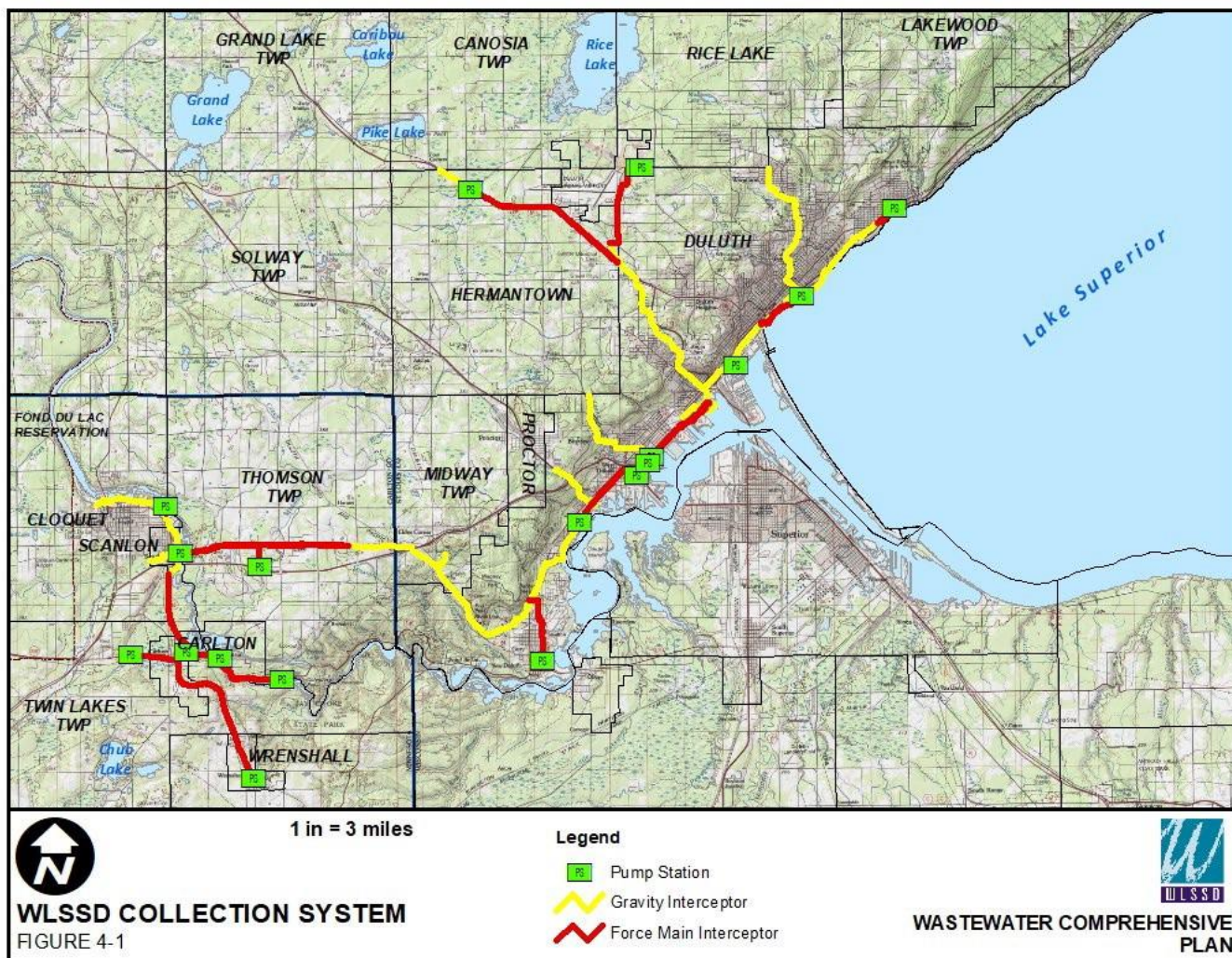


Table 4-2 on the following page illustrates the total population within WLSSD and distribution between sewered and unsewered communities. Unsewered areas are dependent upon some form of SSTs for wastewater management. The current population data reflects 2020 Census block data. The estimated sewered and unsewered population estimates were obtained by reviewing community plans and data from community leaders.

