WASTEWATER FACILITIES

Sanitary Sewer System

Background

The City of Lake Elmo's sewer plan is based on the Memorandum of Understanding approved by the City of Lake Elmo and the Metropolitan Council dated January 27, 2005 and as subsequently amended. This plan meets the intent of that agreement and has been drafted to comply with the housing, population, and employment projections as incorporated into the Land Use Plan.

Existing Sanitary Sewer

The Southeast 1/4 of Section 33 is within the Metropolitan Urban Service Area (MUSA) Boundary at this time. By agreement with the City of Oakdale this area discharges to a City of Oakdale sanitary sewer main in Hudson Boulevard. From there it enters the WONE interceptor. Under the agreement with the City of Oakdale, Lake Elmo is limited to the amount it can discharge.

Sanitary Sewer Plan

The MCES plans to extend a new sewer connection for the City of Lake Elmo to serve the east 1/2 of Section 33 and all of Section 34. The connection will be near the City's existing lift station, and that lift station will continue to be active and maintained by the City.

Additionally, the MCES will extend the Cottage Grove Ravine interceptor to serve the remainder of the City south of 10th Street and the Village Planning Area.

The City will install a lift station-forcemain system to covey wastewater to the MCES interceptor from the Village Planning Area. This lift station-forcemain system will be designed to serve the planned 900 new housing units and approximately 200 existing housing units. The City plans to build this system in 2013.

Sanitary sewer service will also be initiated to serve portions of the City south of 10th Street beginning in 2013 by extending gravity sewer in two locations. In the southeast side of Lake Elmo, gravity sewer will be connected to the MCES Cottage Grove Ravine Meter Station in Lake Elmo, and extended north to support development in the immediate area of the sewer main. In the southwest side of Lake Elmo, a gravity sewer and lift station-forcemain system will be constructed to support development in the remaining east ½ of Section 33 and in Section 34.

The existing units in the Cimarron manufactured home park will be served by regional sewer between 2020 and 2030. This flow is included in the forecasts. Cimarron will need to install a lift station in order to be served by regional sewer. The existing homes and businesses in the Village Planning Area of Lake Elmo are assumed to be served by regional sewer between 2013 and 2030. That flow has also been included in the forecasts.

The City has identified an area along Olson Lake Trail in the Tri-Lakes area that will be served with public sanitary sewer via an extension from the City of Oakdale. A sanitary sewer services agreement has been entered to facilitate this extension. The City of Lake Elmo will work with the City of Oakdale to connect existing homes as public projects occur or as when otherwise feasible to make these connections.

Requirements for Areas Served by the Regional System

Community Forecast for Areas Served by Regional Sewer Service (REC Units)

The following table provides projections of future sewer units (REC units) that will connect to the regional interceptors, including all new sewer units and any existing units that are projected to connect into the system.

Table 6-A
Forecast of Lake Elmo REC Units by Sewer Interceptor

Year	New REC Units		Existing REC Units		Total
	WONE	Cottage Grove	WONE	Cottage Grove	
2010	0	0	100	0	100
2011	0	0	100	0	100
2012	0	0	100	0	100
2013	0	0	100	0	100
2014	60	40	100	0	200
2015	375	140	100	0	615
2016	520	326	130	20	996
2017	665	512	160	40	1377
2018	810	698	190	60	1758
2019	955	884	220	80	2139
2020	1100	1070	250	100	2520
2021	1200	1270	270	150	2890
2022	1300	1470	290	200	3260
2023	1400	1670	300	367	3737
2024	1500	1870	300	533	4203
2025	1600	2070	300	700	4670
2026	1600	2456	300	700	5056
2027	1600	2842	300	700	5442
2028	1600	3228	300	700	5828
2029	1600	3614	300	700	6214
2030	1600	4000	300	700	6600

Sanitary Sewer Plan Map

The Sewer Staging Plan Map (**Map 6-1**) shows sewer service staging in three phases in accordance with the Land Use Plan. The staging plan will be revised to reflect any future updates to the Memorandum of Understanding between the City and the Metropolitan Council.

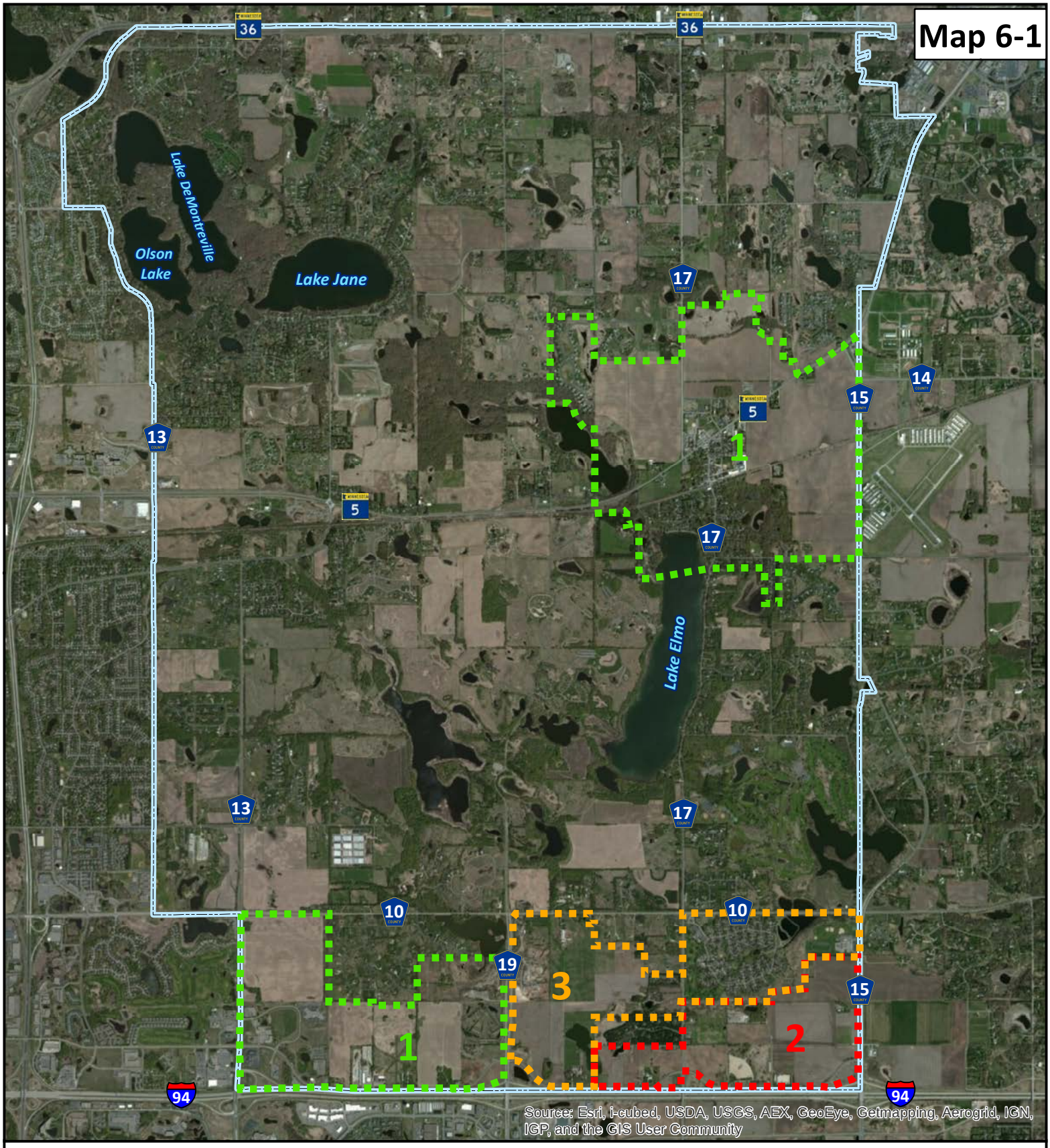
The Sewer Service Area – Tri Lakes Map (**Map 6-2**) shows the sewer service area for existing homes to be provided with service along Lake Olson. There is no specific time frame identified for this area, but connections are expected to begin in 2013.