Approximately 19-percent of the population residing within the WLSSD area is not served by a public sewer system. This percentage is below the estimated 30-percent of Minnesota's population that is not served by a public sewer system as stated by the Minnesota Pollution Control Agency.

Table 4-2, WLSSD Estimated Sewered and Unsewered Populations

Community	2020 Population	Estimated Sewered Population	Estimated Unsewered Population
CARLTON COUNTY			
City of Carlton	948	887	61
City of Cloquet	12,568	9,933	2,635
City of Scanlon	987	987	0
Silver Brook Township	614	0	614
Thomson Township	5,465	2,220	3,245
Twin Lakes Township	2,093	142	1,951
City of Wrenshall	428	397	31
Carlton County WLSSD Subtotal:	23,103	14,566	8,537
<i>Percent of WLSSD - Carlton County:</i>		63.0%	37.0%
ST. LOUIS COUNTY			
Canosia Township	2,206	718	1,488
Duluth Township	2,309	467	1,842
City of Duluth	86,697	85,953	744
Grand Lake Township	2,720	254	2,466
City of Hermantown	10,221	7,963	2,258
Lakewood Township	2,276	68	2,208
Midway Township	1,431	200	1,231
City of Proctor	3,120	2,936	184
City of Rice Lake	4,112	740	3,372
Solway Township	1,957	0	1,957
St. Louis County WLSSD Subtotal:	117,049	99,299	17,750
<i>Percent of WLSSD - St. Louis County:</i>		84.8%	15.2%
OUTSIDE WLSSD LEGISLATIVE BOUNDARIES			
Oliver	370	195	175
KRLSD	230	210	20
TOTAL WLSSD SERVICE AREA	140,752	114,270	26,482
<i>Percent of WLSSD Total</i>		81.2%	18.8%

*Estimates calculated by using 2020 Census block data, local plans, and discussion with community leaders.