Projected Flows for Each MCES Interceptor Service Area (MGD)

Table 6-B
Projected Flows by Interceptor (MGD)

Year	WONE	Cottage Grove	Totals
2010	0.03	0.00	0.03
2014	0.04	0.01	0.05
2015	0.13	0.04	0.17
2016	0.18	0.09	0.27
2017	0.23	0.15	0.38
2018	0.27	0.21	0.48
2019	0.32	0.26	0.59
2020	0.37	0.32	0.69
2025	0.52	0.76	1.28
2030	0.52	1.29	1.81

Flows are based on 1 residential equivalent unit = 274 gallons per day



Regional Sewered Staging Plan

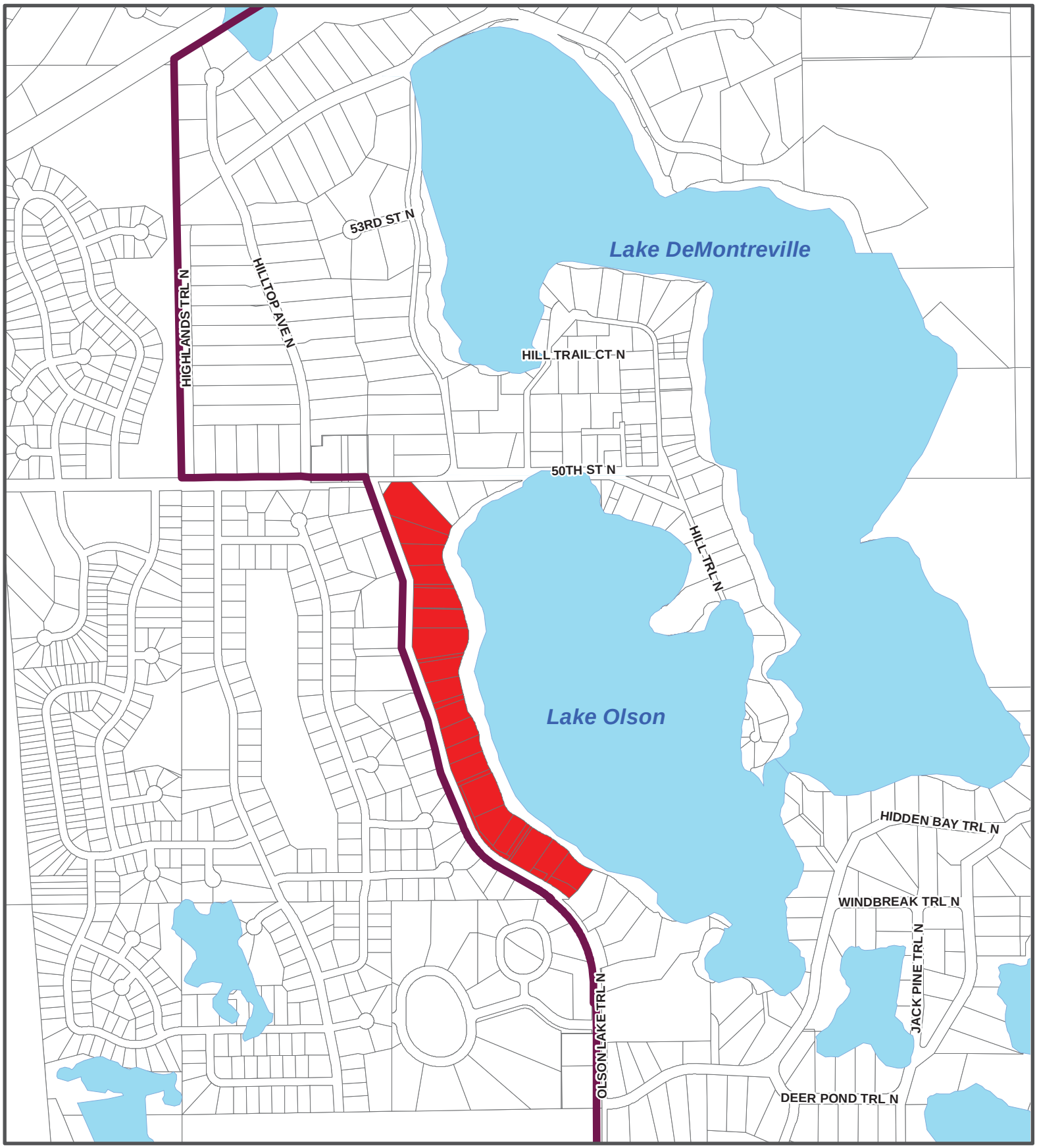
THE CITY OF LAKE ELMO

Data Source: Washington County, MN
8-16-13

Stage 1
Stage 2
Stage 3

N

0 0.25 0.5 1 Miles



Sewer Service Area - Tri Lakes

Lake Elmo Comprehensive Plan Update

THE CITY OF LAKE ELMO

Map Date:
April 22, 2013

N

0 125 250 500 750 1,000 Feet

Future Public Sewer Service Area

Map 6-2

Land Use Plan Map

The general plan for providing sanitary sewer to the planned service areas is described in **Map 6-3**.

City Goals, Policies and Strategies Concerning Infiltration and Inflow

The City of Lake Elmo's goal is to have no inflow or infiltration into its sewer system, and to attain the goal of preventing and reducing excessive infiltration and inflow into the local sewer system the City will observe the following procedures:

- All sewer mains will be air tested in accordance with the Minnesota City Engineers Association Standards for Utility Construction.
- All new sewer mains will be televised.
- Homes and businesses will be checked for sump pump discharge into the sewer system prior to issuance of a Certificate of Occupancy.
- The City will monitor its actual sewer flows during storm events to see if there is an increase in sewer discharge.
- The City will develop a schedule to inspect and clean all sewers.

Should excessive inflow and infiltration be a concern in the future, the City will adopt additional policies to remedy the situation.

Requirements for Areas Not Served by the Regional System

Description of the City's Current Management Program

The City has adopted Chapter 4: *Subsurface Sewage Treatment System Regulations* of the Washington County Development Code by reference. A copy of the City's Ordinance and a description of the SSTS monitoring system are included as an Appendix. Washington County currently monitors SSTS installations and administers the code for the City.

Cimarron Manufactured Home Park operates and maintains a packaged treatment plant with a capacity of 0.15 MGD. There is a State permit for this facility.