Section 4.2: Future Service Areas - Urban Services Boundary

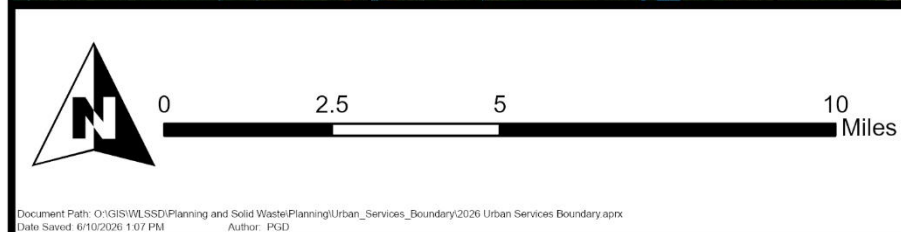
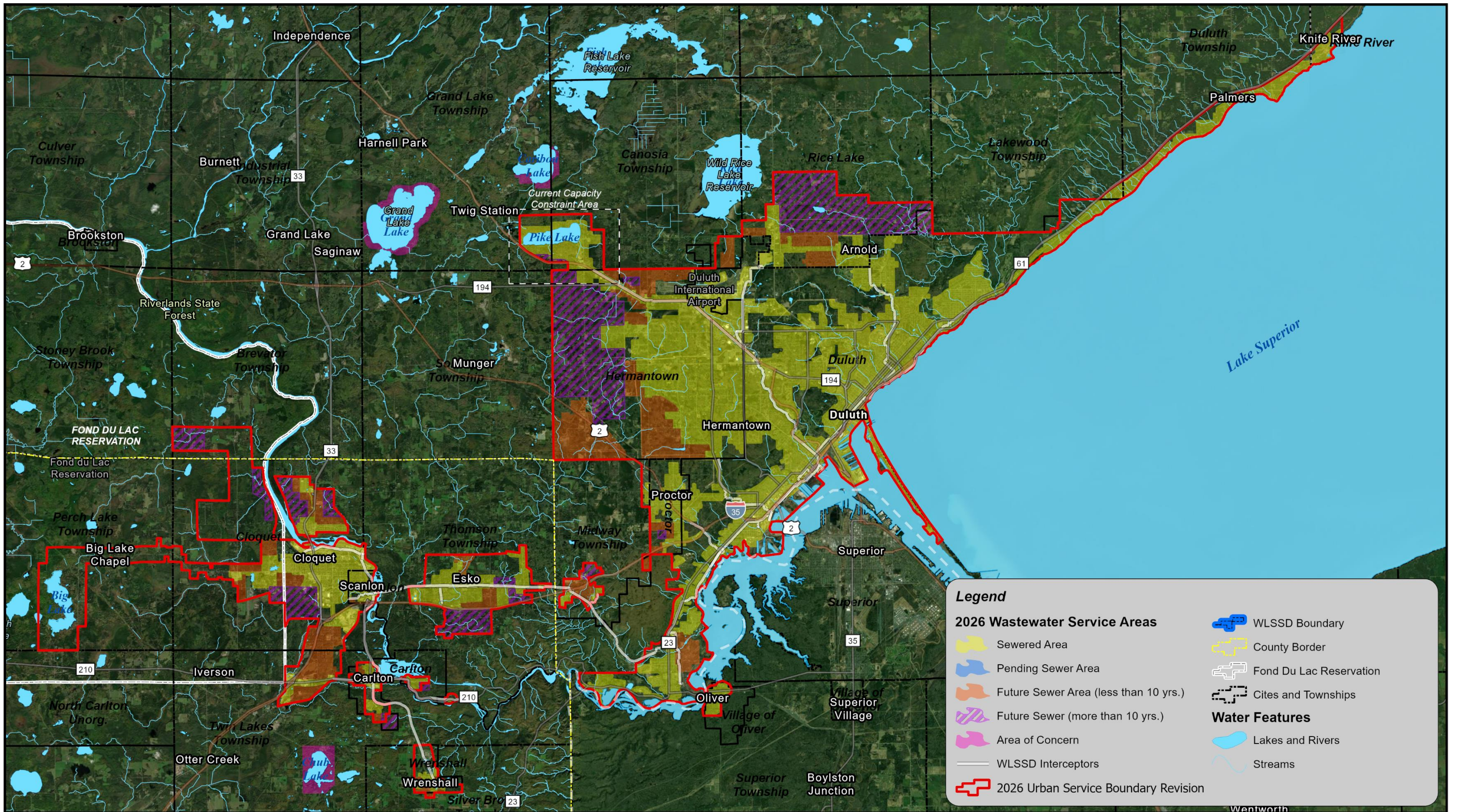
During the Comprehensive Planning process, District communities identified through their local comprehensive plans, areas where additional urban growth is likely to occur during the next 10-20 years. Urban growth would be characterized by higher density development served by public utilities such as sewer. Communities also identified those areas that are expected to retain more of their rural characteristics.

After consulting with each community within the District, the Urban Services Boundary (USB) originally developed during the 2003 update of the Wastewater Quality Master Plan, has been revised to reflect community plans. The purpose of the USB is to show the approximate location which public utilities, such as sanitary sewer, are appropriate for extension. Areas outside this boundary should be protected from urban sprawl or unorganized growth. Establishment of the USB insures controlled expansion of local sewer systems consistent with local Comprehensive Plans as well as the goals and policies of the WLSSD Comprehensive Plan and Capital Improvement Program.

The location of the USB will be evaluated again at the end of the planning period or at other times deemed necessary by the District Board. Requests to expand the USB would be evaluated on a case-by-case basis and at a minimum would need to be consistent with local comprehensive plans. Areas within the District boundaries will have priority in receiving technical assistance from the District in the evaluation of current problems and potential solutions. For areas outside of WLSSD boundaries, District staff may be available to provide support such as technical assistance or educational resources as time and funding allows.

Figure 4-2 shows the map depicting the WLSSD Urban Services Boundary. These areas are defined as follows:

- ❖ **Urban Services Boundary (USB)** – Within this area are the approximate locations which public utilities such as sanitary sewer are appropriate for expansion. Areas outside the USB should be protected from urban sprawl and/or unorganized growth. This is represented by the red outline in the map.
- ❖ **Sewered Area** – Areas currently served by publicly owned sanitary sewers. Wastewater is conveyed through the District's interceptor system and treated at the WLSSD regional wastewater treatment facility located in Duluth. This is represented by the yellow shaded areas in the map.
- ❖ **Pending Sewer Area** – These areas show locations where extending wastewater service is in the planning stages at the time of this Plan revision. This is represented by the light blue shaded areas on the map.
- ❖ **Future Sewer Areas** – These areas depict locations where communities have identified in their community plans as areas where sewer could likely be extended in either the short or long-term. This is represented by the orange shaded areas on the map.
- ❖ **Areas of Concern** – Areas within or just beyond the 530 square mile statutory boundaries of the WLSSD, which due to existing development densities and/or known wastewater management problems may require further investigation during the planning period. These areas are typically located around lakes and rivers that have small lots containing seasonal and/or year round homes and limited options for expanding, replacing or improving either their homes or subsurface sewage treatment systems (SSTS). Additionally, these areas would include areas zoned to accommodate large industrial or commercial uses. This is represented by the purple shaded areas on the map.
- ❖ **WLSSD Boundary:** - The WLSSD Boundary represents the legally defined area that encompasses the District. This is represented by the thick blue line in the map.



WLSSD Urban Services Boundary 2026 Revision



**WESTERN LAKE SUPERIOR
SANITARY DISTRICT**
DULUTH, MINNESOTA

Section 4.3: Subsurface Sewage Treatment Systems (SSTS)

Subsurface Sewage Treatment Systems are commonly known as septic systems. They are soil-based treatment systems used by homes and businesses which are not connected to municipal sewer. SSTS were formerly called Individual Sewage Treatment Systems (ISTS). While the terminology has changed to reflect changes in the septic system industry, a septic system is still a combination of tanks or other treatment devices providing initial treatment of sewage which ultimately discharging the sewage into the soil for final treatment. As with large wastewater facilities, SSTS need to be properly designed, installed, regulated and maintained.

SSTS treat sewage through a combination of biological, physical and chemical processes. They are designed to account for the daily wastewater flow, the type of distribution system (gravity or pressure), soil conditions of the site, and need the development of a biological layer (a biomat) for proper wastewater treatment. When properly designed, constructed and maintained they provide a high degree of sewage treatment and are a proven method of controlling the negative environmental effects of untreated sewage.

One decentralized community/cluster system presently exists within the boundaries of the WLSSD. This system is located on Grand Lake in Grand Lake Township and consists on 10-12 residential dwellings contributing wastewater to a community wetland treatment system. Another decentralized collection system that is currently in use is the Birch Point Subordinate Service District in Grand Lake Township. The system utilizes a septic tank effluent pump (STEP) point of use system. The STEP tanks send only effluent to the BioMicrobics FAST® system, which treats the effluent. There are multiple disposal fields at the treatment site, each of which is utilized on a randomized basis. The cost of the construction and operation of the system has been paid by the residents who are connected to the system. Eighty-one percent of the system was funded by grant funds.

4.3.1 : Responsible Units

State of Minnesota

Minnesota Rules, Chapter 7080-7083 (Subsurface Sewage Treatment System Standards or SSTS) administered by the Minnesota Pollution Control Agency (MPCA) provide technical standards and guidance for the siting, design and construction of on-site systems. Minnesota Statutes, Chapter 103F requires counties and municipalities to adopt and enforce these standards within designated floodplain, shoreland and wild and scenic river areas. Outside the designated areas, Chapter 7080-7083 rules act only as a guidance document to counties and municipalities.