Map of Existing Public Septic Systems

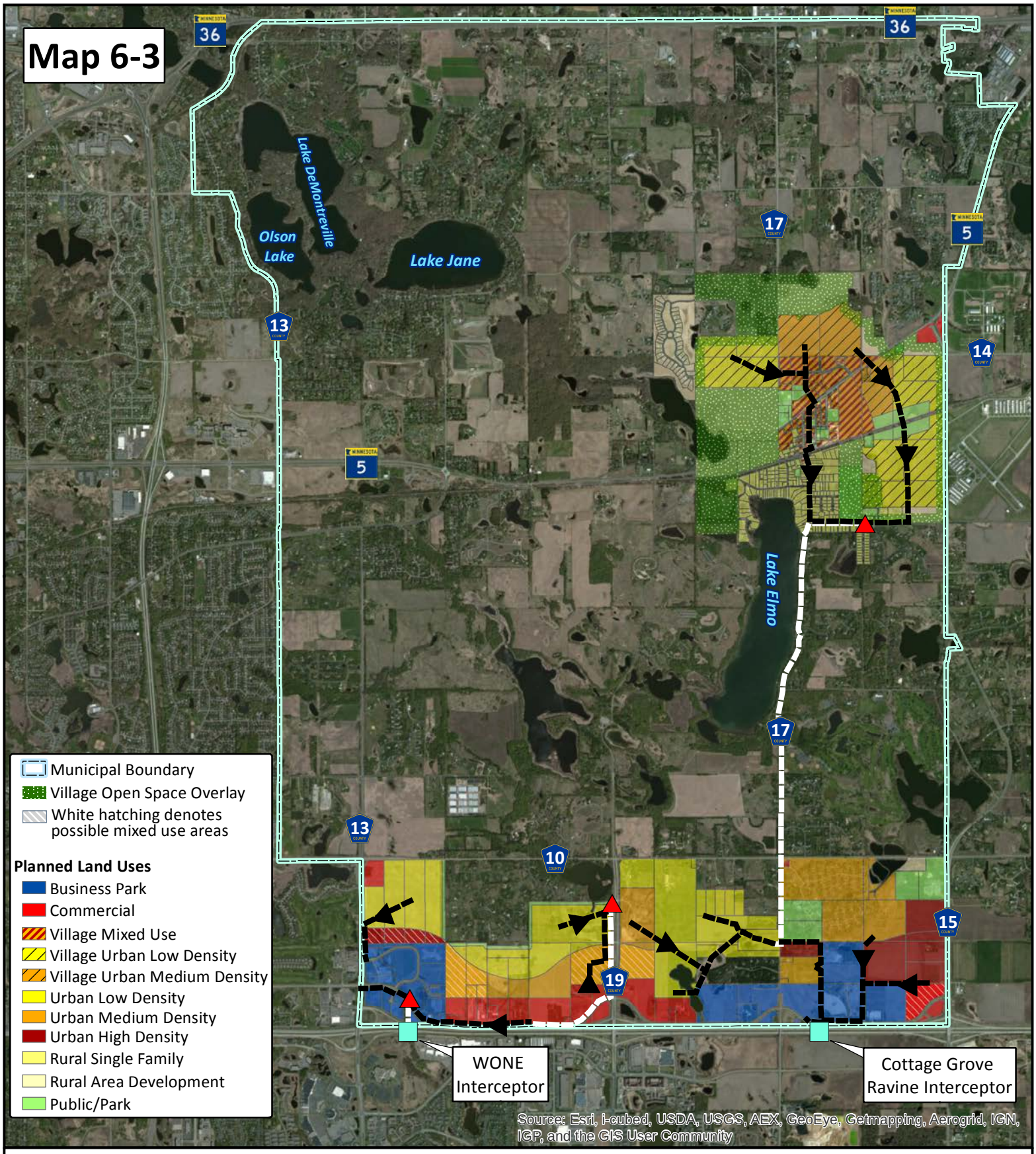
Map 6-4 entitled *Existing 201 Common Wastewater Systems* identifies the City's existing public septic systems.

Conditions Under Which Septic Systems Are Allowed

Septic Systems are allowed for all land uses within the City outside of the planned sewer service areas in accordance with Chapter 4: *Subsurface Sewage Treatment System Regulations* of the Washington County Development code as adopted by reference by the City of Lake Elmo.

Capacity and Flows to Public and Private Septic Systems

The capacity and flows to public and private septic systems are listed in **Table 6-C** and **Table 6-D**.



Future Land Use - Sewer Plan

THE CITY OF LAKE ELMO

Data Source: Washington County, MN
8-19-13

Gravity Sewer
Forcemain Sewer
Lift Station
MCES Interceptor

N

Miles
0 0.5 1

Private Community Wastewater Treatment Systems

Map 6-5 *Private Community Wastewater Treatment Systems* shows the privately owned sewage treatment systems that have been constructed in the City. These private systems have been built since 1998. The city at the time decided to allow "performance based" sewage treatment systems, in accordance with Minnesota Rules 7080. To date, all of these private systems are located in new residential subdivisions. The homeowners within these new subdivisions are responsible for ownership, operation and maintenance. The Private Community Wastewater Treatment Systems consist of "wetland treatment systems" or "community drainfield systems".