The 1995 legislation, known as the ISTS Act, has been codified as Minn. Stat. §§ 115.55 and 115.56. The Act has been amended in recent years, with major changes in 1996 and again in 2008. The purpose of this legislative activity was to address the serious problems associated with failing ISTS. The law has brought increased attention and regulation to a problem of which many citizens and community leaders were previously unaware.

Counties, Municipalities, and Towns

The St. Louis County Planning and Community Development Department - Onsite Wastewater Division administers the Subsurface Sewage Treatment System Ordinance 61, along with incorporating by reference the minimum standards established by Minnesota statutes and administrative rules of the Minnesota Pollution Control Agency (MPCA).

In St. Louis County, municipalities and townships with individual zoning authority make use of County staff for approval of new SSTS systems and rehabilitations. For example, in the City of Hermantown this arrangement works well because the City does not relinquish its zoning authority, however St. Louis County staff expertise is

utilized relating to SSTS. The County also conducts SSTS approvals, inspections and enforcement in the remaining rural townships within the WLSSD service area.

The Carlton County Zoning and Environmental Services Department administers the Subsurface Sewage Treatment System Ordinance (Ordinance #30) in all areas of the County. Carlton County permits and inspects all new installations, replacements and repairs of systems.

Western Lake Superior Sanitary District

The enabling statute of the WLSSD, Chapter 458D is quite specific to the purposes of the District as a regional government unit. Section 458D.01 established a sanitary board to be *“assigned the responsibility of carrying on a continuous long range program of planning with respect thereto and given the authority to take over, acquire, construct, better administer, operate and maintain any and all interceptors and treatment works needed for the collection, treatment and disposal of sewage and solid waste in such area, as well as local sanitary sewer facilities over which the Board agrees to assume responsibility at the request of any local government unit.”*

The statute does not mention subsurface sewage treatment system authority as an intended purpose for the District. In the absence of specific authority, it is potentially problematic to assume such where none explicitly exists and there could be administrative risks to the District with such assumption. However, there is an indirect role for the District in SSTS authority from a planning perspective. Section 458D.05 states that the Board shall prepare and adopt a comprehensive plan for *“the collection, treatment and disposal of sewage in all or a designated part of the District through a system of interceptors and treatment works...etc.”*

The collection of sewage is generally accepted as a role for local government. Sewage collection system need is often driven by the following:

- ❖ Comprehensive land use planning which dictates development densities requiring such service;
- ❖ Existing development with failing SSTS which can sometimes be more cost effectively replaced with a collection system; and
- ❖ Environmental conditions which do not allow for effective installation, operation or design life of SSTS.

The transport of sewage through an interceptor and its treatment may either be a local or regional responsibility. In this case, the WLSSD has the authority for transport and treatment through Chapter 458D. The issue of land use and comprehensive planning as discussed elsewhere in the plan provides an indirect role for the District in SSTS authority. This occurs when a local government requests the transport of sewage anticipated from an existing or future collection system versus continuing with the construction or maintenance of subsurface sewage treatment systems.

4.3.2: Constraints

Significant portions of Carlton County contain soils that have severe limitations for SSTS. Specifically, Thomson Township contains soil types, which are well-drained, but have slow water percolation rates. Therefore, sewage treatment systems may become hydraulically overloaded and fail to function properly.

The north shore area of Lake Superior has variable conditions for soil thickness with ledge rock often outcropping. Experience has found that a site-specific soils survey is required at the time of an SSTS suitability determination. However, this is often too late for the landowner to discover that the site may have an SSTS limitation. It is apparent that soils characteristics are a limiting factor for the location of subsurface sewage treatment systems in a significant portion of the WLSSD area.

4.3.3 : **Inspection and Monitoring Needs**

Long-term protection of the environment requires that inspection and monitoring of SSTS continue by the responsible local government unit particularly in those areas most susceptible to contamination (e.g., shoreland zones). Inspection should continue to be the primary responsibility of local government (county and city). Monitoring needs refer to field and administrative actions, which can be implemented to address how well the SSTS program is administered by local government.

4.3.4 : **Managed On-Site Treatment Systems**

The WLSSD Wastewater Comprehensive Plan contemplates that in certain areas management of wastewater generated from a home or business would continue to utilize on-site systems. In these areas, systems continue to be managed by the user, with County oversight (St. Louis or Carlton), under rules established by the Legislature and the Minnesota Pollution Control Agency (MPCA). Costs of construction, maintenance, and operation are typically the responsibility of the property owner.

In certain communities, poor soil conditions, high population densities, small lot sizes or persistent failures of on-site systems have made continued management by the home or business owner a less than desirable alternative. Often the only solutions recommended in these areas have been to connect to a centralized sewer system for ultimate treatment either at WLSSD or at a decentralized treatment site. An option available that stands between publicly owned collection systems and individually owned on-site systems are managed on-site systems.

A system of managed on-site treatment systems could entail different levels of control, but in each case it would mean that the property owner would give up some or all control of the on-site treatment system in exchange for management by a third party. The third party could be the local unit of government (i.e., township, city, county or an entity similar to the Pike Lake Area Wastewater Collection System (PLAWCS) or the Duluth North Shore Sanitary District (DNSSD). In exchange for the third party having control of the on-site system, the property owner would receive services on their system, and payment for such services would be collected in a way that all property owners could benefit equitably from being part of the managed on-site system area.

On-site system management could come in various levels of control beyond the direct control of the property owner. The following decentralized wastewater management models, from the least comprehensive to the most comprehensive, are shown below as described by the Environmental Protection Agency (EPA).

❖ **Homeowner Awareness Model**

This model is well suited to areas of low environmental sensitivity where sites are suitable for conventional onsite systems. In this case, systems are sited and constructed on prescribed criteria and the homeowner is provided with maintenance reminders. This system is relatively easy to implement, however there is often times no compliance mechanism in place.

❖ **Maintenance Contract Model**

This model is best suited for areas with low to moderate environmental sensitivity where sites are marginally suitable for conventional onsite systems due to small lots, shallow soils or low-permeability soils. They are often times found in small cluster systems. Under the Maintenance Contract Model there is a lower risk of treatment system malfunctions, however, like the Homeowner Awareness Model there is some degree of difficulty tracking and enforcing compliance due to the reliance on the owner or contractor to report a lapse in services.

❖ ***Operating Permit Model***

A typical application of this model is found in areas of moderate environmental sensitivity where sites are marginally suitable for conventional onsite systems due to small lots, shallow solids or low permeability soils. This system uses regular compliance monitoring reports and non-compliant systems are identified and corrective actions are required.

❖ ***Responsible Management Entity (RME) Operation***

This model is best suited for areas of moderate to high environmental sensitivity where reliable and sustainable system management is required. This application is frequently found in cluster systems. Operations and maintenance responsibility is transferred from the system owner to a professional management entity that holds the operating permit. Typically, there is one permit for each group of systems. The RME must have the approval of the property owner for repairs which could result in a conflict if performance problems are identified by the RME and not corrected by the property owner.

❖ ***Responsible Management Entity (RME) Ownership Model***

This management model is typically found in areas of greatest environmental sensitivity, where reliable management is required. This includes sole source aquifers, wellhead or source water protection zones, critical aquatic habitats, and outstanding value resource waters. This is the preferred management model for cluster systems serving multiple properties under different ownership. The model provides the greatest protection of environmental resources and homeowner investment and also removes the potential conflicts between the user and the RME as discussed in the previous model. This system offers a high level of oversight if system problems occur.