Systems over 10,000 gallons per day have a State Disposal Permit.

A list of the Private Community Wastewater Treatment Systems are incorporated as part of **Table 6-C**.

Table 6-C
Private Community Wastewater Treatment Systems

Subdivision	Number of Homes	Design Flow (GPD)	State Permit
Fields of St. Croix	135	35,589	Yes
Tana Ridge	20	5,841	Yes
Tamarack Farm Estates	20	4,000	No
Hamlet on Sunfish Lake	41	8,200	Pending
Prairie Hamlet	14	2,800	No
Wildflower Shores	25	3,600	No
Carriage Station	111	44,875	Yes
Whistling Valley (I-III)	46	20,000	Yes
Tapestry	67	25,125	Yes
Farms of Lake Elmo	33	12,375	Yes
Discover Crossing	28	9,045	No
St. Croix's Sanctuary	62	20,000	Yes
Hidden Meadows	Church & 25 Homes	13,375	Yes

City-Owned 201 Wastewater Treatment Systems

In the late 1980's, the City of Lake Elmo participated in the Federal 201 program which provided grant funds to help communities build shared wastewater treatment systems. The City of Lake Elmo designed and constructed eight (8) 201 shared wastewater treatment systems under this program to replace failing septic systems on private property. The systems provided individual septic tanks for private

properties with shared wastewater drain fields and were constructed in the Old Village and Tri-Lakes areas.

Map 6-5: *Existing 201 Shared Wastewater Treatment Systems* shows the location of these systems, which include the following facilities:

Table 6-D

City-Owned 201 Wastewater Treatment Systems

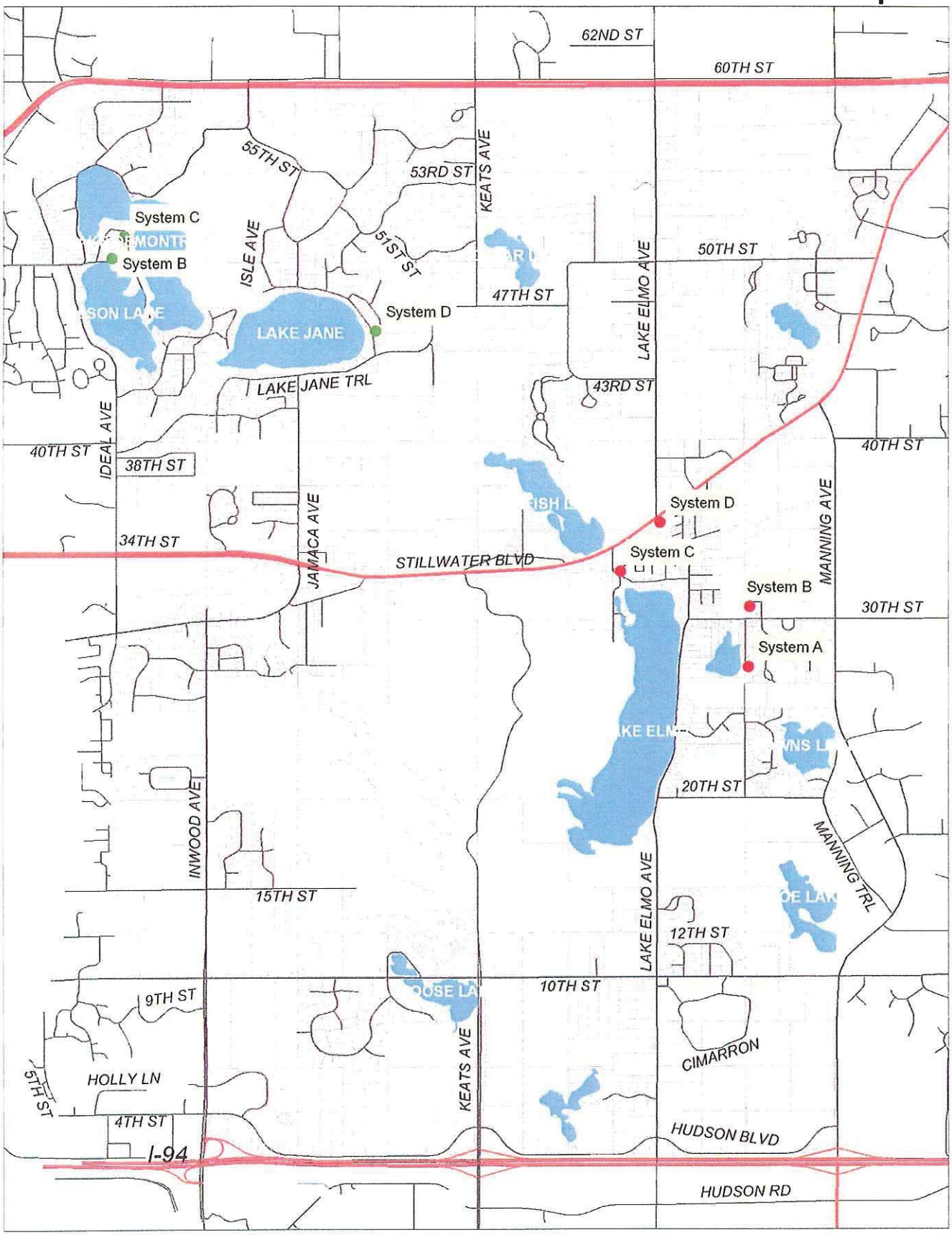
Facility	Number of Connections	Design Flow (GPD)
Old Village Remote A	6	3,750
Old Village Remote B	6	2,700
Old Village Remote C	8	1,500
Old Village Remote D	6	4,440
Tri-Lakes Remote A	1	450
Tri-Lakes Remote B	3	1,500
Tri-Lakes Remote C	2	600
Tri-Lakes Remote D	3	1,350
Tri-Lakes Remote E	1	450

Future Sewer Plans

The City has no plans to expand the area served by the Regional Sewer System outside of the areas shown in **Map 6-1** *Sewer Staging Plan Map* except for those areas specified in the Tri-Lakes area and depicted on **Map 6-2** *Sewer Service Area – Tri Lakes Map*. The City will continue to work with the City of Oakdale to potentially extend sewer services into the Tri-Lakes area to serve the future service areas identified in this map. Within the planned Regional Sewer System, the City will abandon all City-owned septic systems in the Village Area at the time of connection to sanitary sewer. The City does not plan to construct a local sewage treatment plant.

Private sewage treatment systems may be constructed in new residential developments by developers as necessary outside of the areas that have been guided for public sanitary sewer services. The installation of new private systems will occur at the time new homes are built.

Map 6-4



EXISTING 201 COMMON WASTEWATER SYSTEMS

Lake Elmo Comprehensive Plan 2005 - 2030

Limitation of Liability

This document is not a legally recorded map or survey and is not intended to be used as one. This map is a compilation of records and information from various state, county, and city offices and other sources.

Map Date: August 24, 2005

Created By: TKDA

ENGINEERS ARCHITECTS PLANNERS

N W E S

0 600 1,200 2,400 3,600

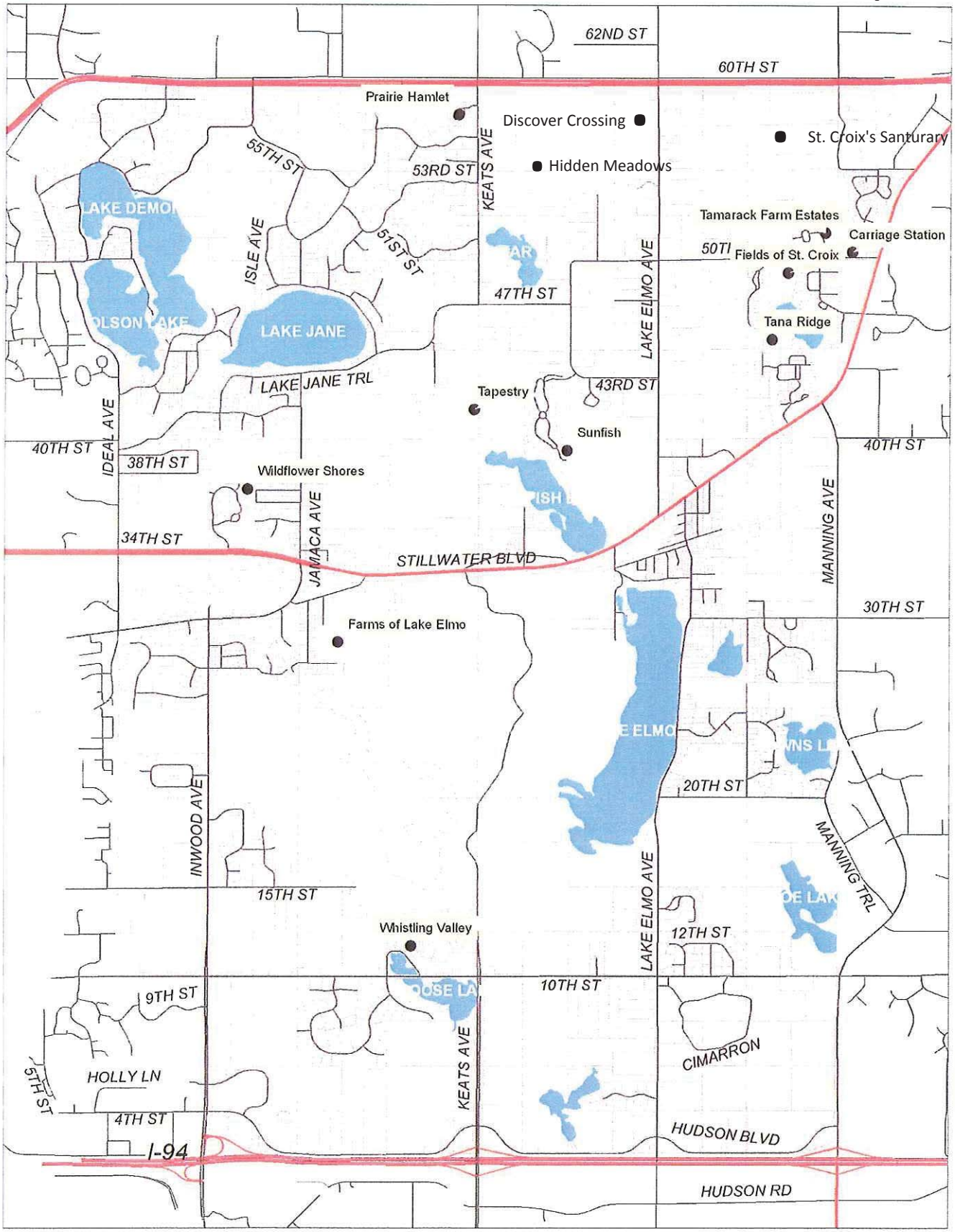
Feet

Legend

- Old Village System
- Tri-Lakes System

Lake Elmo City Boundary

Map 6-5



ENGINEERED WETLAND TREATMENT SYSTEMS

Lake Elmo Comprehensive Plan 2005 - 2030

Limitation of Liability

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Map Date: August 24, 2005

Created By: TKDA

ENGINEERS ARCHITECTS PLANNERS

N W E S

0 600 1,200 2,400 3,600

Feet

Treatment Systems

Wetland Treatment Location

Lake Elmo City Boundary